

**COMPENDIUM
OF
VERBATIM STATEMENTS
ON VERIFICATION**

**VOLUME
1
OF
3**

**THE EIGHTEEN NATION
COMMITTEE ON DISARMAMENT
1962 - 1969**

**ARMS CONTROL AND DISARMAMENT DIVISION
DEPARTMENT OF EXTERNAL AFFAIRS
OTTAWA, CANADA**

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VOLUME I
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Compendium of Verbatim Statements on Verification

Preface

This volume is compiled from the Provisional Verbata of the United Nations Eighteen-Nation Committee on Disarmament (ENDC) which met in Geneva from 1962-1969. It contains the major statements made on the issue of verification of arms control and disarmament proposals. It is intended to be used as a resource volume to provide easy access to statements on national positions on verification and to aid those who wish to investigate the development of those positions over a period of time.

The statements are presented in chronological order. To aid in the use of this volume, the List of Verbatim Statements by Issue organizes the statements according to the arms control issue being discussed. There were eight major issues discussed in the ENDC: complete and general disarmament, the cessation of nuclear tests, the cut-off of production of fissionable material, a freeze on strategic nuclear delivery vehicles, a comprehensive test ban, a chemical and biological weapons prohibition, the non-proliferation treaty, and the prohibition of nuclear weapons on the sea-bed. The List of Statements by Nation organizes the statements by nation. A coded reference is included in this list to indicate the issue being discussed in each statement.

The statements were originally compiled during a study on national positions on verification conducted in 1983 at the Centre for International Relations for the Department of External Affairs. The collection was expanded in 1984 during a period of research at the United Nations Institute for Disarmament Research, Geneva, which was made possible by the Department of

External Affairs. The assistance of Mrs. Mary Kerr, who diligently transcribed the statements and assisted in the proof-reading, has been invaluable in preparing these volumes.

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ENDC/PV.207 pp.22-24	USSR/Tsarapkin	13.8.64	244
ENDC/PV.215 pp.50-52	USA/Foster	10.9.64	253
ENDC/PV.246 pp.36-37	USA/Fisher	8.3.66	270
ENDC/PV.256 pp.13-16	USA/Foster	14.4.66	284
ENDC/PV.281 pp.5-8	Sweden/Myrdal	11.8.66	304
ENDC/PV.306 pp.7-8	Canada/Burns	20.6.67	312
ENDC/PV.401 pp.5, 7-10	USA/Fisher	8.4.69	373
ENDC/PV.414 pp.11-14	Italy/Caracciola	22.5.69	390
ENDC/PV.415 pp.23-26	USA/Fisher	23.5.69	400
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ENDC/PV.178 pp.29-30	Czechoslovakia/Zemla	26.3.64	222
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ENDC/PV.226 pp.11-13	Canada/Burns	24.8.65	256
ENDC/PV.230 pp.22-23	USA/Foster	7.9.65	263
ENDC/PV.277 pp.4-6	USA/Fisher	28.7.66	300
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ENDC/PV.281 pp.5-8	Sweden/Myrdal	11.8.66	304
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Explanation of Issue Codes

CBW: Chemical and Biological Weapons
 CGD: Complete and General Disarmament
 CNT: Cessation of Nuclear Tests
 C-O: Cut-off of Production of Fissionable Materials
 CTB: Comprehensive Test Ban
 FRZ: Freeze on Strategic Nuclear Delivery Vehicles
 LA: Latin American Nuclear Free Zone
 NPT: Non-Proliferation Treaty
 SB: Prohibition of Nuclear Weapons on the Sea-bed

Brazil

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ENDC/PV.39	pp.16-19	de Mello-Franco	18.5.62	CGD	63
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ENDC/PV.293	p.15	Azeredo da Silveira	14.3.67	LA	307
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ENDC/PV.66	pp.20-22	Burns	6.8.62	CGD	96
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ENDC/PV.193 pp.22-23	Burns	25.6.64	C-O	238
ENDC/PV.226 pp.11-13	Burns	24.8.65	NPT	256
ENDC/PV.231 p.34	Burns	9.9.65	CTB	264
ENDC/PV.237 p.22	Burns	3.2.66	CTB	266
ENDC/PV.272 p.7	Burns	12.7.66	CTB	299
ENDC/PV.306 pp.7-8	Burns	20.6.67	C-O	312
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ENDC/PV.329 pp.5-6	Burns	12.9.67	NPT	327
ENDC/PV.332 pp.4-9	Burns	21.9.67	CTB	328
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ENDC/PV.34 p.23	Hajek	9.5.62	CNT	54
ENDC/PV.63 pp.34-35	Hajek	30.7.62	CGD	91
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ENDC/PV.197	pp.13-16	Pechota	9.7.64	FRZ	240
ENDC/PV.213	pp.54-55	Klusak	3.9.64	CTB	253
ENDC/PV.230	p.17	Cernik	7.9.65	CTB	263
ENDC/PV.272	pp.15-16	Cernik	12.7.66	CTB	300
ENDC/PV.327	p.16	Winkler	31.8.67	NPT	326
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ENDC/PV.40	pp.47-48	Lall	21.5.62	CGD	70
ENDC/PV.47	pp.7-9	Lall	1.6.62	CGD	75
ENDC/PV.67	pp.26-29	Lall	8.8.62	CGD, CNT	100

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India

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ENDC/PV.174	pp.18-20	Trivedi	12.3.64	NPT	215
ENDC/PV.187	pp.59-60	Nehru	28.4.64	NPT,CGD	233
ENDC/PV.269	p.10	Trivedi	30.6.66	CTB	293
ENDC/PV.334	pp.13-15	Trivedi	28.9.67	NPT	334
ENDC/PV.370	pp.9-10	Husain	27.2.68	NPT	349
ENDC/PV.404	pp.22-23	Husain	17.4.69	CTB	379
ENDC/PV.428	pp.11-14	Husain	14.8.69	SB	418

Italy

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ENDC/PV.13	p.33	Cavalletti	2.4.62	CNT	19
ENDC/PV.21	p.6	Cavalletti	16.4.62	CNT	30
ENDC/PV.24	p.24	Cavalletti	19.4.62	CNT	42
ENDC/PV.49	p.32	Cavalletti	25.6.62	CGD	78
ENDC/PV.103	pp.6-7	Cavalletti	27.2.63	CNT	181
ENDC/PV.175	p.36	Cavalletti	17.3.64	CGD	221
ENDC/PV.392	pp.13-14	Caracciolo	22.8.68	CTB	367
ENDC/PV.410	pp.19-20	Caracciola	13.5.69	SB	384
ENDC/PV.414	pp.11-14	Caracciola	22.5.69	CTB,C-O	390
ENDC/PV.423	pp.14-15	Caracciola	29.7.69	SB	408

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Japan

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ENDC/PV.416	pp.25-26	Asakai	3.7.69	CTB,C-O	403
ENDC/PV.424	pp.17-22	Asakai	31.7.69	CTB	412

Mexico

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ENDC/PV.14	pp.18-19	Padillo Nervo	3.4.62	CNT	23
ENDC/PV.34	pp.17-18	Padilla Nervo	9.5.62	CNT	53
ENDC/PV.85	pp.35-37	Padilla Nervo	28.11.62	CNT	155
ENDC/PV.246	pp.8-10	Gomez Robledo	8.3.66	CTB	267
ENDC/PV.269	pp.26-27	Gomez Robledo	30.6.66	CTB	294
ENDC/PV.287	pp.26-27	Garcia Robles	21.2.67	LA	306
ENDC/PV.331	pp.10-11	Castaneda	19.9.67	CTB	328
ENDC/PV.426	pp.20-22	Castaneda	7.8.69	SB	416

Mongolia

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ENDC/PV.430	pp.13-14	Dugersuren	21.8.69	CTB	425

Nigeria

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ENDC/PV.31	pp.6, 8	Atta	4.5.62	CGD	48
ENDC/PV.142	pp.8-9	Mbu	10.6.63	CNT	201
ENDC/PV.192	p.15	Obi	23.6.64	CTB	236

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ENDC/PV.228	pp.10-11	Obi	31.8.65	CTB	257
ENDC/PV.327	p.22	Alhaji Sule Kolo	31.8.67	CTB	327
ENDC/PV.411	pp.6-7, 9	Alhaji Sule Kolo	15.5.69	CTB,SB	385
ENDC/PV.430	pp.20-21	Alhaji Sule Kolo	21.8.69	SB	426

Pakistan

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ENDC/PV.429	pp.25-27	Shahi	19.8.69	CTB	422

Poland

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ENDC/PV.6	p.8	Rapacki	21.3.62	CNT	5
ENDC/PV.38	pp.10-11	Naszkowski	16.5.62	CGD	59
ENDC/PV.129	pp.23-24	Blusztajn	8.5.63	CGD	196
ENDC/PV.234	pp.13-14	Goldblat	16.9.65	CTB	265
ENDC/PV.248	p.30	Blusztajn	15.3.66	CGD	276
ENDC/PV.326	p.8	Goldblat	29.8.67	NPT	324
ENDC/PV.359	p.5	Blusztajn	25.1.68	NPT	340

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Romania

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ENDC/PV.14	p.15	Macovescu	3.4.62	CNT	22
ENDC/PV.145	pp.13-14	Macovescu	17.6.63	CNT	202
ENDC/PV.362	pp.6-7	Ecobesco	6.2.68	NPT	340
ENDC/PV.376	pp.6-8	Ecobesco	11.3.68	NPT	351
ENDC/PV.409	p.22	Ecobesco	8.5.69	CTB	384
ENDC/PV.424	pp.31-32	Ecobesco	31.7.69	SB	415

Sweden

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ENDC/PV.13	pp.47-48	Edberg	2.4.62	CNT	21
ENDC/PV.64	pp.13-17	Myrdal	1.8.62	CNT	92
ENDC/PV.84	pp.14-15	Edberg	28.11.62	CNT	149
ENDC/PV.84	pp.19-23	Edberg	28.11.62	CNT	150
ENDC/PV.100	pp.26-27	Myrdal	20.2.63	CNT	176
ENDC/PV.154	p.17	Baron von Platen	22.8.63	FRZ	205
ENDC/PV.156	pp.23-24	Myrdal	29.8.63	CGD	205
ENDC/PV.174	pp.6-8	Lind	12.3.64	CGD	213
ENDC/PV.222	p.18	Myrdal	10.8.65	CTB	255
ENDC/PV.247	pp.16-23	Myrdal	10.3.66	CTB	271
ENDC/PV.256	pp.4-9	Myrdal	14.4.66	CTB	281
ENDC/PV.281	pp.5-8	Myrdal	11.8.66	C-O,CTB	304
ENDC/PV.300	pp.7-11	Myrdal	30.5.67	NPT	309
ENDC/PV.309	p.9	Myrdal	29.6.67	CTB	313
ENDC/PV.315	pp.5-6	Edelstam	20.7.67	CTB	314
ENDC/PV.323	pp.5-9	Myrdal	17.8.67	CTB	321
ENDC/PV.327	pp.10-11	Myrdal	31.8.67	NPT	325
ENDC/PV.363	pp.8-11	Myrdal	8.2.68	NPT	341

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ENDC/PV.391	pp.12-14	Myrdal	20.8.68	CBW	366
ENDC/PV.399	pp.7-11	Myrdal	1.4.69	CTB	369
ENDC/PV.405	pp.23, 25	Myrdal	22.4.69	SB	382
ENDC/PV.415	pp.7-17	Myrdal	23.5.69	CTB	393
ENDC/PV.422	pp.17-19	Myrdal	24.7.69	SB	406

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ENDC/PV.8	pp.24-24	Gromyko	23.3.62	CNT	10
ENDC/PV.13	p.41	Zorin	2.4.62	CNT	20
ENDC/PV.15	p.16	Zorin	4.4.62	CNT	28
ENDC/PV.21	pp.27-33	Zorin	16.4.62	CGD	32
ENDC/PV.24	p.8	Zorin	19.4.62	CNT	41
ENDC/PV.25	p.14	Zorin	20.4.62	CNT	43
ENDC/PV.31	p.35	Zorin	4.5.62	CGD	49
ENDC/PV.31	p.50	Zorin	4.5.62	CGD	50
ENDC/PV.32	pp.24-26	Zorin	7.5.62	CNT	51
ENDC/PV.35	pp.56-58	Zorin	11.5.62	CGD	54
ENDC/PV.37	pp.28-29	Zorin	15.5.62	CGD	58
ENDC/PV.38	p.47	Zorin	16.5.62	CGD	62
ENDC/PV.39	pp.36-37	Zorin	18.5.62	CGD	66
ENDC/PV.41	pp.34-35	Zorin	24.5.62	CGD	71
ENDC/PV.47	p.37	Zorin	1.6.62	CGD	76
ENDC/PV.51	pp.8, 14	Zorin	7.6.62	CGD	81
ENDC/PV.52	pp.22-24	Zorin	8.6.62	CNT	83
ENDC/PV.55	pp.49-51	Zorin	13.6.62	CGD	89

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ENDC/PV.64	p.19	Zorin	1.8.62	CNT	95
ENDC/PV.66	p.45	Zorin	6.8.62	CGD	98
ENDC/PV.68	pp.23-27	Zorin	10.8.62	CGD	106
ENDC/PV.68	p.32	Zorin	10.8.62	CGD	109
ENDC/PV.68	pp.36-37	Zorin	10.8.62	CGD	110
ENDC/PV.74	pp.33-34	Kuznetsov	24.8.62	CGD	132
ENDC/PV.75	pp.48-49	Kuznetsov	27.8.62	CGD	137
ENDC/PV.81	pp.11, 22	Kuznetsov	5.9.62	CGD,CNT	148
ENDC/PV.86	pp.30-31	Tsarapkin	3.12.62	CNT	159
ENDC/PV.88	pp.40-41	Tsarapkin	7.12.62	CNT	165
ENDC/PV.90	pp.14-15	Tsarapkin	10.12.62	CNT	166
ENDC/PV.94	pp.31-32	Tsarapkin	19.12.62	CNT	171
ENDC/PV.101	pp.24-26, 29-30	Kuznetsov	22.2.63	CNT	178
ENDC/PV.103	p.24	Tsarapkin	27.2.63	CNT	182
ENDC/PV.114	p.40	Tsarapkin	27.3.63	CGD	191
ENDC/PV.116	p.17	Tsarapkin	1.4.63	CNT	191
ENDC/PV.123	pp.29-30	Tsarapkin	22.4.63	CNT	193
ENDC/PV.123	pp.37-38	Tsarapkin	22.4.63	CNT	195
ENDC/PV.132	pp.7-8	Tsarapkin	15.5.63	CGD	197
ENDC/PV.135	p.41	Tsarapkin	22.5.63	CGD	200
ENDC/PV.138	pp.24-25	Tsarapkin	29.5.63	CGD	200
ENDC/PV.140	p.27	Tsarapkin	5.6.63	CGD	201
ENDC/PV.152	pp.14-16	Tsarapkin	16.8.63	CGD	204
ENDC/PV.163	p.24	Tsarapkin	4.2.64	CGD	208
ENDC/PV.174	pp.49-51	Tsarapkin	12.3.64	FRZ	216
ENDC/PV.175	pp.25-27	Tsarapkin	17.3.64	CGD	219
ENDC/PV.178	p.53	Tsarapkin	26.3.64	CGD	224
ENDC/PV.181	pp.38-41	Tsarapkin	7.4.64	CGD	224
ENDC/PV.182	p.45	Tsarapkin	9.4.64	CTB	229

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ENDC/PV.207 pp.22-24	Tsarapkin	13.8.64	C-O	244
ENDC/PV.209 pp.28-29	Tsarapkin	20.8.64	CTB	247
ENDC/PV.213 pp.44-45	Tsarapkin	3.9.64	FRZ	252
ENDC/PV.230 pp.8-9	Tsarapkin	7.9.65	CTB	262
ENDC/PV.246 pp.24-25	Tsarapkin	8.3.66	CTB	269
ENDC/PV.256 p.24	Roshchin	14.4.66	CTB	286
ENDC/PV.259 pp.31-32	Roshchin	26.4.66	CGD	292
ENDC/PV.271 pp.22, 24	Roshchin	7.7.66	CTB	295
ENDC/PV.286 p.9	Roshchin	25.8.66	CTB	306
ENDC/PV.325 p.16	Roshchin	24.8.67	NPT	324
ENDC/PV.356 pp.7-8	Roshchin	14.12.67	NPT	335
ENDC/PV.366 p.7	Roshchin	16.2.68	NPT	343
ENDC/PV.377 pp.4-8	Roshchin	12.3.68	NPT	352
ENDC/PV.386 pp.18-19	Roshchin	1.8.68	CTB	361
ENDC/PV.400 pp.10-11	Roshchin	3.4.69	SB	372
ENDC/PV.402 pp.20-21	Roshchin	10.4.69	CTB	376
ENDC/PV.409 pp.14-15	Roshchin	8.5.69	SB	383
ENDC/PV.415 pp.30-31	Roshchin	23.5.69	CTB	402
ENDC/PV.423 pp.19-20	Roshchin	29.7.69	SB	408
ENDC/PV.429 pp.35-37	Roshchin	19.8.69	CTB	424

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ENDC/PV.81 p.46	Fattah Hassan	5.9.62	CNT	148
ENDC/PV.88 p.29	El-Zayyat	7.12.62	CNT	164
ENDC/PV.182 p.14	Hassan	9.4.64	CTB	226

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ENDC/PV.259 pp.25-30	Khallaf	26.4.66	CTB	289
ENDC/PV.294 p.7, 11	Khallaf	16.3.67	NPT	307
ENDC/PV.333 pp.6-9	Khallaf	26.9.67	NPT	332
ENDC/PV.367 pp.7-10	Khallaf	20.2.68	NPT	344
ENDC/PV.421 pp.33-35	Khallaf	22.7.69	SB	404

United Kingdom

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ENDC/PV.5 p.7	Home	20.3.62	CGD	1
ENDC/PV.5 pp.9-13	Home	20.3.62	CNT,CGD	2
ENDC/PV.8 pp.29-30	Home	23.3.62	CNT	11
ENDC/PV.14 pp.25-26	Godber	3.4.62	CNT	24
ENDC/PV.23 pp.39-40	Godber	18.4.62	CNT	40
ENDC/PV.25 p.7	Godber	20.4.62	CNT	43
ENDC/PV.32 p.10	Wright	7.5.62	CNT	50
ENDC/PV.38 p.39	Godber	16.5.62	CGD	61
ENDC/PV.39 pp.43-45	Godber	18.5.62	CGD	67
ENDC/PV.64 pp.46-47	Godber	1.8.62	CGD	96
ENDC/PV.67 p.11	Godber	8.8.62	CGD	98
ENDC/PV.68 pp.46-47	Godber	10.8.62	CGD	111
ENDC/PV.69 pp.34-36	Godber	14.8.62	CNT	115
ENDC/PV.69 pp.40-41	Godber	14.8.62	CNT	117
ENDC/PV.72 p.9	Wright	20.8.62	CNT	126
ENDC/PV.75 pp.21-23	Godber	27.8.62	CNT	135
ENDC/PV.80 pp.15, 18	Godber	5.9.62	CNT	144
ENDC/PV.86 pp.46-47	Godber	3.12.62	CNT	160
ENDC/PV.87 pp.7-8	Wright	5.12.62	CNT	161

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ENDC/PV.183 pp.9-11	Mason	14.4.64	CGD	230
ENDC/PV.209 pp.11-12	Tahourdin	20.8.64	CTB	246
ENDC/PV.237 pp.7-8	Lord Chalfont	3.2.66	CTB,FRZ	266
ENDC/PV.279 p.15	Lord Chalfont	4.8.66	CTB	303
ENDC/PV.319 pp.5-10	Mulley	3.8.67	CTB	315
ENDC/PV.358 pp.6-7	Mulley	23.1.68	NPT	338
ENDC/PV.381 pp.27-28	Mulley	16.7.68	CTB	357
ENDC/PV.387 pp.6-7, 12-15	Mulley	6.8.68	CTB,CBW	362
ENDC/PV.404 pp.6-8, 12	Mulley	17.4.69	CTB,CBW	377

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ENDC/PV.8 pp.11-15	Rusk	23.3.62	CNT	7
ENDC/PV.10 pp.9-10	Rusk	27.3.62	CGD	12
ENDC/PV.13 pp.10-11	Dean	2.4.62	CNT	15
ENDC/PV.13 pp.15-18	Dean	2.4.62	CNT	16
ENDC/PV.13 pp.25-26	Dean	2.4.62	CNT	18
ENDC/PV.15 p.7	Dean	4.4.62	CNT	25
ENDC/PV.15 pp.11-14	Dean	4.4.62	CNT	26
ENDC/PV.18 p.5	Dean	11.4.62	CNT	28
ENDC/PV.18 pp.8-9	Dean	11.4.62	CNT	29
ENDC/PV.20 pp.27-28	Dean	13.4.62	CNT	30
ENDC/PV.23 pp.13-15	Dean	18.4.62	CGD	36
ENDC/PV.24 p.16	Dean	19.4.62	CGD	41
ENDC/PV.24 p.37	Dean	19.4.62	CNT	42
ENDC/PV.29 pp.26-28	Dean	2.5.62	CGD	45

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ENDC/PV.37 pp.8-10	Stelle	15.5.62	CGD	56
ENDC/PV.42 pp.17-19	Dean	25.5.62	CGD	72
ENDC/PV.45 pp.12-13	Dean	30.5.62	CGD	74
ENDC/PV.48 pp.38-39	Stelle	4.6.62	CGD	77
ENDC/PV.49 pp.37-38	Dean	25.6.62	CGD	78
ENDC/PV.50 pp.36-39	Stelle	6.6.62	CGD	79
ENDC/PV.52 p.15	Dean	8.6.62	CNT	82
ENDC/PV.55 pp.42, 46-47	Dean	13.6.62	CGD	87
ENDC/PV.55 pp.69-70	Dean	13.6.62	CGD	90
ENDC/PV.67 p.33	Dean	8.8.62	CNT	101
ENDC/PV.68 pp.11-18	Dean	10.8.62	CGD	102
ENDC/PV.69 pp.8-10	Dean	14.8.62	CNT	112
ENDC/PV.69 pp.14-16	Dean	14.8.62	CNT	114
ENDC/PV.70 pp.39-42	Dean	15.8.62	CNT	123
ENDC/PV.72 p.35	Dean	20.8.62	CNT	128
ENDC/PV.73 pp.16-17	Dean	22.8.62	CGD	128
ENDC/PV.73 pp.21-23	Dean	22.8.62	CGD	130
ENDC/PV.74 pp.5-6	Dean	24.8.62	CNT	132
ENDC/PV.75 pp.7-10	Dean	27.8.62	CNT	133
ENDC/PV.76 pp.12-13	Stelle	29.8.62	CGD	138
ENDC/PV.79 pp.19-25	Dean	3.9.62	CNT	140
ENDC/PV.80 pp.45-49	Dean	5.9.62	CNT	145
ENDC/PV.86 pp.16-19	Dean	3.12.62	CNT	157
ENDC/PV.89 p.6	Dean	7.12.62	CNT	166
ENDC/PV.90 pp.27-28	Stelle	10.12.62	CNT	168
ENDC/PV.94 pp.15-16	Dean	19.12.62	CNT	169
ENDC/PV.94 pp.20-21	Dean	19.12.62	CNT	170
ENDC/PV.96 pp.10-14	Foster	12.2.63	CNT	172

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ENDC/PV.101	p.44	Stelle	22.2.63	CNT	180
ENDC/PV.104	p.20	Foster	1.3.63	CNT	183
ENDC/PV.105	pp.23-25	Stelle	6.3.63	CNT	183
ENDC/PV.107	pp.7-8	Stelle	11.3.63	CNT	185
ENDC/PV.108	pp.6-9	Stelle	13.3.63	CNT	186
ENDC/PV.110	pp.23-26	Stelle	18.3.63	CNT	188
ENDC/PV.113	p.9	Stelle	25.3.63	CNT	190
ENDC/PV.122	pp.9-10	Stelle	19.4.63	CGD	192
ENDC/PV.123	pp.39-40	Stelle	22.4.63	CNT	195
ENDC/PV.132	pp.33-35	Stelle	15.5.63	C-O	198
ENDC/PV.152	pp.6-7	Stelle	16.8.63	CGD	203
ENDC/PV.162	pp.18-19	Foster	31.1.64	FRZ	206
ENDC/PV.164	p.9	Foster	6.2.64	C-O	208
ENDC/PV.166	pp.18-19	Foster	13.2.64	C-O	209
ENDC/PV.172	pp.17-18	Fisher	5.3.64	NPT	210
ENDC/PV.178	pp.37-39	Fisher	26.3.64	CGD	223
ENDC/PV.184	pp.17-18	Fisher	16.4.64	FRZ	231
ENDC/PV.188	pp.12-13	Foster	9.6.64	CGD	234
ENDC/PV.191	p.9	Foster	18.6.64	C-O	235
ENDC/PV.193	pp.11-14	Foster	25.6.64	C-O	236
ENDC/PV.195	p.36	Foster	2.7.64	NPT	239
ENDC/PV.197	p.7	Timberlake	9.7.64	FRZ	240
ENDC/PV.199	pp.16-17	Timberlake	9.7.64	CGD	242
ENDC/PV.207	pp.19-20	Timberlake	13.8.64	C-O	243
ENDC/PV.211	pp.5-11	Timberlake	27.8.64	FRZ	248
ENDC/PV.215	pp.50-52	Foster	10.9.64	C-O	253
ENDC/PV.218	p.14	Foster	27.7.65	CTB	255
ENDC/PV.229	pp.19-23	Foster	2.9.65	CTB	259

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ENDC/PV.246 pp.36-37	Fisher	8.3.66	C-O	270
ENDC/PV.248 pp.8-9	Fisher	15.3.66	FRZ	276
ENDC/PV.254 pp.16-22	Fisher	4.4.66	CTB	277
ENDC/PV.256 pp.13-16	Foster	14.4.66	C-O	284
ENDC/PV.259 pp.16-17	Foster	26.4.66	CGD	288
ENDC/PV.271 pp.26-31	Foster	7.7.66	CTB	296
ENDC/PV.277 pp.4-6	Fisher	28.7.66	NPT	300
ENDC/PV.312 p.7	Foster	11.7.67	CTB	314
ENDC/PV.320 pp.16-19	Foster	8.8.67	CTB	319
ENDC/PV.357 pp.15-17	Fisher	18.1.68	NPT	336
ENDC/PV.368 pp.12-17	DePalma	21.2.68	NPT	346
ENDC/PV.378 pp.6, 8-9	Foster	13.3.68	NPT	355
ENDC/PV.397 pp.12-13	Smith	25.3.69	SB	368
ENDC/PV.401 pp.5, 7-10	Fisher	8.4.69	C-O,CTB	373
ENDC/PV.414 pp.7-9	Fisher	22.5.69	SB	388
ENDC/PV.415 pp.23-26	Fisher	23.5.69	CTB,C-O	400

ENDC/PV.3 Brazil/de San Thiago Dantas 16.3.62 p.9

The technicians of the nations most advanced in nuclear science are, I believe, agreed on the possibility of effective control of tests under water, in the atmosphere and in the biosphere, without more thorough on-site inspections and checks being necessary. We therefore consider that these tests should be suspended immediately. As regards underground tests, studies should be undertaken without delay to determine the minimum degree of on-site inspection that is essential to ensure that the undertakings given are being fulfilled.

ENDC/PV.4 Canada/Green 19.3.62 pp.17-18

One of the most fundamental problems requiring this kind of examination is the question of verification. Canada's willingness to contribute to a verified system of disarmament has been demonstrated by the offer which my Government has made, and which still stands, to throw open its northern areas for inspection in exchange for comparable rights in corresponding areas of Soviet territory.

In the opinion of my delegation, the best way to achieve a realistic solution of the problem of verification is to avoid any further discussion in the abstract. In other words, we should avoid abstract debates on the word "verification". Instead, there should be careful examination of each measure of disarmament together with the specific verification procedures to ensure that all States carry out that particular disarmament measure. In other words, let us take a measure of disarmament and with it study the verification needed for that measure, rather than studying verification in general.

Let us take an example from the Soviet draft Treaty to illustrate my point. Article 5 provides for the elimination of certain means of delivering nuclear weapons and for the cessation of their production. Paragraph 3 of this article provides that the implementation of these measures should be verified by inspectors of the international disarmament organization.

The language of the Soviet draft Treaty suggests that substantial inspection over this measure of disarmament would be allowed. What we need to clarify is how much the inspectors are to be allowed to see and the conditions under which they would carry out this work. Having obtained that clarification, the Committee would then be able to judge how adequate the inspection arrangements would be for verifying the execution of this particular measure.

In pursuing an examination of the problem of inspection, particularly in the area of disarmament which I have just mentioned, the application of sampling techniques as suggested by the United States representative should facilitate agreement. This approach ought to go a long way towards removing fears that inspection will be out of balance with disarmament or be used for any illegitimate purpose. We sincerely believe there is great hope of reaching an agreement on the question of verification through some type of sampling procedure.

ENDC/PV.5 UK/Home 20.3.62 pp.7

....I wonder whether we are not apt to talk of verification as a sort of private affair between the United States, the United Kingdom and the Soviet Union, about which it is possible to sit back and be rather critical or detached. Of course, it is much more than that. There are a number of places in the world where armed forces are today ranged facing each other; there are a number of countries which are in dispute with their neighbours. As I look around the table, I see that there are some countries represented

here who are in dispute with their neighbours and whose armed forces are standing to. It is not only in Europe that this is the case. I therefore think that we should remember that each one of us is going to be called upon to disarm and each one of us is going to be asked to decide whether we can accept the word of our neighbour that he has in fact disarmed. So verification is not a private matter between the nuclear Powers; it lies at the very heart of the problem of disarmament for every one of us here in this room.

When we come to a detailed discussion, I think that what we have to do is this. We have to try to marry disarmament by stages with a system of verification which is sufficient to give confidence in three respects: that the arms which it is agreed should be destroyed are in fact destroyed; that the men it is agreed to demobilize are in fact disbanded; and that the weapons which remain cannot be a menace to peace.

ENDC/PV.5

UK/Home

20.3.62

pp.9-13

I think the Committee needs to ask itself what objection there is to this cut of armaments across the board in stages as proposed by Mr. Rusk. Only one answer has come so far — and it came from Mr. Gromyko when he said that there should be no verification of arms which remained after agreed quantities had been destroyed, and that no control of replacements was acceptable because any inspection of that nature would mean espionage.

Quite clearly, at a very early stage of this Committee's work, unless we are to be completely halted, we shall have to have clarification from the Soviet delegation as to the amount of verification that the Soviet Union would feel justified in accepting in the field of general disarmament. If I may say so, this is not very clear from the draft treaty which Mr. Gromyko has given us.

But I would like to illustrate the difficulties involved in verification in the field of nuclear tests. As I understand it, the Soviet Union argues like this: all explosions are detectable by national systems and identifiable, and therefore there is no need for inspection. As I said to the Committee at our meeting last evening, we have no evidence as yet from the scientists which would support that argument. But let me suppose, for the sake of argument, that Mr. Gromyko's proposition is true. Even so, throughout the world in any given year there will be a number of doubtful noises which are heard. Now, supposing there is a dispute, as there is bound to be, between the scientists of the Soviet Union and the scientists of the West or other parts of the world, about some unidentified explosion. Who decides who is right? And unless somebody can decide, what happens? Mr. Uden put his finger on the point very clearly yesterday evening. I will give an illustration to the Committee based on something which happened only about ten days ago. There was a very loud explosion near South Georgia — not Mr. Gromyko's South Georgia, nor Mr. Rusk's South Georgia, but our South Georgia; there is a sort of innocent geographical "troika" at work in this matter. The only way in which we could tell what that explosion represented was by going and looking. But we could go and look because this happened to be a place which was open to us to inspect. But if that unexplained noise had been in Soviet territory, we could not have gone to see. Therefore, if the right of an international team to go and look were denied, the side which was in doubt would be bound to assume that there had been a deliberate test. Why otherwise the refusal of inspection? And so the dreary round of tests would begin again. If there is no possibility of even the minimum of inspection, then there is really no effective test ban at all. We are not interested in espionage. All we seek is the absolute minimum of verification machinery. And again here I would like to ask Mr. Gromyko one question, because this has to be faced at an

early stage in our consideration. If Mr. Gromyko would not agree to United States and United Kingdom or allied inspectors going in to explain an unidentified event, whom would he allow in? Is he really saying that no national of an unaligned country can be trusted to act as a member of such an inspection team? He said himself -- in fact I heard him say it and so did we all -- that he would not expect others to take the word of the Soviet Union. Well, who is to testify? Not, I take it, someone from the communist bloc? Would he accept nationals of non-aligned countries in the inspecting teams, or does he say that no national of a non-aligned State can be relied upon not to indulge in espionage? This question must be answered, and I pray that it will not be answered in the negative, because if it is, in this matter of a nuclear test ban I do not see how we can make any progress and help the world.

I would like to tell Mr. Gromyko that we in the United Kingdom want to co-operate with him, in the field of nuclear tests and in the field of general disarmament, in devising the absolute minimum system of verification -- for verification there must be or we will not gain the confidence to begin the ban on tests, let alone to attack the problem of wider disarmament. I welcome Mr. Zorin's proposal to establish a sub-committee of the three Powers. If we can agree on the minimum system of verification, well and good. If we cannot, then we will have to bring it back to the main Committee. I have dealt at some length with the problem involved in verification, because it is only that which stands between us and the conclusion of a nuclear test ban tomorrow.

Mr. Gromyko in his memorandum last week stated that:

"It will be the implementation of disarmament measures, and not the armed forces and armaments retained by States at any given stage, that will be subject to control." (ENDC/3, page 8)

This is in the field of general disarmament.

I wish I could agree that this was enough, but I think this Committee will feel that there would be no international confidence if any State accepted a prescribed reduction and then refused to allow, under any conditions, verification that its remaining war potential did not exceed the limits agreed. Nations wage war with the weapons they possess and not with those that have been destroyed. In this connexion I shall be particularly interested to know how Mr. Gromyko will react to the sampling techniques of inspection, because I myself believe that they hold considerable promise.

Therefore, for my part, I feel we can arrive at the result, which we all want, of general and complete disarmament by a combination of the conceptions in both the United States and Soviet plans, namely, a continuous programme of disarmament proceeding at the highest practicable speed, with inspection of those arms which are destroyed and the minimum machinery of verification for the forces and arms which remain. There may at one time have been a great military advantage in secrecy -- I do not think any of us would deny that -- but as there is now no military advantage in war, where do the profits of secrecy lie? That is why verification lies at the centre of our discussions.

Here I come back to the necessity to isolate and give most patient attention to the questions raised by the word "verification"; to how to deal with unidentified events and disputed events in the field of nuclear tests; to ways and means of making sure that at the time we move from one stage of general disarmament to another the arms which remain cannot menace the peace. And in particular, and I repeat what I said just now, we should give attention to the sampling techniques of inspection. That seems to me very important and it should be studied with particular care. I am afraid I have probably bored the Committee by repeating this so often, but back and back again I come to the question of verification as the point on which the success or failure of our

Conference will turn.

ENDC/PV.5

India/Menon

20.3.62

pp.38-40

Then comes the question of detection. It has been said in another place that it is not a question of detection: it is a question of creating confidence in peoples all over the world that testing is not taking place. We make the following suggestion.

We are not prepared to say at the present time whether every explosion is detectable or not detectable. At the same time we submit that ours here is not an academic exercise. We are not trying to find out whether anything can be exploded in a laboratory or whether there could be an earthquake which could be mistaken for an explosion. By and large, is it possible to find out whether anybody is violating a treaty?

Secondly, this Conference meets on the basis that agreements will be made and kept; otherwise why should we meet, why should we try to make agreements if we are sure beforehand that they will be broken? We can naturally make provision against the temptation on the part of people to get round them. Therefore we would say that any kind of agreement which by and large is feasible should be sufficient for the purpose -- Mr. Uden called it a provisional agreement. Whatever we do, if there are more explosions, what will happen to the work of this Conference and the atmosphere of peace and confidence that must be created in the world? There is nothing so dangerous as turning people into cynics in this matter.

We welcome the statement made by the Soviet Union yesterday that it is prepared to enter into new discussions, here or elsewhere. We also welcome the response made by the United States and the United Kingdom. For three years the ingenuity of men of several nations has been found wanting with regard to reaching a settlement. These negotiations should go on while we are here, if possible. For years these tests have been regarded not only as dangerous to mankind in their immediate effects, but also as the engine of nuclear war. We have a right to see that every attempt is made to reach agreement. If the initial efforts do not lead at least to a temporary agreement for the cessation of nuclear tests, then I think it is the bounden duty of this Conference to put this matter before a special committee appointed for that purpose.

We would also suggest that if the idea is that one cannot take for granted the results of the detection efforts by any one of the three countries involved in this matter -- that is to say, if the United States is not prepared to accept the judgement on this score of the United Kingdom or the Soviet Union, or the other way round -- it may be worth considering whether scientific detection stations could be established by national efforts in other countries or could be internationally established. If it is possible to spread bases all round the world or to manufacture these weapons in large quantities, it should also be possible to establish these peace stations in various parts of the world, in countries that are only partly committed or are uncommitted to the two blocs. Then, in the event of an explosion, the results would come in from everywhere. Today we measure radiation, and the results are internationally communicated. We may adopt a similar procedure. Therefore, as a compromise measure, it could be agreed for the time being that we should have other monitoring stations from which results would be received. If all the data collected pointed to one result, there would be no difficulty; if there were differences of opinion, then it would be for us to consider what could be done about them.

The main explosions we are worried about at the moment are explosions in the atmosphere and the biosphere. These, it is admitted on all sides, can be detected, and the committing of such explosions -- there is no other word for it -- would be a violation of an international agreement. If there was a straightforward agreement between

the nuclear Powers that there would be no more explosions and, if any were detected afterwards, that would be proof of the violation of the international treaty. That is all, in any case, that we could do. There is no way, except in a world State, of sending people from one place to another in order to enforce a treaty.

However difficult may be the problem, however much we may distrust anybody else, the very basis of this Conference is that there should be agreements. Yet agreements cannot be left merely to trust. They must be on the basis of the undertaking of international obligations, and countries which violate international obligations will face the consequences. That is the way of international life as we know it today.

We have no desire to exaggerate this problem of explosions, but it has got so much into the mental make-up and fears and apprehensions of people and nations that it has almost come to be regarded as the acid test of what the great countries are prepared to do. People ask themselves: "If they are not going even to stop tests, how will they abolish weapons?" How are we to explain this to our people?

The same applies to the means of carrying these nuclear weapons. A number of mathematical and other arguments have been put forward by the Secretary of State of the United Kingdom in regard to this weapon or that weapon. This can be discussed but, when the Soviet Union has such formidable weapons as long-range rockets, the destruction of these weapons cannot but be a factor of safety to the rest of the world. Therefore, while there may be holes in this, we may plug these holes; but we should not throw the baby out with the bath water, which would happen so far as nuclear tests are concerned, if this Conference did not at least bring about the suspension of such tests. While we are sitting here, tests are being contemplated by one country. It is unfortunate that in the period of suspension the Soviet Union broke the suspension that obtained and there was an explosion, about which we all protested at that time. But in that period of fifteen or eighteen months it was not a question of a lack of detection, it was not as though explosions had taken place clandestinely; what happened was that the suspension was disregarded, for whatever reasons, and there was the well-known explosion.

Therefore, it appears that the whole problem of detection is being projected disproportionately and given too much precedence. It really is not a problem, but a conundrum. We suggest that there should be an immediate agreement to make an agreement -- and a resulting cessation of tests -- pending a treaty. This Conference should appoint some machinery to go into this matter in order to reconcile the different positions.

We make the suggestion for what it is worth -- we do not make a proposal -- that inspection stations on a scientific basis may exist and could be established on national or international initiative, in various parts of the world so that the network of detection would be closer. The more people who watch, the less avoidance there will be.

It seems that most of these questions, at the present moment, at any rate, are concerned with explosions in the air and above the air. With regard to the air, looking from the ground will not help. If the Soviet Union wants people to go there, the United States wants people to go to the United States; we are not against it. It is good for traffic and other things. But this should not be put as an impediment to what very much concerns the people of the world.

The Polish delegation, like many other delegations, can see no justification for postponing the conclusion of a final agreement on the discontinuance of nuclear tests. All the available information indicates that nuclear explosions are detectable and

identifiable without the need for inspection.

To anticipate that doubts will arise regarding the character of recorded phenomena is pure speculation. Such doubts have not arisen for a number of years, or have been dispelled without recourse to control on the spot. Yet there is no reason to believe that the technique of detecting nuclear explosions has regressed during this period.

ENDC/PV.6

Ethiopia/Yifru

21.3.62

p.20-21

The lesson, the conclusion as regards these specific subjects is therefore that we should not be technical to the point of losing sight of our goal and that a pragmatic approach may very well lead us to a better result. It is such an approach that compels us to agree with the statement of the delegation of Brazil that:

"The technicians of the nations most advanced in nuclear science are, I believe, agreed on the possibility of effective control of tests under water, in the atmosphere and in the biosphere, without more thorough on-site inspections and checks being necessary. We therefore consider that these tests should be suspended immediately. As regards underground tests, studies should be undertaken without delay to determine the minimum degree of on-site inspection that is essential to ensure that the undertakings given are being fulfilled." (ENDC/PV.3, page 9)

In this connexion we fail to understand why an adequate system of international verification cannot be developed which could be used when national systems of verification were challenged. Is it not possible to devise an international scientific system of verification where an appeal could be lodged to resolve differences in results of national detection systems? It seems to me that this area deserves exploration by scientific experts, for, if the answer is positive, surely the present controversy over detection and verification would fall to the ground, clearing the way for prompt action on the treaty.

On the main subject of general and complete disarmament, the feeling of the human race is equally clear. Certainly it was because of the pressure of world public opinion that the literature of disarmament was recently crowned by the eight Agreed Principles of the two major Powers. It is to us worth noting that there is in fact quite a broad basis for agreement as regards the necessity of control and verification of general and complete disarmament, although, as was amply demonstrated the other day by the statements of the major Powers, the details that separate them are decisive. It is such considerations that compel us to appreciate the statement made at the Commonwealth Prime Ministers' Conference of 13 March, 1961. It reads in part as follows:

"Disarmament without inspection would be as unacceptable as inspection without disarmament. Disarmament and inspection are integral parts of the same question and must be negotiated together; and both must be made as complete and effective as is humanly possible. It must, however, be recognized that no safeguard can provide one hundred per cent protection against error or treachery. Nevertheless, the risks involved in the process of disarmament must be balanced against the risks involved in the continuance of the arms race."

In other words, recognition of the fact that inspection and verification of disarmament are necessary should not blind us to the fact that these cannot be one hundred per cent perfect, nor should it be a burden which in the end may very well defeat our overall purpose and goal. It would not serve to go bankrupt by establishing a gigantic and costly system which would collapse when tested by the realities of national life.

To make any system of controlled disarmament work there must be a commensurate act of faith in its success.

ENDC/PV.8

USA/Rusk

23.3.62

p.11-15

Because of the United States Government's great desire to put an end to all tests of nuclear weapons, we are willing to sign a safeguarded treaty, with effective international controls, even though the Soviet Union conducted over forty tests last fall. However, we are willing to ignore these tests only if in return we can be assured that testing will actually be halted. We will not again make our security subject to an unenforceable and uncontrolled moratorium, whether this be in the form of a verbal pledge or a pseudo-treaty such as the USSR proposed on 28 November 1961 (GEN/DNT/122).

What we need above all in this field is confidence and not fear, a basis for trust and not for suspicion. To get this is the major purpose of our insistence on effective international arrangements to ensure that nuclear weapon tests, once outlawed, do not in fact ever occur again.

You will remember that the atmosphere for agreements on disarmament questions was not too favourable in 1958, especially after the collapse of lengthy negotiations in London during much of 1957. Accordingly, in the search for a more promising approach to the issue of a nuclear test ban, the United States, the United Kingdom and the Soviet Union decided to try to resolve the technical questions first before proceeding to a consideration of political questions. This path led to a conference in Geneva in July and August 1958 among the scientists of eight countries, that is, of the three then existing nuclear Powers plus France, Canada, Poland, Czechoslovakia and Romania.

On 20 August 1958 these experts unanimously agreed on the details of a control system which would be technically adequate to monitor a treaty ending all tests of nuclear weapons (EXP/NUC/28). Before 1 September 1958 the recommendations of the scientists had been accepted in toto by the Governments of the United States, the United Kingdom and the Soviet Union. Essentially these same technical provisions formed the basis of the draft test ban treaty presented by the United States and the United Kingdom on 18 April 1961 (ENDC/9).

I believe it would be helpful to review some of the technical aspects of controlling a test ban.

The words "detection" and "identification" are the key to an understanding of the technical aspects of verification. A great many methods have been devised by scientists to record the innumerable happenings of a geophysical nature which take place around us. Earthquakes are registered by seismographs; hydro-acoustic apparatus records sounds in the oceans. I have mentioned these two particular types of instruments because they, along with various other devices, also happen to be capable of registering signals which are emitted by nuclear detonations. What we call detection is merely the capturing of these diverse signals.

Detection, however, is only half the story; in fact it is rather less than half. The primary concern is to know exactly what has been recorded or detected. For example, the signal received on a seismograph from an underground nuclear explosion looks like the signals received on a seismograph from many types of earthquakes. Signals which may come from a small nuclear detonation in the atmosphere may be difficult to detect. In each case, the overwhelming difficulty confronting any control system monitoring a nuclear test ban is how to differentiate among the various recordings or detected signals, how to tell which is a natural phenomenon and which is a nuclear explosion.

This was exactly the issue that faced the scientists in Geneva in mid-1958. It is the very same issue that faces us on control today. The answer of the scientists was that where doubt existed the only way to clear up the mystery was to utilize some form of on-site inspection. This is still the only answer available to us.

In regard to underground tests, except for quite large ones like the Soviet blast of 2 February 1962, the technical situation is unchallenged by anybody and was even readily admitted by the Soviet Government on 28 November last when it put forward its new test ban scheme based on existing monitoring systems. For these underground events which are detected but which cannot be identified by expert interpretation of the seismic recording, the only way to determine what has happened is to send an investigating team to the spot. The events could be earthquakes or secret nuclear tests. And there could be some hundreds of such events per year in the United States and in the Soviet Union.

There is no scientific method not involving inspection that can identify positively a seismic event as a nuclear explosion. If our Soviet colleagues have reason to believe otherwise, they should come forward with their new scientific evidence.

This technical situation provides a further important reason for including the Soviet Union in the world-wide control post network. The spacing between the control posts in the Soviet Union should be exactly the same as it is in the rest of the world. In order to have the best chance to eliminate a seismic event from suspicion without conducting an inspection, that is, by means of the interpretation of the seismic recording itself by experts, it is essential to have readings from control posts on a global basis, including those within the United States and the USSR. Without instruments in the USSR, one-sixth of the land mass of the globe, many more seismic events in that country become suspicious.

In connexion with atmospheric tests the conclusive means for identifying the true nature of a detected event is to acquire a sample of the air near that event. If the event was man-made, this will show up during a chemical analysis of the air sample. For medium and large atmospheric nuclear detonations the radioactive debris will become part of air masses that are certain to move beyond the boundaries of the country concerned. This method is not reliable, however, for small atmospheric tests.

In recognition of this the 1958 scientists recommended the installation of air sampling equipment at every control post. Even then, they anticipated that in certain instances some question of identification would still remain, and for this they proposed the use of special aircraft flights conducted over the territory of a specific country to capture air samples. Naturally, to the extent that control posts within a country did not exist where radioactive air sampling could take place, there would be just that much greater need of special air sampling flights.

Although American scientists have for the past several years been actively seeking new methods of detection and, even more, of identification of possible nuclear explosions, and although there are some promising avenues of investigation which may be proven in the next few years, the fact is that very little has been discovered up to date to justify any significant modification of the conclusions and recommendations of the Geneva scientists of 1958. Soviet scientists essentially agreed with this at our last joint meeting with them on a test ban during May 1960 in Geneva. Therefore, when we contemplate the cessation of nuclear weapon tests by international agreement, we must still look to international control arrangements similar to those proposed in 1958 to give the world security against violations. But the faster we have tried to move toward the Soviets in these matters, the faster they seem to move away from their earlier positions.

The draft treaty which the United States and the United Kingdom proposed in April 1961 (ENDC/9) reflected the recommendations of the 1958 experts. It also incorporated

into its terms a large number of political and organizational arrangements for the test ban control organization on which the three Powers had already come to agreement at the test ban Conference or which went far towards meeting previous Soviet demands. Eastern and Western nations were to have equal numbers of seats on the control commission, which also had places for non-aligned nations, and there were detailed provisions for an equitable division by nationality of the international staff, as the USSR had sought. The fact that many of the administrative and organizational provisions for the future international disarmament organization, as set forth in the Soviet document tabled here on 15 March (ENDC/2), are similar to the provisions of the United States-United Kingdom draft test ban treaty of last year demonstrates that the Soviet Union can have no serious objection to large portions of our proposal.

Indeed, when all is said and done, the fundamental Soviet complaint about the test ban control system to which it seemed to agree in 1958, 1959 and 1960, and which its own scientists had helped to devise, is that it would facilitate Western espionage against the Soviet Union. But the facts are otherwise. The proposed system would not have any potential for any espionage which would be meaningful in terms of present-day military requirements.

The truth is that under the United States-United Kingdom draft treaty, control posts in the USSR would be immobile units with fixed boundaries. No site could be chosen for a control post in the USSR without the specific consent of the Soviet Government. No foreign personnel on the staff of any control post would have any official need to leave the boundaries of the post -- except when entering and leaving Soviet territory -- and it would be up to the Soviet authorities to decide whether such personnel should be permitted to leave the post. Within the post one-third of the technical staff and all of the auxiliary staff would be Soviet nationals, nominated by the Soviet Government. In these circumstances, surely nothing taking place within the post could remain unknown to the Soviet Government.

The situation concerning on-site inspection teams would be equally devoid of espionage possibilities. The area to be inspected would be predetermined on the basis of seismographic recordings. There would be no random selection of the geographic site. To get to the site of the inspection the teams would have to use transport furnished by the Soviet Government. They could carry only specified equipment related to their immediate task. Although no Soviet nationals would be members of the inspection team, half of the team would be nationals of non-aligned countries, and the Soviet Government would be invited to assign as many Soviet observers as it wished to verify the activities of the inspection team.

I should also stress that the size of the inspectable area would in any event be limited to the territory within a radius of about eight or, in some cases, thirteen kilometres from the point, the so-called probable epicentre, where the unidentified seismic event was presumed to have taken place. This radius would involve an inspectable area of 200 or, in some cases, 500 square kilometres. The Soviet Union has territory of over 21 million square kilometres. Therefore it can readily be seen that even if there were twenty inspections per year in the USSR, and even if each of these inspections operated within a 500 square kilometre area, less than one-twentieth of one per cent of Soviet territory, that is, less than one part in 2,000, could ever be subject to inspection in any one year.

Finally, no espionage would be feasible on the occasional special air sampling flights which might take place over Soviet territory. The plane and its crew would be Soviet, and Soviet Government observers could be on board. The only foreigners would be two staff technicians from the control organization who would manage the equipment taking the air samples and who would ensure that the plane actually flew along the route previously prescribed.

We have stated, and I want to state again here, that there is every possibility of ensuring proper control, proper observation over compliance, and, moreover, strict compliance with an international agreement on the discontinuance of nuclear weapon tests. Science and technology have now attained such a level that there is no difficulty in recording any explosions of nuclear weapons and establishing whether they were explosions of nuclear weapons or -- as Mr. Rusk has said here -- natural events.

Of course, someone may say that he is not altogether familiar with the latest achievements of science and technology in this field. We concede that this may be so. Science and technology in this field, the production and manufacture of appropriate instruments, have not reached a uniform level in all countries. But the Western Powers, which are trying to criticize the Soviet Union for its position on this question, are well aware of the real situation. They know quite well that we know it; they also know quite well that we know what the situation is in reality. Nevertheless, they go on asserting day after day that the achievements of science do not at present make it possible to distinguish nuclear weapon explosions from natural events.

As we know, science is the same everywhere and the laws of nature are one and the same. We cannot concede that these laws of nature are more favourable to the Soviet Union than to the United States. Nor can we concede that the United States is incapable of possessing and producing instruments of the same quality as the Soviet Union for recording nuclear explosions. What of the much-vaunted technology of the United States?

We are quite sure and we know that the United States possesses excellent equipment which is as capable of recording nuclear explosions as our own. So the position is that we have the same science and the same laws of nature in operation, but two policies. One policy in this matter is the one being pursued by the Soviet Union, which is honestly pressing for the immediate conclusion of an agreement on the discontinuance of nuclear weapon tests. The other policy is the one being pursued by the United States, the United Kingdom and certain others of their NATO allies. They are doing everything possible to prevent the signing of an agreement on the discontinuance of nuclear weapon tests.

Those who try to criticize us sometimes raise the question of the possibility of a treaty on the discontinuance of nuclear weapon tests being violated. We hold, and the Soviet Government is convinced of this, that if the States -- and at present a limited group of States is involved -- if the States which solemnly put their signatures to a treaty on the discontinuance of nuclear weapon tests adopt a fully responsible attitude towards compliance with this undertaking, there will be no reason to doubt that a treaty on the discontinuance of nuclear weapon tests will be observed.

I can say with complete authority that so far as the Soviet Government is concerned, if it signs a treaty on the discontinuance of nuclear weapon tests, it will strictly comply with that treaty. If the Western Powers also approach their obligations with regard to the discontinuance of tests honestly, there will be no danger of the violation of this treaty or of any relevant international agreement on the discontinuance of nuclear weapon tests.

In trying to reassure us that we need not fear the establishment of an international system of control in the territory of the Soviet Union, they tell us:

"Well, we Western Powers will come to you, we will send our controllers and inspectors into the territory of the Soviet Union, while you, the Soviet Union, the Soviet Government, will send your inspectors and controllers into the territory of the United States, the United Kingdom and certain other States."

But we have no desire to establish our system of control posts or, in other words, our intelligence posts in the territory of the United States, the United Kingdom and other countries. We have no such desire. The proposal for this questionable deal does not, therefore, attract us.

Apart from anything else, if a treaty on the discontinuance of nuclear weapon tests were signed, its observance would involve the honour of States. Let us imagine that there was a country whose government committed a violation of the treaty. That government would be discredited as a violator of an international agreement.

ENDC/PV.8

UK/Home

23.3.62

pp.29-30

Mr. Rusk spoke to us this morning about detection and location, and it is quite clear to the Committee that there is a genuine difficulty in distinguishing between a nuclear explosion and an earthquake. Our scientific advice is the same as that of the United States, namely, that our instruments are not yet accurate enough to fulfil all these functions and to distinguish between an earthquake and a nuclear explosion. Mr. Gromyko's instruments may be better. We do not know what he knows, but if he knows, let him tell us what he knows so that we may also know. Several times we have asked the Soviet Union whether in this respect they would allow our scientists to talk with theirs on this subject. The Soviet Union has always refused this request. I renew it now. Will Mr. Gromyko allow the Soviet scientists to talk with our scientists and to come to a common agreement about these matters? I hope he will say "Yes", because this would be a constructive thing to do and we might come to a common agreement upon it.

Then again, in the field of general disarmament there has never been an agreement between East and West on what amount of verification should be employed to satisfy us all. But as Mr. Rusk has reminded us, in the field of nuclear tests there has been an agreement. It was signed not so very long ago by the Soviet Union, Poland, Czechoslovakia, Romania, France, Canada, the United Kingdom and the United States. Their scientists drew up a plan on which all of us agreed -- eight of the countries members of the Committee. There were two recommendations in that plan: one that there should be an international detection system and the other that there should be an international system of inspection and control. That was agreed by all the scientists of those countries sitting round this table and it was accepted and agreed by the Governments of the United Kingdom, the United States and the Soviet Union. There is a treaty in existence, there is a proposal in existence, to which we have all put our names.

Mr. Gromyko said that we ought to call a spade a spade. I am all for it. But the Soviet Government did not at that time say one word about espionage. I suggest that each of us should look at this treaty very seriously. If we possibly can, we should get back to it, because this was a very remarkable achievement. The scientists of eight countries, including East and West, all agreed on a project, and it was accepted by the Governments of the three nuclear Powers.

One of the chief remaining disputes, as lately as September of last year, let us remember, was about the number of control posts -- we said we wanted twenty in the Soviet Union, and the Soviet Union said, I think, it wanted fifteen -- and the number of people at each post. Why has all this good work been thrown overboard, and why can we not resurrect it and get back to work on it again? For that is a practical plan. The answer, of course, which Mr. Gromyko gives is that the world situation has changed for the worse. But even if we admit that it has, is it not all the more necessary to get down really to signing a treaty? I would make an appeal that we should do that.

There is one other matter which is really worth pinpointing because I think there is

a good deal of misunderstanding about what is the purpose of inspection of unexplained events. It is not to put the Soviet Union into the dock. It is specifically designed to clear the Soviet Union or to clear the United States or the United Kingdom if charges are made that we are testing when we are not. That is the purpose of verification. When a suspicion arises that tests have been made, we want someone who is qualified to be able to come and say, "That was not a secret test; it was an earthquake." That is the sole purpose of verification: to make sure that a country is not unjustly accused and to give confidence to the world when an accusation is in danger of being made. As far as I know — and I do appeal to Mr. Gromyko on this — the Soviet Union is now the only country in the world which will not gladly offer that service to humanity. I do beg him, therefore, to think again.

Now, Mr. Gromyko says that there will be no dispute; that if there is an explosion, it will be a fact, it will be known to everybody and apparent to everybody, and there will be no dispute about facts. But there are constant disputes about facts. The Chinese are on Indian soil, but the Chinese deny it. Only ten days ago I had to tell Mr. Gromyko that the Berlin air corridors were full of metal chaff dropped from aeroplanes; he denied it absolutely. Now, this is a fact that somebody ought to go and decide upon, to say whether I am a liar or he is mistaken. Somebody impartial really ought to go and look in these cases and say "yes" or "no".

ENDC/PV.8 Brazil/de San Thiago Dantas 23.3.62 p.33

....The discontinuance of nuclear tests and every other aspect of disarmament require that each State be afforded absolute certainty that its security will not be endangered and that it will have means of verifying whether the agreements concluded are really being fulfilled.

It is obvious that all inspection depends, in the first place, on very accurate knowledge of the technical means available for verifying the implementation of the clauses of a treaty. An exchange of scientific information is essential, in order that States may have the same stock of knowledge and technical means for verifying the implementation of the agreements concluded. At the same time, it is clear that means of inspection must be provided, insofar as our common need requires.

The idea of disarmament without inspection is just as unfeasible as the idea of inspection without disarmament is unacceptable. These two extremes are closely related. The right of verification is the counterpart of disarmament and, just as we must reject any type of verification not closely connected with disarmament, we must also reject the idea of a disarmament that is promised, agreed or declared without the corresponding means of verification. In order to achieve a balance between these two extremes work is obviously needed — work carried out in all good faith, and to which we are sure the nations assembled here in this Committee have a contribution of good will to make.

ENDC/PV.10 USA/Rusk 27.3.62 pp.9-10

The United States basic position with respect to verification is known to the Committee. It is that secrecy and disarmament are fundamentally incompatible; but it is also that the measures agreed to must be subject only to that verification which is necessary in order to determine whether the agreed measures are in fact being carried out. This is the only manner in which disarmament can proceed with the certainty that no State will obtain military advantage by violation or evasion of its commitments

during the disarmament process.

A major problem of past general disarmament negotiations has been the lack of opportunity to explore the key question of verification thoroughly, objectively and constructively. This Conference provides such an opportunity. The United States is willing to consider seriously any proposed verification system in the light of the degree of assurance of compliance that it would provide, and in the light of the significance of possible violations. The United States recognizes that considerably less than total access to a nation's territory may suffice.

For example, it is possible, we believe, to design an adequate verification system, based on the concept that, although all parts of the territory of a State should be subject to the risk of inspection from the outset, the extent of the territory actually inspected in any step or stage would bear a close relationship to the amount of disarmament and to the criticality of the particular disarmament measures.

The United States believes, as I suggested on 15 March, that this concept could be implemented by a system of zonal inspection which would be generally applicable to measures eliminating, limiting or reducing armaments and forces. A system of zonal inspection would limit the extent of territory actually inspected during the early phases of disarmament; it would require far fewer inspectors than would be required to verify implementation of disarmament simultaneously in all parts of a nation from the outset.

At the same time it could have complementary provisions providing for full verification of arms destroyed and full verification of limitations on declared facilities such as test sites, or missile launchers, or factories or military laboratories. As disarmament proceeded, there would be increasing assurance -- as more and more zones came under inspection -- that no undeclared armaments or forces were retained and that no clandestine activities were being pursued. Such a zonal approach, we feel, would meet the Soviet requirement that full inspection be related to full disarmament and our view that inspection should develop progressively with disarmament.

The United States is prepared now both to make suggestions as to the details of such a plan and to explore the possibility of designing a zonal verification system which would be applicable to an agreed programme of disarmament.

Organizational arrangements must be worked out to put disarmament and verification measures into effect.

ENDC/PV.13 Burma/Barrington

2.4.62

pp.6-8

After the most careful and earnest consideration, it seems to us that the claim of the Soviet Union that all nuclear explosions can be detected and identified by means of national detection systems, and that no international control is therefore necessary, leaves one vital question unanswered. It is: What happens in the case of a dispute as to the facts of a particular event? It may be said that there could be no dispute, because all national systems involved would give the same result. But we are not sure that this answers the question. After all, however good they may be, the instruments which record the events do not get up and speak. What they do is to record data which trained personnel interpret. It is therefore not inconceivable that interpretations may differ. How would a difference of this kind be resolved unless there were in existence some impartial international scientific body acceptable to all the nuclear Powers whose function would be to settle such disputes, if necessary after making such enquiries and inspections as may be considered by it to be essential? Such a body would, by its very function, have to work in close co-operation with all national systems. Obviously such an international scientific body should not be any more elaborate than it needs to be.

But of the need for such a body, my delegation has very little doubt. Without it, every dispute as to the facts of any event would imperil a nuclear test ban treaty; with it, the probabilities are that every dispute would be found to be the result of genuine misinterpretation. We make this categorical statement because of our confidence that no State which signed a nuclear test ban treaty would think of engaging in clandestine tests. Thus the existence of such an international scientific body would seem to be inseparable from a successful test ban treaty.

On the other hand, my delegation seriously wonders whether such an international scientific body need be as elaborate as that envisaged by the two Western nuclear Powers represented at this Conference. If our understanding is not incorrect, the principal cause of concern would appear to be the difficulty of distinguishing between certain types of earthquakes and under ground nuclear explosions. There seems to be relatively less concern about the ability to detect and identify other nuclear explosions, that is, those under water, in the atmosphere or biosphere. This would appear to be borne out by the observations contained in chapter IV of the report of the Conference of Experts which met in 1958 (EXP/NUC/28). But if this is correct, the next question that arises is, how significant from the military point of view are underground nuclear tests, particularly those with a low yield which are difficult to distinguish from earthquakes? This is a matter of some importance because it stands to reason that if they do not, in fact, have much military significance the urge to indulge in them will not be great. After all, even underground explosions are expensive undertakings.

In this connexion we cannot help but be impressed with the fact, to which Mr. Zorin referred, that during the three-year voluntary moratorium, which ended with the Soviet Union's resumption of tests in 1961, neither side had ever charged the other with any violation, although each must have received hundreds of earthquake signals from within the territory of the other. Mr. Dean has explained that the United States scientists did indeed record hundreds and hundreds of seismic or acoustic signals during these three years, that some of them had aroused suspicion, but that the United States had kept silent because it could not identify any of the events with certainty as a nuclear explosion, and also because it did not wish to voice suspicions in a way that might interfere with the test ban negotiations.

My delegation believes that in fact none of these signals which aroused suspicion was due to nuclear explosions, just as it believes that none of the signals recorded by the Soviet scientists, during the same period, of events in the United States had its origin in nuclear tests. However, that is only by the way. The significant fact is that the standard which the United States Government applied in those cases was apparently that of military significance. In other words, had any of the signals which United States scientists recorded been suggestive of a militarily significant event it is unlikely that the United States would have refrained from voicing its suspicions. Could not the same test be applied now? Is it essential that any system of international control over a test ban treaty should be such as to be able, theoretically, to identify every suspicious event, regardless of its military significance? Might we not be running the risk of losing sight of the forest by peering too closely at the trees? Might not a less elaborate international system, perhaps omitting control posts from the territories of those who object to them, but with the right of conducting an agreed number of properly safeguarded on-site inspections by the international control organ, serve all our purposes just as well?

Our criterion has always been the creation of an effective international control system to monitor the actions of States signing a nuclear test ban treaty, so as to ensure that each fulfilled its obligations under that treaty. Within the broad limits of that criterion we have done everything possible to accommodate Soviet worries and Soviet desires.

The draft treaty which the United States and the United Kingdom tabled in Geneva on 18 April 1961, together with its several subsequent amendments (ENDC/9), represented not the mere beginning of negotiations but rather their culmination. Incorporated in that draft were all the results of over two years of hard East-West discussion of all treaty details, and the constructive changes which we and the United Kingdom have offered in the last eleven months. We have gone continually forward to meet Soviet demands.

Thus it is that the two Western Powers now offer to sign immediately a totally comprehensive treaty with the so-called threshold eliminated. This treaty would ban all nuclear tests in all environments. But let me be clear: although the Geneva experts had worked out this system, and although we had been discussing this treaty with the threshold, when we offered to sign this totally comprehensive treaty we did not ask for any more control posts, despite the fact that the number of events would be vastly increased, and we did not ask for a greater number of on-site inspections. On the contrary, we tried to work out a system between seismic and non-seismic territories in the Soviet Union.

So, starting from the basis of the control system unanimously recommended in 1958 by Soviet, United Kingdom, United States and other scientists (EXP/NUC/28), we have devised carefully-thought-out political and organizational safeguards for incorporation into our draft treaty, to assure the Soviet Union both of complete equality in control operations and of the minimum of essential detection, identification and verification activities within Soviet territory.

At the same time, we have offered the Soviet Union even greater inspection opportunities in our respective territories. East and West would have absolute parity on the top policy-making control commission, on which three non-associated nations would also sit. The nationals of Eastern and Western countries would also have numerical equality at every control post and at the system headquarters, at every level, from top to bottom. Nationals of non-aligned nations would also serve at these installations. All auxiliary services would be supplied by nationals of host countries. Indeed, the Soviet Union has been granted a veto right over the appointment of the administrator of the control system, over the adoption of the total annual budget, over any major changes in the control system and over all amendments to the treaty.

An annual maximum ceiling of twenty inspections per year in the vast territory of the Soviet Union has been proposed by the West, even though the Soviet Union could carry out up to forty inspections per annum on the smaller territories of the United Kingdom and the United States. Although the Geneva experts suggested thirty-seven control posts for the continent of Asia, we have constantly examined this question with our scientists. The number of control posts on Soviet territory has been reduced from the original twenty-eight to nineteen, which our scientists tell us is the lowest level consistent with carrying out the 1958 recommendations of the scientists. But the number remains proportionally higher for the United States and United Kingdom territories.

At the request of the Soviet Union, provision has been made for the expanded use of the nationals of non-associated countries on inspection teams, and we have proposed during the last month, as I have just indicated, to put a very low ceiling on the number of annual inspections in the aseismic or non-earthquake parts of the Soviet Union,

which constitute the bulk of Soviet territory. We have offered to discuss our data on this question with the Soviet Union, but so far it has declined to discuss such data.

I cannot emphasize too strongly, moreover, that whatever control arrangements the United Kingdom and the United States ask the Soviet Union to accept to monitor a test ban treaty, we are more than willing to install in our own countries. We do not seek one iota more of international control than is necessary, but we cannot settle for less than is essential to protect free world security.

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It can thus be seen that, right up to the time when the Soviet Union announced its unilateral resumption of nuclear weapon tests in August 1961, it fully supported the experts' report and the concept of an international control system. Of course, the two sides were still not in agreement on many political and organizational questions surrounding the control system to be embodied in the nuclear test ban treaty, but there were very few apparent disagreements on the technical measures or on their necessity.

Despite this, after the Soviet Union had unilaterally resumed its nuclear tests in September 1961, the Soviet Government made a complete about-face by announcing to an astounded and disbelieving world that no international control system was necessary and that the controls recommended by the Geneva experts in 1958 could all be supplanted by so-called national detection systems.

Permit me to describe in some detail the nature of the international control system which the experts recommended in 1958. This will enable a better appreciation of just what drastic changes the Soviet Union is now advocating.

The 1958 experts faced the problem, as we do today, of monitoring four environments to ensure against clandestine testing. These four environments were the atmosphere to a height of about 50 kilometres, high altitudes above 50 kilometres, outer space, on and under water, and under ground.

The scientists in 1958 found that if a system were to be effective it would have to consist of a global network of control posts, of a system of far-earth and solar satellites, and of a headquarters for worldwide control operations, for data analysis and for administration. Regarding control posts, with a world total set at 170 to 180, specific figures were given for the number of posts to be put on each continent, on ocean islands and afloat -- that is, on specially equipped vessels.

The key to the effective use of control posts was their global distribution and their systematic spacing at regular distances -- 1,700 kilometres apart in aseismic, or non-earthquake, areas and 1,000 kilometres apart in seismic areas. Any gaps in this network would in turn cause gaps in control effectiveness. Of this there can be no question, because many seismic signals which emanate from either earthquakes or underground nuclear detonations fade with distance and become lost unless stations or control posts relatively near to the disturbance are so situated as to record signals. The multiplication of control posts many kilometres away will not help if the signals emanating from the event itself are lost.

All control posts were to be equipped with instruments to detect possible atmospheric and underground nuclear tests, namely electromagnetic detectors, acoustic detectors, chemical analysis equipment for processing air samples for radioactivity, and seismographs. Control posts near oceans were also to have hydroacoustical detectors for possible underwater nuclear tests, and about one-third of the control posts were to have optical scanning devices for possible nuclear tests above the atmosphere but below those more distant areas of outer space which the planned far-earth or solar satellite systems could monitor.

I have been recently reviewing, for the past six or seven months, this system of the 1958 experts, and I have on many occasions raised the question which the representative of Burma has brought up this morning. I have repeatedly asked for conferences, I have repeatedly asked for more data, and I have been assured by all of our foremost scientists, including those at universities, that the system of the Geneva experts is not too elaborate, that it is necessary and that it is not possible to monitor the specific under-water tests which the representative of Burma mentioned without this system of control. If anyone has any additional scientific data to contribute on that point, I would be only too happy to receive them.

To supplement atmospheric controls on the ground, regular and special aircraft sampling flights over oceans and national territories were provided for. These special aircraft flights were specifically intended to follow up unidentified atmospheric events. To achieve adequate underground controls it was envisaged that a certain number of on-site inspections would take place at the sites where suspicious seismic events were believed to have occurred.

There has been so much confusion about this question of underground controls that it merits some additional explanation. This is especially pertinent since we now know that, apart from tests in outer space, underground tests are the hardest to monitor effectively, even with an international system, and also that very distinct and important military gains in nuclear weapons can be made by such tests. The tests in the low kiloton yield can be of tremendous military significance in the anti-missile field even though they may not be of importance in the development of weapons themselves.

The first problem in monitoring underground tests is to discover that something has occurred — in other words, to detect seismic signals which indicate that a seismic event has taken place. The second problem is to know approximately where this seismic event took place. The third problem is to learn the exact nature of the event, namely, whether a natural earthquake or man-made, and therefore a possible nuclear explosion.

Seismographs by themselves can record seismic events, but each individual seismograph around the world registers only a very small part of all seismic events, namely, of all earthquakes. To ensure maximum detection of all significant seismic events, including possible underground nuclear detonations in the small-yield ranges, and to ensure that each seismic event will be monitored from all sides, it is essential to have a global control post network of the type recommended by the scientists who met in Geneva in 1958.

A less complete network would noticeably affect the number of seismic events detected, but, even more important, it would have a tremendously adverse effect on the number of seismic events which can be accurately located in a geographical sense and which can then be identified as to type.

The objective of any control system over underground nuclear tests must be to distinguish any such tests from the great mass of normal and natural seismic events, that is, from the annual total of thousands of earthquakes of all sizes. The 1958 experts noted that some seismic events, though only those of relatively large size, could, after being detected, be identified as earthquakes merely through examination of the seismographic record by specialists. These scientists would, in those particular cases, recognize that certain of the recordings could have come only from earthquakes.

However, the experts also recognized that there was no way — I repeat, no way — in which any seismic event could be identified as an underground explosion merely by interpretation of the seismographic record. Even worse, the experts declared that in many instances it would be quite impossible for the scientists, using the equipment recommended for the international control system itself, to identify a given seismic event positively as being non-nuclear in origin, that is, as an earthquake. Such an event would therefore be left in the dubious or suspicious category. To achieve the

identification of such events it would be necessary to send an inspection team to the site of the seismic event.

Here again the prime importance of a regularly-spaced global network of 170 to 180 control posts becomes evident. This network is essential in order to have the maximum chance of being able to identify a detected seismic event as an earthquake from the seismographic recording alone, without any on-site inspection. It is also essential for those cases where an on-site inspection is necessary, because it will give the best chance for pin-pointing the probable site of that seismic event, namely, the exact spot which the inspection team will want to visit.

From what I have said it is clear that mere detection by distant instrumentation cannot be sufficient, for distant instrumentation does not at all provide for identification, which is the real aim of a control system over possible underground tests. The inter-relation between the problem of detection and the infinitely more difficult and complex problem of identification occurs again and again throughout the report of the 1958 experts, to which the Soviet scientists and their Government subscribed without any reservation. They have never challenged this report on scientific grounds with scientific evidence, nor, so far as I am aware, has anyone else.

I am sorry to have bored the Conference with all these details — for boring I know it is — but I hope that all of us around this table may now have a good idea of the control system which the experts recommended and which is the technical foundation of the draft treaty of 18 April 1961 which the Western Powers have proposed (ENDC/9). As my earlier quotations from the verbatim records of the Conference on the Discontinuance of Nuclear Weapon Tests indicated, the Soviet Union also supported this control system right up until July 1961.

However, what had been scientifically indispensable for the Soviet Union in July 1961, lo and behold, became totally superfluous for political reasons in November, after the Soviet Union had completed its 1961 test series; and ever since and to this very day the Soviet Union has been trying, quite unsuccessfully, to defend this departure from a scientific basis, this total about-face.

In a situation such as this it seems only logical to say that a very heavy burden, indeed, of proof falls on the Soviet Union to demonstrate that there is some basis for its completely new but scientifically unsupportable position. The Soviet Union now finds itself in the position of challenging the correctness not only of the United Kingdom and the United States point of view, but even of the views which it, itself, expressed repeatedly and strongly right up until last year.

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There are also other political side facets of a nuclear test ban control system. The Soviet Union proclaims that its refusal to agree to international controls, despite all the safeguards we have introduced, is based on the real possibility of their misuse for espionage purposes. Of course, we have analysed this line and we have shown its utter groundlessness. This may be why the Soviet Union now also seeks to justify its opposition to international control on the alleged technical adequacy of so-called national systems. I suspect that this more recent theme has really been thought up to remove some of the need for a total Soviet reliance on the charges that an international control system to monitor the nuclear test ban treaty would make it possible for the West to advance its alleged objective of spying upon the Soviet Union.

But this announced Soviet fear of espionage was with us in 1958 at the start of the Conference on the Discontinuance of Nuclear Weapon Tests. The United States and the United Kingdom have made great efforts to satisfy any reasonable Soviet concerns

in this field, always provided that it could be done without undermining the effectiveness of the international control system. The history of the negotiations shows that weeks and months were spent patiently working out compromise solutions for many issues, such as the composition by nationality of the inspection teams and the staffs of control posts and the international headquarters. I gave some details in this respect at the outset of my remarks today.

The result of all this lengthy negotiation was a system absolutely devoid of any espionage potential. We have done our best to meet all Soviet desires in this respect. This fact makes irrelevant the frequent accusations by Soviet representatives that the United States desires to use the nuclear test ban system to conduct espionage in the Soviet Union. This is not correct, of course. It can have nothing whatsoever to do with the issue of whether the carefully devised measures of control over a test ban which we and the United Kingdom advocate might be able to serve any intelligence aims which any country might harbour towards another. As Secretary Rusk clearly showed in the detailed analysis incorporated in his speech here on 23 March last (ENDC/PV.8, p.14 et seq.), no espionage danger could arise.

Since I have already bored the Committee with all this tendentious details, I shall not of course repeat all Mr. Rusk said then, but his statement showed that foreigners would be a minority at each fixed control post and that such foreigners on host country territory would be under constant Soviet supervision at all times. The exact sites of the control posts themselves could not be chosen without Soviet Government approval. Foreigners on inspection teams would be under constant supervision by Soviet Government representatives. The amount of equipment that foreigners could carry would be limited, they would be able to carry out only prescribed technical tasks. The area subject to examination during each on-site inspection would be small and at the most would never exceed more than one part in two thousand of Soviet territory in any one year. Moreover, most of this work would be carried out in the earthquake areas of the Soviet Union far from centres of military or industrial activity. Finally, all the occasional air-sampling flights would take place in Soviet planes with Soviet crews and with Soviet Government observers under fully controlled conditions and along predetermined, Soviet-approved flight routes. It is clear that no one interested in espionage would undertake it by means of the control and inspection system embodied in the United States-United Kingdom nuclear test ban treaty. That treaty and its operation simply cannot be used for espionage.

In my remarks today I have indicated, I believe, why international controls over a test ban treaty are essential and why those controls must take the form of an international system. I have shown that there are no logical reasons why the Soviet Union should fear such a system, and that the United States and the United Kingdom have displayed continuing negotiating ingenuity to try to allay Soviet fears. Indeed, even the Soviet Union, in its memorandum of 26 September 1961, said that it would be ready to accept certain fixed observation posts manned by foreigners on its territory, to reduce Western fears of any surprise attack by the Soviet Union. Yet, by definition, this would not be a disarmament measure, whereas a test ban would be, and a test ban would eliminate all further tests in all further environments.

If the Soviet Union is willing to accept fixed observation posts manned by foreigners in connexion with the carrying out of a surprise attack, what grounds exist for rejecting an international control system as part of a nuclear test ban treaty?

The representative of Burma referred to them, too, in his brilliant statement this morning. The reply made to this kind of question has been that once the agreement is concluded, it will certainly not be violated and that we must have confidence in the signature which each party will append to a treaty prohibiting nuclear tests. But that would be assuming the solution of a problem which has not been solved. I have no doubt, or at least I hope, that at the end of our work we shall succeed in re-establishing full confidence among us all. But that is an aim which it will cost us many more efforts to achieve.

I should like to recall in this connexion that Mr. Segni, the Italian Minister for Foreign Affairs, in his statement of 28 March 1962, stressed the need for "a sincere effort on the part of all of us to break down ... the wall of misunderstanding that separates us, thereby re-establishing a psychological climate that is not built on distrust" (ENDC/C.1/PV.1, p.11). It is precisely through the establishment of mutual international control that we shall be able to do this. There is no other way. By affirming that mutual confidence justifies solely national control, we should be reversing the terms of the problem and making it more difficult to reach a conclusion. On the other hand, it is obvious that the international control of tests must be confined to what is strictly necessary for this purpose. And it is precisely with this object in view that the United States and the United Kingdom delegations in the Sub-Committee have, in an undeniably conciliatory spirit, as Mr. Dean told us today, made concrete and precise proposals allowing of no extension of control beyond those limits, so as to provide a full guarantee that control will never become espionage. Within these narrow limits, however, international control is essential, for without it an agreement on the discontinuance of tests would no longer be a contribution to world security, but a new element of doubt and uncertainty. It would not provide that improvement in the international situation which we all so eagerly desire.

ENDC/PV.13

USSR/Zorin

2.4.62

p.41

....from the standpoint of the Western Powers the question of detecting and identifying nuclear explosions gives rise to doubts only in respect of a certain category of underground nuclear explosions.

As everyone knows, we have no such doubts. As regards nuclear explosions in the atmosphere, in outer space and under water, doubts concerning their detection and identification are minimal and in practice could be entirely discounted. Many of the representatives who have spoken here today referred to this point. It is established that in respect of tests in the atmosphere the United States and the United Kingdom, as Mr. Kennedy and Mr. Macmillan stated in their joint proposal of 3 September 1961, "are prepared to rely upon existing means of detection, which they believe to be adequate, and are not suggesting additional controls."(GEN/DNT/120)

As appears from President Kennedy's statement at his press conference of 29 March 1962, the United States is insisting on inspection and on international control in general primarily because it believes that without them it is impossible to check "whether a seismic event was an earthquake or an explosion". Mr. Dean confirmed this in his statement today. Quite obviously, however, the United States and the United Kingdom, in resting their case chiefly on their doubt whether underground nuclear explosions can be detected and identified, are at the same time insisting on international control over all categories of nuclear explosions, including explosions in the atmosphere, although the statement of 3 September to which I have just referred shows that they then considered — and they still consider — the existing national system of control to be adequate.

The question inevitably arises why the United States and the United Kingdom are frustrating attempts to conclude a treaty on the discontinuance of all nuclear weapons tests on the ground that the Soviet Union rejects an international control system, whereas even they admit that without this system of control any violation of a treaty on the discontinuance of tests in the atmosphere, in outer space and under water can be detected by the existing national system of control.

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We hope that with bonne volonté it will be possible — perhaps with an approach somewhat different from the one applied so far — to find a solution which will satisfy seemingly contradictory demands.

For example, would it not be worth while to examine whether a solution to the problem of continuous control could be found on a non-political, non-military, purely scientific basis — through a network of observation posts already established for the purpose of scientific advance and technological progress in the fields of meteorology, seismology, geophysics, measuring of radioactive fallout, etc.? Close daily co-operation in many of these fields already exists, even though certain technical and administrative improvements could no doubt be made. Would it not be worth considering to what extent we might rely on these observation posts for a complete and continuous registration and identification of such phenomena as are relevant in this context?

The reliance would thus primarily be on institutions established for peaceful, scientific purposes — an independent endeavour objectively to detect possible explosions and, to a certain degree, to identify their origin and nature. As Ambassador Dean has brought up the experience of Swedish scientists, I wish to say that, to the best of my knowledge, there is no real or marked discrepancy between the views of American scientists and our own as to the detectability and possibility of identifying seismic events. Obviously this does not mean that science and technology in other countries may not possess more profound knowledge and more refined instruments than those known to us today.

When we speak about existing posts and institutions, we think of them as linked together and closely collaborating in an international chain. If we follow this idea, would it not be logical if observations and data from different fields were reported to and collected in an international scientific centre, possibly acting within the framework of an already existing international organization, or associated with such an organization? Thus we should be able to base our efforts on, and further develop, the scientific collaboration already established.

Further, would it not be possible to attach to such an organization or agency a limited number of scientists of high standing and integrity, possibly from non-aligned countries, who would constitute a commission which, by analyses of data on radioactive fallout as provided for by General Assembly resolution 1629(XVI), and of seismic events and other available facts, could consider the possibility or probability that a test had been undertaken in violation of the treaty?

In this connexion, the question arises whether any additional verification would be needed to supplement the observations and analyses in those cases where there was a possibility or a probability that nuclear tests had been undertaken. It is not my intention to bring forward any definite ideas in this context, but only to raise the question whether the existence of such cases should not be seen in the light of possibilities of identification actually existing at any given time. Scientific and technological progress seems to be decisive as to the need for further verification. Against this background, and in view of the fact that the only possible sanction against a party which had vio-

lated the treaty would be the right of the other parties to withdraw from the agreement, it might be asked whether a system should not be considered under which inspection in specified concrete cases would require the consent of the party concerned in accordance with certain established procedures, with other parties enjoying the right of withdrawal from the agreement in case such consent was not given and if the probability of such a test in breach of the agreement had been duly established.

ENDC/PV.14 Czechoslovakia/Hajek

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....The settlement of the question of the discontinuance of nuclear tests in principle would, of course, be facilitated by reaching agreement on general and complete disarmament. Not only the question of the cessation of tests but all questions connected with control would then be settled within its framework.

In addition to these proposals, there are other proposals which would provide for the discontinuance of tests before the attainment of the agreement on general and complete disarmament. I have in mind particular the proposal of the Soviet Union of 27 November 1961 (ENDC/11), which envisages the cessation of all tests, in the atmosphere, in outer space and under water, to be controlled by the existing national control instruments, and a moratorium on all underground tests until agreement has been reached on the establishment of an appropriate control system within the framework of general and complete disarmament. This proposal takes into account the position of the Western Powers, which regard the question of underground nuclear tests -- and this position was stressed once again yesterday -- as the main problem. Therefore the Government of the Soviet Union has proposed that underground tests should not be included in the treaty on the banning of all tests until a control system has been established within the framework of general and complete disarmament, and that a moratorium should be declared on them.

We appreciate with sympathy the effort on the part of neutral countries to attain an immediate discontinuance of nuclear tests, an effort reflected yesterday in the statements of several representatives, in particular the representatives of Burma, Ethiopia and India. We associate ourselves with their appeal not to admit an impasse in the work of the Sub-Committee on a Treaty for the Discontinuance of Nuclear Weapon Tests.

We feel that it would be useful at least to adopt the suggestion made in the first few days of the work of the Conference by the delegation of India, and supported by the delegation of Burma (ENDC/PV.5, p.37), to the effect that all nuclear Powers should refrain from carrying out any tests during the Committee's deliberations. This would be, I am sure, an important contribution to the effort to reach agreement on general and complete disarmament in the shortest time, and thus also to solve definitively the problem of nuclear tests.

ENDC/PV.14 Romania/Macovescu

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Nobody denies the need of control as concerns the prohibition of nuclear weapon tests. But if on 3 September 1961 there was no need of international control because the existing means of detection were adequate -- as is stated in the Kennedy-Macmillan letter, there is even less need of an international control now. The means of detection and identification have improved and are constantly improving, and this permits us to assert that efficient control can be carried out by using national means only.

On the other hand, we must stress that the method of national control presents the great advantage of excluding the very idea of the collection of military information — for which international control creates indisputable possibilities. This greatly helps to improve international relations, to remove suspicion and thus to establish an atmosphere necessary to successfully tackle the great issues which today face us on the international plane.

I would like to draw attention to another aspect of the problem. During the three years when the moratorium between the nuclear Powers was in force, no nuclear weapon tests were carried out and no international control was exerted. Although there was no treaty, no government ever manifested any suspicion that others were secretly carrying out such tests. There existed the minimum of confidence necessary to any understanding. Neither individual nor States can come to an agreement if there is no mutual confidence that obligations assumed will be respected.

ENDC/PV.14

Mexico/Padillo Nervo

3.4.62

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It is difficult to understand how disarmament negotiations can continue while a competition in nuclear explosions is going on. We do not think that any progress can be made in the negotiations on general and complete disarmament without first discontinuing nuclear explosions and guaranteeing, by means of a contractual obligation and adequate international control, that such tests will never be resumed.

We have listened to and carefully considered the views expressed by the representatives of the nuclear Powers, as well as the arguments by which they support their respective positions. We realize that in the last analysis a treaty on the discontinuance of nuclear tests cannot be kept in force by coercive measures. There could be only two kinds of sanction for the violation of such a treaty: (a) the moral condemnation of public opinion, and (b) the reprisal consisting in the fact that the other side would be freed from the obligation it had contracted.

Unless we rely on good faith and respect for contracted obligations, no method or system of verification will guarantee the effectiveness of such a treaty. But it is essential to recognize that a system of minimum verification is necessary to overcome suspicion and to promote an atmosphere of mutual trust. The acceptance of a minimum of international control might help to create a favourable climate for carrying out such a complicated and difficult task as disarmament.

The idea of minimum international control has been justified by the need to identify suspicious seismic phenomena when it cannot be determined whether they are due to natural causes or to an explosion.

The disagreement, as it appears from the statements we have heard, centres on the ability or inability of national detection systems to identify the nature of the phenomena recorded. The Soviet Union says: "National means are sufficient." The United States and the United Kingdom say: "The existing instruments may be able to record a seismic phenomenon, but they cannot identify it, and inspection is necessary to settle doubtful cases."

Since this is the matter in dispute, it would seem logical to conclude that both sides should submit to the decision of a third party, which would be an international scientific body called upon to examine the data, the instruments and the results of national observations supplied by the different countries. After examining the data and reports furnished by the nuclear Powers in support of their respective arguments, the international scientific body would decide whether one statement or the other was scientifically correct. Once the opinion of an international scientific body had been obtained, negotiations could be resumed in the light of the impartial opinion of that

body.

Another suggestion which might be considered — as the Swedish delegation so aptly pointed out (ENDC/PV.13) — is to agree that in cases of doubt as to the true nature and origin of a phenomenon recorded by the various national stations, an international scientific body may apply to the government of the country in whose territory the epicentre of the recorded phenomenon was situated for additional reports and data, which would be confirmed by direct observation carried out by that body. This would be a form of minimum international control which should be politically unobjectionable and would preserve every Government against unjustified doubts or suspicions due to error, confusion or inefficiency in the observations provided through international co-operation in the recording of seismic phenomena.

I do not think that the emphasis should be solely on the scientific aspect of minimum of international control. Acceptance of the principle of a minimum of international verification would also have important political and psychological repercussions. It would provide a guarantee against unjustified doubts and suspicions and would help create an atmosphere of mutual trust which would facilitate progress in the various stages of general and complete disarmament.

ENDC/PV.14 UK/Godber

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....At this stage the United States and the United Kingdom, in a desire to further the work of the Conference, tabled on 18 April 1961 a complete draft treaty incorporating all these agreed articles and the two agreed annexes (GEN/DNT/110). There were, of course, still some outstanding issues, but those outstanding issues were not concerned with the principle of international supervision. They were not concerned with the degree of that international supervision. They were not concerned with the question whether or not there should be international control posts on the territories of the nuclear Powers; they were concerned with how many control posts there should be. They were not concerned with whether there should be on-site inspection to identify events which might be suspected of being nuclear explosions; they were concerned with the number of on-site inspections which should be permitted in any one year.

At this stage, in putting forward their draft treaty, the United States and the United Kingdom said that their position was still completely flexible, and that their draft treaty was fully negotiable. We have maintained that flexibility ever since. One or two representatives have talked about the rigidity of the positions on both sides, but I do submit that the Western Powers have been flexible and are flexible today, and we will be only too glad to continue with that flexibility if we can see some move from the other side.

We have made constant efforts since that time to meet the Soviet Union wherever it has expressed objections to our proposals, save only that we wish to maintain the principle, for so long accepted by the Soviet Union, of a minimum of international verification. This point is something on which I must lay particular emphasis. Yesterday there were suggestions in the speeches of some of our colleagues that both sides were adopting these very rigid attitudes, but, as I say, this really is not the case.

I would repeat that we have put forward a number of proposals since we tabled our draft treaty designed to understand and to meet the Soviet objections. All our alternative proposals are for a system less rigorous and involving less inspection and less control than that recommended by the experts of both Western and communist countries in 1958. These experts proposed an international inspection of every unidentified event. This was the agreement between the two sides. We, for our part, proposed international inspection of, at the very most, one in every four or five of those

detected events.

In general, we have even gone so far as to say we would scrap all the work done at the Geneva Conference and start again from the beginning if the Soviet Union would accept the basic principle of a minimum of international verification. That was our position, and it is our position today.

The Soviet Union, on the other hand — and I regret to have to say this, but one must speak frankly — has been rigid and it is rigid today. To our great dismay, the Soviet reaction to our draft treaty was a categorical refusal to discuss any of its details. Soviet representatives since then have categorically refused to discuss a single one of our subsequent proposals. Worse than that, they have progressively withdrawn from some of the more important provisions on which agreement had previously been reached.

Finally, at the end of August 1961, the Soviet Union announced and carried out its huge series of tests. Then, on 27 November it submitted new proposals (ENDC/11) which completely repudiated the whole basis on which the negotiations had been proceeding and which offered a treaty — or agreement, as they called it — embodying no form of international verification, no impartial check whatsoever, on the observance of the obligation not to test.

These are the melancholy facts. They cannot be gainsaid by anyone around this table. What are the reasons? Perhaps I could briefly recount some of them.

First, the Soviet representatives have argued that a new situation developed in the world last year which made it impossible for the Soviet Union to accept any element of an international control system on its territory. I must say that I really do find this an incomprehensible argument.

Mr. Zorin yesterday referred to the question of Berlin, but if East-West relations were exacerbated over the question of Berlin, I must say definitely that the responsibility for this lies at the door of the Soviet Union. I do not want to introduce arguments over Berlin here; we have enough problems without referring to that. But one must frankly accept that fact. Indeed, so far as we can see, nothing relevant had happened in the international situation except that the Soviet Government itself had resumed the race in nuclear testing. Surely that makes the need for a test ban with a minimum of international verification greater rather than less.

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We want to sign an effective nuclear test ban treaty, but we have never been willing, and we are not now willing, to accept any control arrangements which would not, by means of their prospective operations, pose a considerable risk of discovery to any potential violator. By this we mean a risk of such size that any rational government, debating whether to attempt a secret nuclear test, would be likely to be deterred by the risk of disclosure from making the attempt.

Mr. Padilla Nervo, the representative of Mexico, who has had great experience in the field of disarmament, observed very correctly at our last meeting that there are only two sanctions which can be applied when a violation of a treaty commitment not to test has occurred. These are, first, the moral condemnation of the violator and, second, the resumption of testing by other Powers.

Judging by what happened in the world last September when the Soviet Union violated its own pledge not to test again if the United States and the United Kingdom did not do so first, I am not sure that the hoped-for moral condemnation is an especially powerful sanction, although of course it might be stronger if a treaty instead of a unilateral pledge were being violated. And the freedom to resume testing may be small,

and indeed cold comfort to another nuclear Power if the violating State has already obtained a lead of many months by its surprise misdeed. Indeed, it may well be too late not only for the nuclear Power, but for the world.

Be this as it may, however, it is evident that these two sanctions will never become available to aggrieved parties if the secret violation is not brought to light, or is not brought to light in time, or if the scientific data remain in confused dispute between the two nuclear sides. This fact reinforces the need for making sure in regard to a nuclear test ban treaty, as in regard to control arrangements over all other disarmament measures, that an effectively functioning international mechanism or organization exists which is technically and scientifically sound and which is accepted by all States as objective and impartial.

As the representative of Burma wisely observed at our meeting on 2 April (ENDC/PV.13), adequate controls must be international controls, because otherwise there would be no way of settling any dispute between rival nuclear Powers by some impartial body. If data as to whether a certain event took place were always subject to dispute, anything could take place without the world's becoming aware of the true facts.

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As I said at the meeting of the Conference on 2 April (ENDC/PV.13), the experts from both the Soviet Union and the Western countries at the Conference of Experts here in Geneva in 1958 know all about the so-called national systems, but those experts rejected any significant reliance upon them. It may be enlightening to the other delegations if I read a short excerpt from the verbatim record of the twelfth meeting, on 12 December 1959, of Technical Working Group No. 2, to which I have referred earlier this morning. The leader of the United States scientific group, Mr. James Fisk, then said:

"The trustworthiness and reliability and character of the information that would come from the national stations are not on a par with those of the information that would come from the control stations. That is the point; we have been over it before; you understand well enough."

(GEN/DNT/TWG.2/PV.12, page 71)

To this the leader of the Soviet scientific group, Mr. Fedorov, responded immediately:

"That is also our view. We are not very enthusiastic about our own installations. Our seismologists are always arguing among themselves and with the people who have to keep up the stations. Such criticism is very useful, and it certainly is published by our Press. But it is not on the basis of data collected by our stations that we would change the entire control system, and we do not draw important conclusions from such data. We believe that in examining the control system we must always remember that the data which we intend to obtain from national seismic stations will have an auxiliary character" ---

I repeat Mr. Fedorov's words, "will have an auxiliary character" ---

"I think that we agree on that point; we agreed on it last year."(Ibid.)

Here there is agreement between the United States scientists and the Soviet scientists that the national detection systems are not reliable and that there has to be an international control system. So far as I am aware, there have been no scientific data advanced to change that view. Yet today the Soviet Union would have us rely exclusively on just those national systems which, according to its own chief scientist, were

meant to serve only as auxiliaries. We still know of no scientific break-through that would alter this estimate made of the national stations in 1959. I think that is true of our scientists and of the Soviet scientists.

On matters such as these we frankly cannot understand why the entire world must accommodate itself to the pseudo-scientific contentions of our nation. We in the West are more than willing to subject ourselves to international controls and to international inspection, and many other countries, such as India, have expressed a similar willingness to have nuclear test ban control posts on their territories in any useful number. We do not understand why exceptions must always be made for the Soviet Union, especially when it is one of the nuclear Powers, in regard to which effective international control is especially important.

What is true of control posts is equally true of the need for control arrangements that allow for the on-site inspection of suspicious seismic events by internationally staffed inspection teams. It was heartening to my delegation to note that most of the speakers in the last two days recognized that provision for such international inspection must be an essential element of any adequate control system over a nuclear test ban. They are vital and essential for the identification of the great bulk of detected seismic events.

We remain convinced that the international control system which we have proposed carries with it no risk whatsoever of espionage for the Soviet Union. We have gone into great detail at several meetings to show why this would not be possible under the precisely spelled out terms of control embodied in the United States-United Kingdom draft treaty. We have shown, moreover, that the Soviet position on test ban controls is inconsistent with its position on controls not only over other disarmament measures, but even over such collateral measures as protection against surprise attack.

In conclusion, let me summarize the United States position:

First, we want a nuclear test ban treaty in which we and the world can have confidence and to which we can entrust a vital aspect of our security; a treaty which gives reasonable assurances that not only the United States but every other country in the world is stopping all nuclear tests and is unable to conduct them in secret without being effectively uncovered as a violator.

Secondly, up to the present time all the scientific data on hand lead us to believe that only an international control system providing for a global network of regularly spaced control posts, for aircraft sampling flights, for on-site inspections of some unidentified seismic events and for an internationally staffed and organized headquarters organ offers an adequate technical basis for control.

Thirdly, only such an international system offers politically sound control, since without it there would be no possibility of obtaining impartial data, settling disputes about data, and offering objective evidence to the world of the honest implementation of the nuclear test ban treaty.

Fourthly, nevertheless we are not wedded to any single formula for such an adequate international control system, and we are flexible on all specific details in instances where the adequacy of controls will not be endangered. To this end, we are prepared to examine carefully every suggestion made here to help resolve the present impasse.

Fifthly, at the same time and with the best will in the world we honestly cannot find even an iota of convincing evidence in the speeches of the representatives of the socialist countries to support the Soviet position; to support the rejection of the international control system which the Soviet Union itself accepted for three years; to support the advocacy of national control systems, which the Soviet Union itself spurned for an equal period; to support the Soviet refusal to provide scientific data to bolster

its new-found advocacy of national systems; to support the complaints about an espionage danger which the Soviet Union refuses to discuss in concrete terms; and to support the distortion of the United States-United Kingdom offer of 3 September last — in short, to support the Soviet Union's denial of one of the basic principles of disarmament, namely, effective and adequate international controls.

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....the possibilities of the better use of national systems of detection and identification should be carefully weighed. This idea was also expressed by some representatives of neutral countries, in particular by the representatives of Sweden and India. I think they laid special stress on this point.

We entirely agree that this subject should be given serious consideration. We are profoundly convinced that it would be sufficient to limit ourselves to national systems of detection and identification. Our conviction is based on the real facts of life, since all nuclear tests have been detected and identified by national systems of detection. No one has refuted these real facts, and that includes the representatives of the United States and the United Kingdom. Nor has any one refuted the fact that the United States and the United Kingdom themselves admitted the adequacy of the existing system of detection, that is to say, the national system, for the discontinuance of nuclear weapons tests in the atmosphere. No one has refuted this, nor are you in a position to refute it now. I shall return to this question later, but can reaffirm even now that the United States and the United Kingdom representatives have been unable to adduce any data which would contravert their own statements of 3 September 1961. (GEN/DNT/120)

We must therefore consider seriously the possibility of the better use of national systems of detection and identification, for we are profoundly convinced that these systems suffice to provide guarantees against possible violation of a treaty on the discontinuance of nuclear tests, although we ourselves think — and no one has refuted this either — that if, during the three years of our negotiations, there was not a single violation, why should there be any such violations after the conclusion of a treaty? That is something no one can prove.

These are all real facts of life. No one is able to refute them. And no one has attempted to refute them.

But what is the position which the United States and the United Kingdom now take up in this connexion? We listened attentively to the detailed statement made by the United States representative, Mr. Dean, at the beginning of our debate. We also listened with attention to his statement today. The earlier statement was filled with a huge number of references to technical data and details of every kind, the purpose of which was to prove that not all tests can be detected. But the gist of all these arguments was that not all underground nuclear tests could be detected. As for other types of tests, no technical data were adduced.

ENDC/PV.18 USA/Dean

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As far as the two Western nuclear Powers are concerned, there is only one major obstacle to the conclusion of a nuclear test ban treaty. This is the refusal of the Soviet Union to agree even to the principle, much less to the minimally essential substance, of effective international control to monitor the enforcement of a test ban

treaty. This is crucial because, much as the United States and the United Kingdom desire the cessation of all nuclear weapon tests — and they do — they cannot enter upon any such commitment until they have reasonable assurance that technically effective, impartial and internationally acceptable means of detection and identification will be available to maintain a continual check on the implementation of the treaty's provisions by all signatories.

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pp.8-9

Let me now set forth the position of the United States.

One: We sincerely hope that any nuclear test ban treaty which is signed will not be violated. But, frankly, as with any other measure of disarmament which vitally affects interests of national military security, we just cannot afford to take unreasonable risks in this regard.

Two: We have been very constructive, very scientific and very reasonable, but we must require that any treaty provide for an adequate and effective system of control. To us, adequate and effective control must mean international control as spelt out by the Geneva experts in 1958. Only objective international control can produce data and analyses of data which will generate world-wide confidence; and only a network of international control posts, only international on-site inspection procedures, and only an international headquarters can meet scientific requirements for effective operations.

Three: Moreover, despite many statements to the contrary, and despite very thorough research by our scientists, we know of no recent scientific advancements which would in any significant or material way modify the conclusions and recommendations of the scientists of the eight countries, including the Soviet Union, who met in Geneva in 1958 and who advised the creation of an international control system. Indeed, we note that as late as July 1961 the Soviet Government also approved of these scientific conclusions, arrived at in 1958.

Four: Finally, we cannot understand concern about the misuse of the control system for espionage purposes. The procedures envisaged are themselves the product of long negotiation and compromise between the Soviet Union and the West, and analysis of such procedures shows no possibility whatsoever for misuse.

First, on the need for any control facilities at all, whether international or non-international, which involve detection, identification and inspection, it is my belief that the position of the United Kingdom and United States is scientifically unassailable. Too much has been said by Mr. Gromyko, the Foreign Minister of the Soviet Union, and too much has been included in the Joint Statement of Agreed Principles of 20 September 1961 (ENDC/5) to leave any doubt that in this world, torn by mutual doubts and suspicions, some sort of reliable system of verification is essential to monitor the implementation of agreements which impinge on the sensitive national security interests of States. To think otherwise, I admit, could be suicidal. The Soviet side has on occasion argued that such controls are appropriate only in the case of disarmament agreements, whereas, they claim, a nuclear test ban treaty is not a measure of disarmament.

For our part, we have pointed out that a nuclear test ban treaty, by blocking the development of ever-newer nuclear weapons, would indeed be a genuine step of preventive or anticipatory disarmament. However, quite apart from such questions of definition and semantics, I think that it must be accepted that controls are appropriate over any measure, such as a nuclear test ban, which so directly affects the international military posture of any nuclear Power and which, therefore, can play a major role in the international military balance of power.

Let me make my Government's position clear to all the representatives at this Conference in order that there cannot be any mistake about it. The United States is not only prepared to sign, but wants to sign, an adequate and effective treaty which would ban all nuclear tests, in all environments — outer space, atmosphere, high altitude, on or under water, underground — without any restrictions. All we ask is that that treaty be along the lines of the very carefully worked out draft of 18 April 1961, (ENDC/9) which the United Kingdom and the United States tabled at the Conference on the Discontinuance of Nuclear Weapon Tests, and which has been circulated to all Members of the United Nations and to the members of this Conference.

We proposed a number of amendments to that draft treaty. We did so because of statements made to us by Soviet representatives that if we would meet them on certain points that would materially clear the path to the signing of a treaty. I think we have made some twenty highly constructive and imaginative proposals in this respect.

In making some of these proposals, we had to take very real political risks; in an attempt to get this treaty we have gone far beyond the present state of science in these fields. When we decided to remove the threshold and have the treaty apply to all events, including underground events, we did not ask for more control posts or more on-site inspections. This again was a major offer which we made in an effort to get the Soviet Union to sign an agreement.

We have offered to divide the Soviet Union into seismic and aseismic areas and to take that into account in establishing the number of inspections. This would mean that there would be a very limited number of inspections in the heartland of the Soviet Union, which is principally non-earthquake territory. We have repeatedly asked the Soviet Union to comment specifically on what is wrong with our treaty or with our various proposals. We have repeatedly asked the Soviet Union to tell us what is wrong scientifically with the report of the 1958 Geneva Conference of Experts (EXP/NUC/28) in which they concurred. The United Kingdom and the United States have been negotiating with the Soviet Union on this matter practically every day for the past three years. During all this time we have kept the Conference open. We have at all times told our Soviet colleagues that we are quite willing to receive their ideas and to sit down and discuss this matter with them.

Now it was the Soviet Union which, by its series of tests last September, unilaterally violated the moratorium — a moratorium which the United States had scrupulously observed. It would have been a perfectly normal reaction for the United States to resume tests last September, although we had not prepared for them. However, in an effort to save the world from further nuclear tests and in an effort to act in a completely responsible manner, we called upon our scientists to study this treaty again. We presented this treaty and its principles to the United Nations. We have at all times been open to suggestions on it.

I wish to make the position of the Italian delegation perfectly clear, although it is certainly quite clear already from the statements we made last Thursday (ENDC/PV.19). The Italian delegation fully shares the concern of other delegations over the present difficulties concerning an agreement on tests. But it cannot support a proposal for a moratorium without any control, such as that submitted by the Indian delegation. Such a moratorium would reduce our security and thus run counter to the disarmament objectives we have set ourselves at this Conference.

It is true that my delegation also has made appeals at previous meetings. First, it appealed to the Soviet delegation to reconsider its rigid opposition to all international control, which has so far prevented the conclusion of an agreement. Secondly, taking into consideration the Soviet fears that international control might degenerate into espionage, it asked for a thorough examination of this particular problem. The problem is: How can international control be organized without any danger of espionage? For that is, in fact, the central problem. I proposed a restricted meeting so that this question could be very freely discussed. This is a good method, which was supported by Mr. Krishna Menon, but was unfortunately not followed after his departure. My proposal was rejected at once, and very hastily, by Mr. Zorin. I still hope that he will be willing to consider it.

ENDC/PV.21 Brazil/Assumpcao de Aranjó 16.4.62 pp.20-22

The delegation of Brazil, acting on behalf of the delegations of Burma, Ethiopia, India, Mexico, Nigeria, Sweden and the United Arab Republic, presents to the Conference of the Eighteen Nation Committee on Disarmament the Joint Memorandum the text of which I am now going to read out:

"1. The delegations of Brazil, Burma, Ethiopia, India, Mexico, Nigeria, Sweden and the United Arab Republic at the Eighteen Nation Disarmament Conference, deeply distressed that no agreement has as yet been reached concerning a ban on nuclear weapon tests, address an earnest appeal to the nuclear Powers to persist in their efforts to come as soon as possible to an agreement prohibiting nuclear weapon tests for all time.

"The eight delegations are convinced that in making this appeal they are speaking not merely on behalf of their own countries but for an overwhelming world opinion, since nuclear tests are now the concern of all peoples and all nations.

"2. They note that, in spite of the existing differences within the Subcommittee on a nuclear test ban treaty, there are also certain areas of agreement. They think they have the right to expect that these areas will be further explored and extended and in this connexion commend to the consideration of the nuclear Powers the following suggestions and ideas.

"3. They believe that possibilities exist of establishing by agreement a system for continuous observation and effective control on a purely scientific and non-political basis. Such a system might be based and built upon already existing national networks of observation posts and institutions or, if more appropriate, on certain of the existing posts designated by agreement for the purpose together, if necessary, with new posts established by agreement. The existing networks already include in their scientific endeavours the detection and identification of manmade explosions. Improvements could no doubt be achieved by furnishing posts with more advanced instrumentation.

"4. Furthermore, the feasibility of constituting by agreement an international commission, consisting of a limited number of highly qualified scientists, possibly from non-aligned countries, together with the appropriate staff, might be considered. This commission should be entrusted with the tasks of processing all data received from the agreed system of observation posts and of reporting on any nuclear explosion or suspicious event on the basis of thorough and objective examination of all the available data. All parties to the treaty should accept the obligation to furnish the

commission with the facts necessary to establish the nature of any suspicious and significant event. Pursuant to this obligation the parties to the treaty could invite the commission to visit their territories and/or the site of the event the nature of which was in doubt.

"5. Should the commission find that it was unable to reach a conclusion on the nature of a significant event it would so inform the party on whose territory that event had occurred, and simultaneously inform it of the points on which urgent clarification seemed necessary. The party and the commission should consult as to what further measures of clarification, including verification in loco, would facilitate the assessment. The party concerned would, in accordance with its obligation referred to in paragraph 4 above, give speedy and full co-operation to facilitate the assessment.

"After full examination of the facts, taking into account any additional data furnished to it as suggested above, the international commission would inform the parties to the treaty of all the circumstances of the case and of its assessment of the concerned event.

"The parties to the treaty would be free to determine their action with regard to the treaty on the basis of reports furnished by the international commission.

"6. The delegations of Brazil, Burma, Ethiopia, India, Mexico, Nigeria, Sweden and the United Arab Republic urge the nuclear Powers earnestly to consider the suggestions put forward above, as well as other possible suggestions, so as to save humanity from the evil of further nuclear tests."

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....These obligations are set forth in part I, article 2, of the draft treaty submitted by the Soviet Union for the consideration of the Eighteen Nation Committee (ENDC/2).

The purpose of this article is to lay down the basic obligations of States with regard to control, to establish the main principles for carrying out this control and to define in broad outline the structure and functions of the International Disarmament Organization. These questions are dealt with in a more specific and detailed manner in the relevant parts of our draft treaty, and we propose to speak on them at length during the discussion of particular disarmament measures. In our opinion, this is the soundest approach to the consideration of control matters and will enable us to make more rapid progress.

The Soviet Government is a convinced supporter of the strictest international control over disarmament. It bases this position on the belief that the implementation of strict and reliable international control is an essential guarantee and a condition sine qua non of the successful accomplishment of general and complete disarmament. The Soviet Union's position on the question of control is governed by its wish to ensure that the parties to the treaty have a firm assurance that general and complete disarmament is being carried out honestly and conscientiously by all and that not a single State is evading the observance of the disarmament obligations it has assumed. We are not prepared to take any one at their word, particularly States which have organized closed military alignments pursuing a policy of proliferating armaments and establishing their military bases along the frontiers of the Soviet Union. We ourselves do not ask that we should be taken at our word. The Soviet Government is in favour of the strictest and most effective international control over disarmament measures.

A perusal of our draft treaty clearly shows that at each stage the Soviet proposals combine disarmament measures with reliable international control over the execution of these measures. As Mr. N.S. Khrushchev, the Head of the Soviet Government, has already explained on more than one occasion, the Soviet Union is prepared to accept any proposal on control over disarmament that the Western Powers may put forward, if they will accept the Soviet proposals on general and complete disarmament. This is the principle underlying the solution to control problems contained in the draft treaty proposed by the Soviet Union.

Having made these general remarks, I propose to pass on to a detailed examination of article 2 of the Soviet draft treaty.

The first idea expressed in article 2, paragraph 1, of our draft treaty is that strict international control should be established over the execution of the treaty on general and complete disarmament. This paragraph provides that:

"The States parties to the Treaty solemnly undertake to carry out all disarmament measures, from beginning to end, under strict international control, and to ensure the implementation in their territories of all control measures set forth in Parts II, III and IV of the present Treaty."
(ENDC/2, p.3).

As will be clear to all representatives, this provision corresponds to the first part of paragraph 6 of the Joint Statement of Agreed Principles for Disarmament Negotiations, which was unanimously approved by the General Assembly of the United Nations (ENDC/5, p.2). All representatives in the Committee have laid stress in their statements on the need to establish strict international control over disarmament. In other words, all delegations are in general agreement that strict and effective international control should be established over the implementation of the treaty on general and complete disarmament. It seems to us reasonable that this agreement should now be given formal expression and should be reflected in the draft treaty.

Article 2 of the Soviet draft treaty also provides that, for the purpose of implementing control over the observance by States of their obligations under the treaty, there should be established:

"... an International Disarmament Organization including all States parties to the Treaty ...

"In all countries parties to the Treaty the International Disarmament Organization should have its own staff, recruited internationally and in such a way as to ensure the adequate representation on it of all three existing groups of States." (ENDC/2, p.3).

The posting of the staff responsible for inspection and control in the territories of States will be arranged in such a way that they are in a position to start their duties at the time States begin to carry out disarmament measures. Each party to the treaty will have an obligation to ensure that control and inspection teams within its territory have timely and unrestricted access to any place where disarmament measures subject to verification are to be carried out. The parties to the Treaty will also be required to submit to the International Disarmament Organization in good time any information on their armed forces and armaments, armaments production and military appropriations which may be necessary for the implementation of the measures included in a particular stage. All this goes to show that the allegations still being made that the Soviet Union is proposing to begin with disarmament and only then to establish control can be attributed only to bad faith and to an unwillingness to reach agreement.

The International Disarmament Organization will hold periodic conferences to consider problems arising in the course of the implementation of control over disarmament. The standing executive organ of the International Disarmament Organization will be a Control Council consisting of representatives of the socialist countries, of coun-

tries participating in Western military alliances and of countries which are not bound by military obligations — that is to say, its composition will be based on the same principle as that of our Eighteen Nation Committee.

The Soviet Government, in considering the functions, powers and procedure of work of the International Disarmament Organization, came to the conclusion that there is no need to introduce the principle of unanimity or the "veto" in this Organization and that decisions can be taken by a majority of votes. In arriving at this conclusion, we took into account the nature of the functions of the International Disarmament Organization, which are to verify compliance by States with their treaty obligations, establish that the measures included in a particular stage have been completed, and to submit reports on these matters to States, the Security Council and the General Assembly of the United Nations.

It goes without saying that the International Disarmament Organization is not and cannot be entrusted with any functions involving preventive or enforcement measures against States. The function of the International Disarmament Organization is to establish facts. If, in connexion with these facts, the need arises for measures to safeguard peace and security, this will, as at present, be a matter exclusively for the Security Council, the only body empowered to take such action under the Charter of the United Nations.

Part V of our draft treaty is entirely devoted to the structure and functions of the International Disarmament Organization. Article 2 contains only the basic, salient provisions defining the nature of this Organization. In view of the fact that part V will in due course be the subject of special examination in the Committee, we shall confine ourselves at this stage to these brief observations on the International Disarmament Organization.

The Soviet Government, in working out specific measures for control over disarmament, has carefully reviewed and weighed up all aspects of this question and has consistently supported the principle that at each stage the volume of control should be in strict conformity with the volume and nature of the disarmament measures being carried out at that particular stage. What are the advantages of such an approach to the settlement of the control question? In the first place, this approach ensures strict and reliable verification of the compliance by all States with each of the agreed disarmament measures and, in the second place, it will in no way prejudice the national security interests of States. It is disarmament measures that are controlled and verified, and not the armed forces and armaments remaining at the disposal of States at a particular stage. We are deeply convinced that this is fully adequate for effective verification of the fulfilment of disarmament measures by States.

It is sometimes asserted that we cannot be sure that States are complying with their disarmament obligations, if we merely verify the fact that armed forces and armaments have been reduced. Demands are accordingly made for the verification of the levels of armed forces and armaments temporarily remaining in the possession of States. Such assertions are quite unfounded. For even at present one side has no exact information on the size of the armaments and armed forces of the other side. If, in the course of disarmament, both sides reduce their armed forces to an agreed extent at each stage, the threat of a military conflict will undoubtedly be lessened, even though there will be no verification of the number of troops, guns, rockets and aircraft remaining in the possession of States.

In recent years, it has become fashionable in certain countries to speak of a "balance of terror", a "balance of fear" between East and West. Translated into ordinary everyday language, these abstruse phrases seem to mean that, from the military standpoint, an approximate balance of power exists between the two principal military and political alignments. If this is so, then it is quite obvious that, if each side reduces

its military power by a certain agreed quota of armaments and armed forces, there will be no change in their relative strength. Under the Soviet draft treaty, the proportion of the armed forces and armaments of States remaining uncontrolled will be reduced stage by stage. After general and complete disarmament has been completed, control will become absolute and general, because States will then have nothing more to hide from each other — all armed forces will be disbanded, all weapons eliminated and there will be no military secrets. This is what we consider to be genuine, effective control over disarmament.

The demand for verification of the levels of the armed forces and armaments remaining in the possession of States is quite another matter. This is control prior to disarmament, control over armaments, and we have every reason to regard this as military intelligence work and espionage. The United States proposal, or rather stage I of the programme of disarmament proposed by the United States, provides an illustration of what this would mean in practice.

The force levels envisaged in stage I would mean a reduction of approximately 15% in the armed forces of the United States and the USSR. However, the demand for the verification of levels would entail an inspection and examination of all the remaining 85% of their armed forces. A reduction of 15% would not, of course, substantially weaken the military potential of States. But, on the other hand, it would enable an aggressive State to station its intelligence agents in the territory of peace-loving States and to collect information on their defence systems. It could then decide whether to agree to further disarmament or to steer events towards war.

I must say quite frankly and plainly that the Soviet Union will not agree to such control. With such an approach to questions of control nothing can be achieved.

The idea that every disarmament measure should be accompanied by such control measures as are necessary for verifying that measure is expressed in article 2, paragraph 2, of the Soviet draft treaty. Our draft treaty provides for extending the scope of international control, stage by stage, to cover the sectors of the military machine of States which are to be scrapped during the various stages of disarmament.

During the first stage, that control will cover the means of delivering nuclear weapons to their target, foreign military bases and troops in foreign territories, since it is these components of the military machine of States that are to be eliminated during this stage. During the second stage, it will cover nuclear weapons themselves and other types of weapon of mass destruction, and during the third stage, central and local military establishments, military training institutions, etc.

Where armed forces and conventional armaments are concerned, the draft treaty takes account of the fact that they will only be reduced during the first and second stages, their complete elimination taking place in the third stage. It is for this reason that during the first two stages it is proposed that control should be established over the reductions of armed forces and conventional armaments and not over the troops and armaments that will remain in the possession of States. During the third stage armed forces and conventional armaments are completely eliminated and therefore control over the implementation of this measure is comprehensive.

The reliability of the specific measures of control proposed by the Soviet Government is demonstrated, for example, by the arrangements envisaged in the draft treaty for the implementation of control over the elimination of the means of delivering of nuclear weapons to their target during the first stage.

It is laid down in the relevant articles of the draft treaty that the International Disarmament Organization shall have the necessary means and facilities for establishing control over the elimination of missiles, military aircraft, surface warships, submarines and other devices capable of being used as vehicles for nuclear weapons. For this purpose, the draft treaty provides that international inspectors shall be present during

the destruction of all types of vehicles for the delivery of nuclear weapons; they will be present at airfields and in ports and during the destruction of launching pads. International control will simultaneously be established over enterprises which previously were wholly or partly engaged in manufacturing the means of delivering nuclear weapons with a view to preventing any clandestine resumption of their manufacture.

These control measures cover all aspects of the process of eliminating the means of delivering nuclear weapons and provide for free access by the International Disarmament Organization and its inspectors to such installations as may be necessary for the purpose of effective verification. They thus ensure that no one will be in a position to evade his obligations with regard to this concrete disarmament measure.

The draft treaty prepared by the Soviet Government contains similar provisions concerning the implementation of control over all other disarmament measures.

The Soviet draft treaty provides that, even after the entire programme of general and complete disarmament has been carried into effect, the International Disarmament Organization will continue to function and to exercise constant supervision with a view to ensuring that no State secretly resumes military production or begins to re-establish its armed forces. When general and complete disarmament has been achieved, the International Disarmament Organization will have the right to inspect any place or installation in the territory of any State.

States parties to the treaty will supply the International Disarmament Organization with information on the composition and disposition of contingents of police (militia). International inspectors will have to exercise control to ensure that the numbers of police (militia) and their firearms correspond to the levels agreed for each country.

The Soviet delegation has today explained yet another article of the draft treaty it has submitted. We hope that our proposals relating to control over general and complete disarmament will prove basically acceptable to all those who are genuinely endeavouring to solve the problem of disarmament. At the same time, we are prepared to give careful study to any proposals relating to measures and forms of control which may be submitted by other States.

Finally, I would like to express my confidence that all the members of the Eighteen-Nation Committee will try to reach agreement on general and complete disarmament under strict international control, not on the establishment of control without disarmament; in other words, control over armaments. We are convinced that, if everyone genuinely desires to reach agreement, we will have no difficulty in coming to terms on the question of control.

ENDC/PV.23

USA/Dean

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During stage III the parties would continue the disarmament process which had been started in stages I and II until they achieved the goal of general and complete disarmament in a peaceful world. An additional measure which would have to be included in stage III would be the reporting to the international disarmament organization of all scientific and technological discoveries of possible military significance. The international disarmament organization would be charged with establishing agreed arrangements to ensure that these discoveries were not used for military purposes -- to ensure that some new scientific breakthrough did not reverse the process of general and complete disarmament which had been so carefully achieved.

The duration of stage III, as I said at the beginning, is not specified. Rather it is proposed that stage III "would be completed within an agreed period of time as promptly as possible".

At the end of stage III, States will have at their disposal only those non-nuclear

armaments, forces, facilities and establishments as are agreed to be necessary to maintain internal order and protect the personal security of citizens. States shall support and provide agreed manpower for a United Nations peace force which would be progressively strengthened during Stage III until it had sufficient armed forces and armaments so that no State -- I repeat, no State -- could challenge it.

Except in connexion with the reporting of scientific discoveries in stage III, I have so far not mentioned the international disarmament organization. The organization, referred to as the IDO, will of course play an important role in the plan from the very beginning.

The United States proposes the establishment of an international disarmament organization which would have the function of verifying that countries lived up to the obligation, or the several obligations, which they undertook in a disarmament agreement. In describing the functions of this organization, the United States has given a great deal of thought to the proper application of two principles which were set forth in the Joint Statement of Agreed Principles for disarmament negotiations which representatives of the United States and the Soviet Union signed on 20 September 1961.

The first of these principles is:

"All disarmament measures should be implemented from beginning to end under such strict and effective international control as would provide firm assurance that all parties are honouring their obligations." (ENDC/5, page 2)

I think we can cut through all the unprofitable, unrealistic and tiresome exercises in semantics as to whether a particular measure of control is control over "disarmament" or control over "armaments" by pointing out that under this principle it is the nature of the obligation that determines the type of control which is necessary.

Paragraph 3 on page 13 of the draft treaty outline sets forth the way in which the United States has tried to put this principle into practice. Sub-paragraph (a) of the paragraph points out that, where the obligation relates solely to the reduction of armaments, the verification measures need relate only to the reduction process.

A good illustration of this point is our proposal that the United States and the Soviet Union each transfer specified quantities of weapon-grade U-235 to non-weapon purposes. All that is necessary to verify such a measure is that the IDO be able to assure that the agreed quantities of U-235 -- 50,000 kilogrammes, or whatever we agree upon -- were indeed transferred to purposes other than for use in weapons and that the IDO be able to inspect and verify that the agreed quantities continue to be used for these non-weapon purposes. In verifying a measure of this kind, the IDO would not look at the remaining stockpiles, because in this particular instance that has no bearing on the measure -- it does not relate to the specific obligation which the parties have undertaken.

Sub-paragraph b of the same paragraph deals with the situation which exists when the measure is one in which the parties agree to halt or limit production. An illustration of this sort of measure is the United States proposal to cut off production of weapon-grade fissionable material.

Here again the IDO is required to have access to the relevant production facilities and activities, wherever located, on the territory of the party to the treaty. In verifying such a measure, we believe it would be reasonable to start with facilities declared by the party, and the interest of the IDO in inspection areas where no facilities have been declared is solely one of determining whether clandestine facilities exist.

Sub-paragraph c on page 13 deals with the verification procedures which are necessary when the obligation is one not to exceed agreed levels of armaments or armed forces or not to engage in clandestine production activities. An illustration of this type of measure would be the 2.1 million-man force levels proposed, the mainte-

nance of inventories of armaments only at reduced levels, and the limitation on production of armaments. In this sub-paragraph the United States has made an effort to live up to the sound principle agreed to by the United States and the Soviet Union on 20 September 1961, in the Joint Statement of Agreed Principles, that the nature and extent of such control depends on:

"the requirements for verification of the disarmament measures being carried out in each stage." (ENDC/5, page 2)

The United States has restated the principle in stage I of the treaty outline in the following way:

"The extent of inspection during any step or stage would be related to the amount of disarmament being undertaken and to the degree of risk to the parties to the treaty of possible violations." (page 13)

In its treaty outline the United States proposes, as an example of the means by which this principle might be given effect, the concept of progressive zonal inspections. I think I should emphasize that this concept is proposed merely as an example. All of us will want to give it further study, but it is the sort of measure towards which we must work if we are to break the impasse which we have so far faced on matters of inspection and verification.

Under this concept of progressive zonal inspections, the territory of each party would be divided into an agreed number of appropriate zones; each party would declare the total level, but initially not the precise location, of the armaments, forces and other activities subject to verification within each zone.

These zones would be progressively inspected, starting at the beginning of stage I. With the first 10 per cent reduction in armaments would come the inspection of the first zones; with the next 10 per cent reduction in armaments, more zones would be open to inspection; and so on until, at the end, when disarmament was general and complete, there would be inspection of the entire territory.

The procedure for selecting the zones to be inspected would be such that the State being inspected would have no advance notice of which zone would be chosen. Moreover, there would be necessary arrangements to prevent clandestine movements of armaments into and out of the zone being inspected.

Under a system of progressive zonal inspection, production facilities which were declared would be subject to inspection wherever located. The progressive zonal inspection would be the only means available to the IDO to check on clandestine production.

ENDC/PV.23

Czechoslovakia/Hajek

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With your permission, Mr. Chairman, I would follow this method. I would like to express the opinion of my delegation on the point now under discussion: that is, the general obligations and the general character of control in a treaty on general and complete disarmament such as we are preparing here. Yesterday the representative of the Soviet Union opened this discussion in his remarks on article 2.

I think that all of us in this Conference agree that reliable and effective international control is a necessary component of general and complete disarmament. The realization of this general and complete disarmament presupposes that all participating States will be assured of a maximum degree of certainty that all partners will strictly honour all the obligations they have undertaken. Therefore it is necessary, it is logical, that the agreed control measures should ensure reliable and effective verification as to whether these disarmament obligations are being fulfilled. On the other hand, control obligations and measures have a direct impact on the vital interest of each of the

participating States in safeguarding security. Therefore it is necessary to ensure that the realization of appropriate control measures should not go beyond the function of control over disarmament. Control must not be a pretext for collecting information of another character — namely, information of an espionage character. I think that this has been recognized in our previous discussions by many speakers, and I will not dwell on this general principle any longer.

Taking this principle into consideration, we should consistently proceed from it. We should take into account that it is embodied in the Joint Statement of Agreed Principles of the Governments of the United States and the Soviet Union, where it is stated that control must be adequate to disarmament and that -

"the nature and extent of such control (should depend) on the requirements for verification of the disarmament measures being carried out in each stage." (ENDC/5, page 2)

This adequacy of control has several aspects. First and foremost is the extent of control measures, and one might say that this is the quantitative aspect. The extent of control measures must correspond to the extent of the disarmament measures to be undertaken and must not go beyond them. It cannot be permitted that activities not directly linked with verification of the implementation of the agreed disarmament measures be carried out under the pretext of control.

Adequate control also presupposes that the respective control measures are in keeping with the verified disarmament measures as to their nature also. One might call this the qualitative aspect of the adequacy of control. Control must be carried out by the application of such methods and means as, on the one hand, will ensure a truly reliable verification of the respective disarmament measures but, on the other hand, will not make it possible to acquire other kinds of information which have nothing in common with disarmament, and specifically with the corresponding step or measure of disarmament.

Finally, the adequacy of control presupposes that control depends on disarmament measures also as far as the timing of the measures is concerned. There must be assurance that the implementation of the respective disarmament measures will be verified from beginning to end. At the same time, it must not be admitted that any measures should be introduced under the name of control earlier than the respective disarmament measures begin to be implemented.

Having in mind these basic lines, the draft treaty submitted by the delegation of the Soviet Union consistently proceeds from the principle of the adequacy of control. The basic principles that should guide reliable control over general and complete disarmament are formulated in article 2 of the draft. This article elaborates paragraph 6 of the Joint Statement. It adheres to that paragraph strictly and renders its basic provisions concrete and precise. Therefore we regard this draft as the most appropriate basis for the Committee's consideration of this question.

The basic concept of the Soviet draft provides that in the process of general and complete disarmament, along with the growing extent of disarmament measures the extent of control should also expand, so that when general and complete disarmament has been completed control will also be general and complete.

We welcome the fact that in some of their recent statements the representatives of the United States and other Western Powers have recognized the principle of adequacy; that control must be adequate to the extent of the disarmament measures being carried out. It is a positive sign that the Western Powers agreed to formulate this principle in the Joint Statement and that in some statements made in this Conference the delegation of the United States has also expressed agreement with this principle. Of course we should like to see this principle applied in dealing with the practical consideration of how to ensure reliable control over the implementation of general

and complete disarmament.

ENDC/PV.23 UK/Godber

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It seems to me that there are two separate issues to face. If one reduces by an agreed number, that is one matter. But if one reduces to an agreed strength or to an agreed level, that is quite another matter. Because if one is going to reduce to an agreed level, then one must have some way of verifying that the reduction actually has been made to that level. Of course, there is always the fact to be remembered that when one is reducing to an agreed level there must be a check that that level has not been exceeded by new production going on at the same time. But if one is reducing to an agreed level, one must find a way of getting some sort of check which will not bring into play the fears and anxieties which were expressed by our Soviet colleagues and yet at the same time will give a measure of security to others of us who feel that we must have assurances that an agreed level is in fact an agreed level and that it has not been exceeded.

Reductions by an agreed number — and one suggestion in this respect was, I think, put to us by our colleague from the United States this morning — that clearly could be verified without difficulty. But when it is reduction to an agreed level, we have got to find a way — and it is our duty around this table to find a way — which will satisfy both sides.

In that context, then, I listened with very great care to what our United States colleague said this morning on this question of what is sometimes called "sampling techniques". In the plan that has just been tabled, there is a suggestion for zonal or sampling inspection — it is made quite clear that this is not put forward as a positive, definite proposal, as being the only way in which the problem could be solved. Our United States colleague went on to explain to us the provisions which the United States had in mind in that regard.

I think we have to look at this very carefully indeed. It does seem to me, and it has seemed to me from the moment I first heard this suggestion — I think it was first put forward at one of the Pugwash Conferences — that this does provide the elements of a solution between East and West on this problem. I hope that we can consider it carefully and dispassionately.

As I understood my United States colleague this morning, he was saying that countries will be divided into zones, and as one proceeded with disarmament, so one would proceed with the zones. I understood him to mean — I am not sure whether he precisely said this and I do not want to put words into his mouth — that if one agreed to 10 per cent disarmament, then one had the right to inspection of 10 per cent of the territory of the other country. In other words, 10 per cent of the zones — however many there would be — would be available for inspection, and they would be chosen by the country on the other side. As one advanced to 20 per cent of elimination of armaments, so one would advance to 20 per cent of zones.

It seems to me that if it is married mathematically in that way it does accept the basic principle to which our Soviet colleague attaches so much importance — the basic principle that the percentage of inspection must not exceed the percentage of disarmament. If that be so, I do think there is merit in this proposal. However, if it does not satisfy our Soviet colleague — and I hope very much it does — then I would say very sincerely to him that he has an obligation to make some other suggestion which will help to overcome this difficulty. In other words, it seems to me that an imaginative proposal has been put forward here; I hope it will be accepted; but if it is not accepted it is not sufficient merely to rest on these declarations that anything which

seeks verification of agreed remaining war potential is espionage, because to rest on that is in fact to put the other representatives at this Conference in an impossible position. We have got to find a way out of this difference. I think this suggestion is a worthwhile one, but if it is not accepted we must have some other proposal from our Eastern colleagues which really faces up to this problem.

I was encouraged when Mr. Zorin said that his delegation was fully prepared to study carefully any other proposals or measures which might be advanced by other States. I say to him that I very much hope he will study this suggestion, because it seems to me that it does offer very definite advantages. In the same way, he recognized the need for international control over —

"... enterprises which previously were wholly or partly engaged in manufacturing the means of delivering nuclear weapons with a view to preventing any clandestine resumption of their manufacture." (ENDC/PV.21, page 32)

Presumably, if he accepts that principle for nuclear weapon vehicles, he will also accept it for other weapons.

ENDC/PV.24 USSR/Zorin

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The Soviet Government and the Soviet people have these aims close at heart. Moved by the desire to bring about a speedy solution of the question of discontinuing nuclear tests, the Soviet Government has approached the Western Powers many times with concrete proposals to this effect. On 28 November 1961, at the negotiations on the discontinuance of tests, the Soviet Government submitted its draft agreement, on the basis of which it would be possible to put an end to all nuclear weapon tests for ever. For control over compliance by States with their obligations under an agreement, the Soviet Government proposed the use of national systems of detecting nuclear explosions, which States already have at their disposal.

In the light of the latest achievements in science and technology, the adequacy of national systems of detection does not and cannot give rise to the slightest doubts on the part of those who are really concerned to ensure reliable control over the discontinuance of tests. In this case, practice and experience entirely corroborate theory. After all, it is a fact that all nuclear explosions conducted so far, whether by the Soviet Union, the United States, the United Kingdom or France, have been recorded by national systems of detection in various countries — no other systems have existed or exist up to now. Nor do underground nuclear explosions constitute an exception in this respect. Very convincing in this connexion was the detection of the underground nuclear explosion, recently conducted in the Soviet Union, by the United States Atomic Energy Commission — and not by means of any international control or the despatch of inspection teams into USSR territory, but exclusively by means of national systems. This means that the United States has at its disposal detection systems which are adequate for recording underground nuclear explosions, however far from the United States these explosions were carried out. The Soviet Union also has such detection systems at its disposal, as have many other States.

ENDC/PV.24 USA/Dean

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I hope I shall not be misunderstood if I say that, after having carefully studied the eight-nation proposal, the position of the eight sponsors still seems to us somewhat obscure on the precise nature of the obligations that parties to the treaty are to

undertake in regard to effective international control and objective, scientific on-site inspections. We fully recognize and appreciate that the plan envisages that some inspections will take place. But there still seems to us to be an element of voluntariness left to the country in which the unidentified event occurred and in which the inspection would take place, rather than an unquestioned right of inspection on the part of the international commission, if it decided that such an inspection was required. In our view, in any treaty that we may sign there cannot be any ambiguity about the commitment of each party to agree to this effective international control and to this objective, scientific on-site inspection taking place under certain specified conditions. If this is left obscure and there is no right of inspection, there really is no treaty or system at all, because the evidence can disappear during a long period of argument.

Of course, we have never doubted that in practice -- no matter what the text of the treaty might be -- no team of on-site inspectors could ever physically force its way on to the territory of a State where the unidentified event had occurred in order to conduct an inspection. Nevertheless, if a State kept such a team -- which had an international right to make such an inspection -- out of its territory in spite of a clear treaty obligation to admit it, there could not be any question in international law as to who had violated the terms of the treaty. But if there was ambiguity in the treaty on this point, or on the relationship between the international control commission and the several States parties to the treaty, and if the responsibility for preventing this on-site inspection could not be laid firmly on any party to the treaty, this would affect the decision of other parties to consider themselves free of their treaty obligations, and the world would not know precisely what had happened.

I could mention a number of other matters on which it seems to us, after some study, that the eight-nation plan would require considerable amplification. This applies, for example, to the whole general area of organizational arrangements for the control system, which would have to be considered not only in substance but in considerable detail if the eight-nation plan were to become a basis for negotiation.

ENDC/PV.24 Italy/Cavalletti 19.4.62 p.24

The text proposed to us by the eight delegations will have to be interpreted and amplified, and I think that for this purpose the individual statements made by the eight delegations during the previous discussions will be particularly useful. I listened to them with close attention at the time, and I had the impression that most of those delegations accepted the principle and the necessity of international control. I am therefore convinced that the eight nation memorandum embodies the substance of that principle. It is clear that we ourselves cannot abandon the application of international control even though it be very limited.

I hope that thorough study and amplification of the eight nation memorandum may be of great help in our efforts to solve the basic problems to which I have several times drawn the attention of the Conference. How can international control be organized without any possibility of espionage? On this question I think that the eight nation memorandum may be most useful, and it is in this belief that I propose that the document be referred to the Sub-Committee of the nuclear Powers for thorough study.

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....It is hard to understand why it is said that highly technical questions cannot be

injected into these negotiations, because fundamentally what we are dealing with is probably the most difficult scientific question in the world. And when such a highly technical scientific question is being dealt with, I submit, with great respect, that it does not really aid the solution of the problem to say that such a question should be considered without reference to highly technical scientific matters.

The United Kingdom and the United States delegations painstakingly drafted a complete treaty (ENDC/9) which was tabled on 18 April 1961, just a year ago. We made some eighteen or twenty amendments to it in an effort to meet the problems raised by the Soviet Union. We have studied with the utmost care this problem of the spacing of control posts as dealt with in the Geneva experts' reports of 1958 and 1959. It would be a matter of very great concern to my delegation if a system of control posts were worked out in which the spacing was not on a scientific basis.

We are certainly prepared to work with the eight new members of the Conference and to give the greatest consideration to their memorandum. But I want to be very clear and explicit; I do not want there to be any misunderstanding. The United States Government will sign a treaty today with the Soviet Union which provides for effective, objective, scientific international control under the system set up by the Geneva experts in 1958 and 1959, and which provides for objective, scientific, on-site inspections. We are prepared to listen to what any delegation has to say. However, should there be any idea that we are going to rely again on any unpoliced, uninspected moratorium, on the word of the Soviet Union, the answer is that we will not. I want to make that very clear, because we do not have any confidence in the word of the Soviet Union. I am sorry, but that is the way it is. We are quite prepared to take part in negotiations, but that requirement for objective, scientific effective international control with adequate on-site inspections is fundamental.

ENDC/PV.25 UK/Godber

20.4.62

p.7

I have made it quite clear from the start that I welcome the proposals of the neutral States; I have made it clear that I see certain elements in them which are of real value; but equally I have made it clear — and I think there is no dispute about this — that I do not think those proposals go far enough. Speaking entirely for my own delegation and Government, I would say that if we are to make progress one thing is absolutely necessary; that every party to the treaty should accept — nay, must accept — the principle of the undisputed right of on-site inspection of at least a quota of suspicious events. This has been fundamental to the United Kingdom position from the moment we assembled here, and I think that has been made abundantly clear, time and again. That was why, right from the start, I did query this particular position in the proposals of the neutral States. I thought from our earliest meetings here that it really had been accepted that there must be some effective way of settling a dispute as to whether in fact a nuclear event had taken place or not.

ENDC/PV.25 USSR/Zorin

20.4.62

p.14

We propose that this document (ENDC/28) should be taken as a basis for our negotiations. But this means that we propose that paragraph 1, paragraph 2, paragraph 3, and paragraph 4 which I have just read out, should be taken as a basis for the negotiations. Consequently, we are prepared to discuss the possibility mentioned in paragraph 4 regarding inspection.

Paragraph 5 states:

"The party and the Commission should consult as to what further measures of clarification, including verification in loco, would facilitate the assessment. The party concerned would, in accordance with its obligation referred to in paragraph 4 above, give speedy and full co-operation to facilitate the assessment." (ibid).

It says "in accordance with its obligation referred to in paragraph 4 above". I have just quoted this obligation in paragraph 4. This obligation says "the parties to the treaty could invite the Commission to visit their territories". In accordance with this obligation we are prepared to accept also paragraph 5 as a basis for our negotiations.

What, then, is not clear to you? In the text of our statement, which has been before you since yesterday, it is said:

"The Joint Memorandum suggests that control of the discontinuance of nuclear tests should be carried out by means of national networks of observation posts, that for the selection and processing of the data obtained at these posts it is sufficient to set up an International Commission consisting of a limited number of highly qualified scientists, and that the question of inviting the Commission for the purpose of verifying in loco the circumstances of the occurrence of any particular suspicious events should be decided by the States themselves." (ENDC/32, p.4).

What, then, is not clear to you? We are prepared to take as a basis for our negotiations the proposals formulated in the paragraphs of the Joint Memorandum, including paragraphs 4 and 5 concerning on-site inspection. Why, then, do you now put to us the question of our attitude towards on-site inspection and so forth?

ENDC/PV.26 Canada/Burns

24.4.62

p.18

Let us consider a hypothetical case, to put the proposition in simple terms. Let us consider that State "A" and State "B", under the disarmament treaty, are obliged to destroy all their tanks in one step. State "A" has 2,000 tanks and so declares to the international disarmament organization. State "B" has 3,000 tanks but declares only 2,000. Pursuant to the principle of verifying the destruction of armaments, the inspectors of the international disarmament organization supervise the destruction of 2,000 tanks of each side. So at the end of this process State "B" has 1,000 tanks concealed somewhere which could give it considerable military advantage from that time forward. I have used tanks in my illustration, but members of the Committee will appreciate the applicability of the point illustrated to other more important armaments -- for example, to intercontinental ballistic missiles.

This is why, in the view of the Canadian delegation, in whatever verification measures we eventually adopt there must be fully adequate assurance not only that the armaments which it is agreed to destroy have actually been destroyed but that no State would be able, by false initial declaration, to gain a military advantage at any stage of disarmament. And when I say "false initial declaration", may I again refer to the principle Mr. Zorin enunciated? "We are not prepared to take anyone at their word ... We ourselves do not ask that we should be taken at our word."

The first few sentences on page 31 of the verbatim record for 16 April (ENDC/PV.21) state the Soviet objection to measures of control which they consider would allow a potential aggressor to obtain vital intelligence, putting their national security in jeopardy before substantial disarmament had been effected. The United States and its allies recognize this as a legitimate concern on the part of the Soviet Union. In consequence, the United States, in its latest proposals, which were explained by Mr. Dean at our twenty-third meeting and further explained today, has suggested methods

of verification of compliance with obligations which are intended to give adequate assurance to all concerned — "adequate" assurance, not "full" assurance — that no evasion is taking place, while at the same time they do not lay any party open to unjustifiable exposure of its military dispositions during the first stage of disarmament.

ENDC/PV.28

Czechoslovakia/Hajek

26.4.62

pp.25-26

The arguments invoking scientific and technical reasons and insisting on an international system of inspection as a prerequisite for the cessation of atomic tests have been revealed as empty. It is common knowledge in the broadest sectors of world public opinion — an illustration of this is to be found in an editorial appearing today in the serious bourgeois paper Le Monde — that explosions of all types, and atmospheric explosions in particular, are quite reliably detectable by means of national detection systems; and all tests carried out since 1945 have in fact been reliably detected in this way. This fully confirms the position held by the Soviet Union and the other socialist countries that the international system of inspection pressed for by the Western Powers is completely unnecessary and in practice may serve primarily as espionage against peace-loving countries which neither intend to bring about nor are preparing for an atomic war.

It was exactly this generally-recognized fact that led the delegations of the eight non-aligned countries members of our Committee, in an honest attempt to overcome the impasse, to submit their proposal aimed at meeting both positions. All of us in this Committee welcomed this noble and important initiative. The proposal in fact created a new basis since it was a compromise between the position held by the United States and the position held by the Soviet Union. The Soviet Union, striving to achieve a real and speedy solution to this urgent question, agreed to adopt the draft of the eight countries "as basic" for further negotiations.

The Western Powers first tried to hide their negative, and I must say, contemptuous, approach to the draft behind a cloak of technicalities when they sought to strip the eight-nation draft of its substance by putting a number of primarily technical questions. Later, they reluctantly agreed to discuss the draft, but immediately attempted again to strip it of its very substance by what I must call their fantastic interpretation, — that is to say, they attempted to remove its core and to smuggle in their own untenable requirements of an international system of inspection, which, as we know, in the past has stood in the way of agreement. At the same time they cynically and insultingly ignored and finally flatly rejected the earlier constructive proposal by the Government of India, supported by a decisive majority of all the States members of the Committee and willingly accepted by the Soviet Union, namely, the proposal that no nuclear tests should be carried out, at least while the negotiations were in progress, thus ensuring minimum conditions for the course of the talks and their positive outcome. And we witnessed yesterday their rejection of another — I would say an extreme — version of this appeal, that is to say, that they should at least abstain from carrying out tests during the period in which negotiations on the memorandum were proceeding. This appeal was made by the Prime Minister of India, Mr. Nehru, and submitted to this Committee by our colleague from India, Mr. Lall.

ENDC/PV.29

USA/Dean

2.5.62

pp.26-28

The difference between the United States draft and the Soviet draft is that the United States does not rely on the declaration alone for verifying the amount of arma-

ments that must be destroyed — and hence the amount to be retained — during the various steps of the first stage and on through the second and third stages. The proposal of the United States provides for verification of the retained levels by means which, I submit, are consistent with the statement in paragraph 6 of the Joint Statement of Agreed Principles that:

"... the nature and extent of such control depending on the requirements for verification of the disarmament measures being carried out in each stage." (ENDC/5, page 2)

I have already observed that the United States has restated this principle in its proposal in the following way:

"... the extent of inspection during any step or stage would be related to the amount of disarmament being undertaken and to the degree of risk to the parties to the treaty of possible violations." (ENDC/30, page 13)

Under the United States proposal (ENDC/30, page 33) the obligation to disarm begins immediately with the coming into force of the treaty. During the first six months of the treaty the parties are required to effect a 10 per cent reduction in armaments and to place them in depots under the supervision of the international disarmament organization. They are to be destroyed, or converted to peaceful uses, during the second six months of the year. This process is to be completed during the second and third years of stage I.

A similar process is to be carried out during stage II and stage III.

Sub-paragraph d of paragraph 2 of article A provides that:

"In accordance with arrangements which would be set forth in a treaty annex on verification, the international disarmament organization would verify the foregoing reduction and would provide assurance that retained armaments did not exceed agreed levels." (ENDC/30, page 6)

This provision does not mean that the United States would insist that every square inch of the Soviet Union be inspected for basic armaments levels or for clandestine production facilities before the first armaments were destroyed or the first production facilities curtailed.

Quite the contrary is true. Under the United States proposal the first reduction of 10 per cent which I have described will have to be computed upon the basis of a declaration by the parties themselves which will have been subjected to little, if any, verification.

If a system of progressive zonal inspection similar to that which the United States has suggested as an illustration was adopted, then some time during the first year, perhaps at the same time as the first reduction in armaments was being made, the international disarmament organization would actually be inspecting for armaments, not in all of the territory of the parties to the treaty, but in only a relatively small portion of the territory, consisting of one or more of a selected number of zones. The results of this inspection would then be compared with the declarations made by the parties themselves, not only as to their total armaments facilities but also as to the amounts of armaments located in the various zones. If the results of the declaration coincided with the results of the inspection, there would naturally be an increase in confidence in the declarations in the other zones.

I cannot, of course, accurately predict a precise mathematical relationship which might exist between the percentage of the reduction and the percentage of the territory subject to inspection of the zone. But it is clear that they would be roughly equivalent. I am speaking, of course, of the reduction in the various steps in the stages. If there were to be another agreement upon the reduction of, let us say, fissionable materials, then of course other work might go on with respect to the verification of the reduction of such fissionable material.

But it is clear, I submit, that as the reduction under the treaty was taking place, there would be a progressive increase in confidence as the progressive zonal inspections showed the actual armaments facilities to coincide with the amounts of armaments facilities declared to be within the particular zones.

The United States has indicated its belief that, if such a proposal were adopted, inspection would have to be extended to all parts of the territory of the parties to the treaty by the end of stage III, but in this the United States proposal differs only in degree from the proposal of the Soviet Union which envisages similar rights of access beginning after the completion of stage III instead of by the end of stage III.

In the case of limitations or prohibitions of production, the system of progressive zonal disarmament would operate in more or less the same way. Initially the limitations or prohibitions would be on the basis of declared plants and those plants would be subject to inspection wherever they were located. There would be no general right to inspect the territory of the parties for clandestine plants. Reliance would have to be placed upon the progressive zonal system to verify that no secret plants existed.

In putting forth this suggestion of progressive zonal inspection, and in showing how it would relate to the reduction of armaments, the United States has tried to suggest one method by which the extent of the inspection and the extent of disarmament could proceed hand in hand. The United States does not insist on this method and is prepared to discuss any other, provided it lives up to the criterion that the extent of the inspection during any stage or step would be related to the amount of disarmament being undertaken and to the degree of risk to the parties to the treaty of possible violation.

ENDC/PV.30

India/Lall

3.5.62

pp.25-26

I should like to preface my remarks on that possibility by saying that it has some relevance to the suggestion of zonal inspection which the United States has made and which was defended by Mr. Godber yesterday. I should like to say straightaway that we have nothing particularly against the zonal inspection plan if it can be generally agreed. I must say it is a bit like a game of chance: one covers a country with lines and makes little squares and then someone pulls something out of a hat and says, "Ah, it will be square 'X' tomorrow." I have no objection to that. It is a little bit like a game of chance, but if it can be generally agreed we will certainly not stand in the way.

At the moment I think we have to take note of the fact that it does not seem to be finding a great deal of favour on both sides. Mr. Gromyko said things about it at Moscow on 24 April which certainly were not favourable. I do not believe that Mr. Zorin said anything favourable about it yesterday. I do not know whether others would interpret his remarks differently, but I did not hear anything favourable about this particular matter. I will say, however, that there seems to be an element of misunderstanding on the two sides about this matter, because Mr. Zorin, I believe, indicated — and he quoted from the United States plan in this regard — that the basic point in the United States plan relating to this issue is that the control measures should give assurance that the retained arms are not more than stated. He drew from that the logical conclusion that there would have to be controls in the whole country.

On the other hand, both Mr. Dean and Mr. Godber were at some pains to point out yesterday — as I believe was our colleague from Italy — that, though that would be the logical consequence, in fact the United States plan was not going as far as logic would lead the plan to go. They said that they were suggesting a selective system of zonal controls which would relate at a given time to a small proportion of the country,

increasing as the plan advanced.

I have repeated these two points of view because I think that there may be some mutual misunderstanding, and we are very concerned in our delegation that misunderstandings should be cleared up and that each side should find it possible at least to understand what the other means by its plan. We do not look upon the zonal plan as leading inevitably to total control over the country from the very beginning. However, this is an issue which the two sides will undoubtedly discuss further between themselves. But the point I wish to make now is the one to which I drew attention a few moments ago, namely, that as controls and disarmament progress there will be a lessening of tension and suspicion together with an increase of confidence.

Should this happen, I would like to suggest, for the consideration of the two sides primarily concerned, a possible alternative to this whole idea of zonal inspection. I would like to say again that I am not making the following suggestion as a firm proposal. We have discussed it in our delegation and we feel that it might be beneficial if the two sides were to think about it. Our suggestion is that as the disarmament plan progresses it should be feasible for the two sides — in fact, for all those engaged in disarmament — to address to the international disarmament organization invitations to visit their countries, and to open up in this way from time to time to increasingly larger areas of the countries concerned. In other words, as was done in connexion with the nuclear test ban discussions, I would like to put an onus of responsibility on each country by writing into our plan words which would indicate that it should be incumbent upon countries, in the improving situation, to see whether they would not be able to invite members of the international disarmament organization to visit increasingly larger areas.

It seems to my delegation that this would be a method of giving an added measure of security to all of us. It would be a measure of expressing in the most acceptable form the increasing confidence which we all believe would be an outcome of the development of the disarmament plan as it progressed.

I should like to point out that this arrangement we are suggesting would, of course, be in addition to the verification and control of actual destruction, elimination or reduction of various weapons and of the armed forces. All that, of course, must be done under effective control. But this is an additional measure which we believe could well flow from the increasing confidence, the lessening tension and the lessening feeling of suspicion which would undoubtedly accompany the disarmament plan. In fact, we believe in our delegation that this type of invitation would be an appropriate accompaniment to the developing plans of disarmament.

ENDC/PV.31

Nigeria/Atta

4.5.62

pp.6, 8

...We have had few concrete proposals so far about how to build up confidence between the two parties. It has been suggested that when arms were actually being destroyed the parties to the treaty would gain automatic momentum in their enthusiasm to disarm completely. We have heard the other argument that any half measures of disarmament which carries with it strict control over armaments may in fact encourage the possibility of war. It is not my task to say which is right or wrong. However, my delegation believes that verification, confidence-building measures and disarmament are one and the same thing. These three elements must rise or fall together. Total verification, total disarmament and total confidence-generating measures are one and the same. If therefore we accept a small measure of disarmament, in our opinion we must be prepared to accept a small measure of verification, and mutual confidence. It is left

to us to choose what we may in the course of this Conference.

With regard to verification and control, I revert to my previous contention that verification, disarmament and confidence are one and the same thing. The less we had of one the less we should have of the others. In this regard I will support the view that 100 per cent reduction involves 100 per cent inspection. The problem, as I see it, is that if we decide to have a 100 per cent cut in respect of our most lethal weapons, we should have not only 100 per cent inspection of the weapons which are being cut, but 100 per cent inspection of other less lethal weapons. This must be so if we ever hope to achieve the necessary balance.

Again, suppose we decide to have a 30 per cent cut of certain arms. How do we determine 30 per cent inspection measures? We are told that inspection should relate only to the arms being destroyed or on the production line. If we destroy a very small percentage of arms, say 5 per cent each year, I am prepared to accept the argument that there will be no point in verifying what remains. As soon as we begin to destroy a significant percentage, however, what remains becomes very important. In my opinion, a 30 to 40 per cent cut is such a significant figure. Whether or not we should agree to the non-inspection of the remaining arms until we reach a significant cut is a matter to be discussed.

The real point I am getting at is that we must give further close study to the proposal for zonal inspection, or similar proposals which would enable us to carry out verification of armaments at a significant level. In the opinion of my delegation there is a need to study further the proposal for zonal inspection in relation to the organization, composition and functions of the international disarmament organization. The more it is a game of chance the more confidence it will generate. What matters, however, is that the powers of an inspection body should be obligatory but not necessarily subjective.

ENDC/PV.31 USSR/Zorin

4.5.62

p.35

....The Soviet Union invariably maintained the position that, before considering and agreeing on questions of control, it is necessary to reach agreement on the disarmament measures. In past years the Western Powers have steadfastly opposed this, and tried to put control in the foreground and to push the actual disarmament measures into the background. A great deal of time was lost as a result of this approach by the Western Powers, who endeavoured to turn control into an end in itself. And now in a statement by Mr. Dean we find him recognizing that we should discuss the control obligations concretely, having before us some idea of the substantive measures to which these controls are to be applied (ENDC/PV.29, page 24).

The Soviet draft treaty on general and complete disarmament and, in particular, the first stage in this draft treaty, assumes the necessity of establishing strict international control over the implementation of disarmament measures. I should like to stress once more the main idea which guided the Soviet Government in drafting its proposals regarding control. The Soviet Government carefully weighed all aspects of the question and consistently followed the line that at each stage the volume of control must strictly correspond to the number and nature of the disarmament measures to be carried out. This approach makes it possible, on the one hand, to ensure strict and impartial verification of each of the agreed disarmament measures and, on the other hand, does not lead in any way to an infringement of the national security interests of States. The implementation of disarmament measures, but not the armed forces and armaments of States, are to be placed under control. We are convinced that this is

fully adequate for effectively verifying that the disarmaments measures are being carried out by States.

ENDC/PV.31 USSR/Zorin

4.5.62

p.50

Further, you talk about inspection of the entire territory of States in connexion with the 100 per cent reduction and elimination of the means of delivery of nuclear weapons. Today you refer to Mr. Burns and asked: "Do you agree to the 100 per cent inspection of the entire territory of the Soviet Union?" I answered you yesterday and I answer you today: as regards verification of the 100 per cent reduction or elimination of the means of delivery, we agree to such verification throughout the territory of the Soviet Union. What more do you need? You say that this does not guarantee, does not provide any guarantee that verification will take place. Then what is it you want? I do not understand. I am telling you that we agree to 100 per cent verification and I add: 100 per cent throughout the territory of the Soviet Union. What more do you need? What other verification do you need? You say that this provides no guarantee. Then what would provide you with a guarantee?

You, in your plan, wish to reduce the means of delivery by 30 per cent; but you wish to have 100 per cent verification and to keep the bases as well. That suits you, but it is obvious to everyone that it cannot possibly suit any other States, because it will be a manifest advantage for you; and besides, there will be 100 per cent verification of all means of delivery of nuclear weapons of the Soviet Union without any guarantee that after this 30 per cent reduction you will agree to a further reduction.

We may well ask which is more convincing: what we propose or what you propose. We propose 100 per cent elimination of all means of delivery and 100 per cent control through the territory of the Soviet Union. Why do you not accept this?

ENDC/PV.32 UK/Wright

7.5.62

p.10

I now turn to the third element in the eight-Power memorandum, namely identification and verification, including on-site inspection. I want once more to state clearly and simply the United Kingdom attitude on this point. It has already been explained both by Lord Home and by Mr. Godber. Let me express it again. It is that the Western position over international inspection is already, and has been since April 1961, and indeed earlier, a compromise between two extremes, and a generous compromise. The one extreme, the one pole, is the proposal of the 1958 experts, which Mr. Tsarapkin himself joined in framing, that every unidentified event which might be suspected of being a clandestine nuclear explosion should be liable to inspection. The other extreme, the other pole, is the proposal of the Soviet Union, put forward on 28 November 1961, that no unidentified or suspicious event should be liable to international inspection.

We are not going back to or standing upon the 1958 position, the extreme at one end of the scale. The Western position, as I have said, has long been a compromise between these two extremes. We are asking the Soviet Union to retreat from its extreme position at the other end of the scale. A reasonable and fair compromise would have been that 5[0] per cent of such events should be inspected. This would have been a straight compromise. But the West has moved even far beyond that and has asked for only one in four or one in five of such events to be inspected.

I repeat: We do not propose to go back to the 1958 position of inspection of all such events. No, we are not asking the Soviet Government to agree to that, or even to accept a compromise on a 50-50 basis. In our desire for an agreement we are leaning

forward much further than that to meet the Soviet Union. On the other hand, we do not accept the extreme Soviet position that there should be no obligation of international inspection in the case of any unidentified or suspicious event. On this point we are in favour of a compromise; and our understanding of the motives of the sponsors of the eight-Power memorandum is that this has been put forward by them to facilitate a compromise and not for the maintenance of extreme positions. If we had ever thought that it represented an extreme position, our approach to it would no doubt have been different. That, however, is not how we understand it. Our difficulty is with the Soviet Government. Our difficulty is that we are by no means sure what the Soviet Government, in accepting the memorandum as a basis for discussion, is saying on the all-important problem of on-site inspection, the key problem for the resolution of our difficulties.

ENDC/PV.32 USSR/Zorin

7.5.62

pp.24-26

If one took the words of Mr. Dean and Mr. Godber out of context and did not inquire into the substance of their position, one might get the impression that the Western Powers have decided to renounce their extreme demands, which are clearly unacceptable to the Soviet Union, and to devote themselves to seeking a reasonable compromise. Today they have again tried to give this impression. But the records of the Sub-Committee's recent meetings show that in reality the position of the Western Powers remains basically unchanged on the main points at issue. It continues to give no hope that the future course of our negotiations will be fruitful. The praise the Western representatives have expressed of the non-aligned countries represents a rather clumsy manoeuvre, designed to conceal, behind eulogistic phrases addressed to these countries, the actual inflexibility of the United States and the United Kingdom positions on the main points at issue and their refusal to accept the non-aligned countries' proposals as they stand as an effective basis for an agreement on the discontinuance of nuclear weapon tests.

In fact, the difference between the positions of the Western Powers and the Soviet Union on the discontinuance of tests was and still is briefly as follows. The United States and the United Kingdom demand the establishment on the territory of the Soviet Union of an international network of control posts staffed by foreign personnel and directed by an international control organization. The Soviet Union, however, proposes that control over compliance with an agreement should be organized through existing national systems of detection without establishing a network of international control posts.

The United States and the United Kingdom continue to insist on having an international control body with wide powers which could decide at its discretion to carry out on-site investigations — that is, to dispatch inspection teams. The Soviet Union's proposal, which provides for the implementation of control by means of national detection systems, has so far excluded the establishment of such an international body.

Finally, there is the question of inspection. The United States and the United Kingdom continue to persist in their demand for compulsory inspection, carried out by decision of the international control commission. The Soviet Union's proposal has not provided, as I have just said, either for the establishment of any international control body or for international inspection.

Those are, in brief, the main differences between the position of the Western Powers and that of the Soviet Union.

When the negotiations on the discontinuance of nuclear tests were resumed in the Eighteen-Nation Committee and in the three-Power Sub-Committee which it set up,

they immediately reached an impasse because the United States and the United Kingdom persisted in their attitude on these three main points of disagreement. Then the eight non-aligned States represented in the Eighteen-Nation Committee, concerned at the situation which has arisen and desiring to find some solution to this problem, submitted their joint memorandum at the 21st meeting of the Eighteen-Nation Committee on 16 April. In this memorandum they proposed that both sides -- the Western Powers and the Soviet Union -- should come to an agreement on a new basis, on the basis of the proposals set out in their joint memorandum. They propose:

(1) to organize systematic observation for nuclear explosions on the basis of existing national systems of detection;

(2) to constitute, for the purpose of processing and analysing data received from national systems of detection, a small international commission consisting of a limited number of highly-qualified scientists, possibly from non-aligned countries, whose functions would include, in addition to processing and analysing data, consultations with nuclear Powers on whose territory suspicious events might occur and requests to these countries to furnish additional data;

(3) on the question of inspection, the non-aligned States point out in their memorandum that countries in whose territory a suspicious event occurred could invite the international commission to visit their territories and/or the sites of the event the nature of which was in doubt.

Those are the three main provisions which the non-aligned States have proposed that the nuclear Powers should accept as a basis for a compromise agreement on the discontinuance of nuclear weapon tests.

As you see, these proposals of the non-aligned States do not coincide either with the position of the Western Powers on these questions or with that of the Soviet Union. Consequently they represent a middle course, a compromise between these two positions. The attitude of the nuclear Powers to these proposals of the non-aligned countries is a criterion, a touchstone by which we can easily determine whether one side or the other is really seeking agreement or does not want any agreement except on its own terms.

In this connexion it is significant that on 19 April, three days after the non-aligned States submitted their proposals, the Soviet Government issued an official statement (ENDC/32) describing the proposals of the eight non-aligned States as a serious attempt to lead the negotiations out of the impasse and observing that the submission of these proposals had been prompted by the sincere concern of the non-aligned States in connexion with the situation which has arisen. The statement by the Soviet Government expressed the view that, although not all the propositions in the joint memorandum of the eight non-aligned States are equally clear, nevertheless it represents a constructive contribution, since it takes into account in a realistic manner the existing possibilities for a speedy solution of the problem of the discontinuance of nuclear tests. It stated that the Soviet Government has come to the conclusion that the submission by the non-aligned States of their proposals on the question of the discontinuance of nuclear weapon tests gives rise to new hope for the solution of this question in the interest of all peoples and that the Soviet Government expresses its willingness to study the proposals of the non-aligned States as a basis for further negotiations.

In this connexion I should like to remind you of the statement made by the representative of Nigeria at the meeting on 4 May:

"The real point I am getting at is that we must give further close study

to the proposal for zonal inspection, or similar proposals which would enable us to carry out verification of armaments at a significant level. In the opinion of my delegation there is a need to study further the proposal for zonal inspection in relation to the organization, composition and functions of the international disarmament organization. The more it is a game of chance, the more confidence it will generate." (ENDC/PV.31, page 9)

The delegation of Brazil considers that, as there is general acceptance of total verification of the elimination of delivery vehicles for nuclear weapons, the system of division into zones proposed by the United States may be considered to fulfil this aim and at the same time to allay the fears expressed concerning espionage. It should also be observed that, in the statement already quoted, Mr. Dean added the following words:

"The United States does not insist on this method and is prepared to discuss any other, provided it lives up to the criterion that the extent of the inspection during any stage or step would be related to the amount of disarmament being undertaken and to the degree of risk to the parties to the treaty of possible violation." (ENDC/PV.29, page 28)

We know how very difficult it is to devise adequate verification and control procedure on which the two groups could agree, but that procedure is essential if we are to draft a treaty on general and complete disarmament. It seems to us, therefore, that United States Zonal plan for the prohibition of nuclear weapon delivery vehicles could provide a basis for study by the Soviet Union delegation, which has already said that it will agree to 100 per cent control over the complete elimination of these vehicles. If the procedure were found unacceptable, it would then be for the party unable to agree to make alternative suggestions, which would be studied in their turn.

ENDC/PV.34 Mexico/Padilla Nervo

9.5.62 pp.17-18

Any treaty freely concluded between sovereign States is based on the assumption that it will be faithfully observed. No State voluntarily signs and ratifies a treaty with the deliberate intention of violating it; but it is natural that the parties to a treaty should accept its obligations only after taking all possible political and legal precautions against its violation or evasion. It must nevertheless be recognized, however, that there is no possible provision whose inclusion in a treaty can provide an absolute guarantee of its observance. In the last analysis the essential, and the strongest, safeguard for the parties is submission to the rule of international law and ethics and respect for the pledged word.

In the case of an international instrument such as the one we are now considering, an act directly violating one of its clauses and an act giving rise to doubts or suspicions of clandestine violations would have the same effect. The inevitable result would be the resumption of nuclear tests by both parties and the continuation of a race or competition which it is to the advantage of all the nuclear Powers to stop in the highest interest of their own peoples and of all mankind.

With the present machinery of international co-existence, it is not possible to guarantee the observance of a treaty by coercive means. The only sanction for its violation is the moral condemnation of public opinion and the fact that the injured party is automatically released from the obligations it has contracted. If reciprocal honesty and good faith had to be dispensed with entirely, States could not conclude any freely-negotiated treaty and there would only be treaties imposed by the victor on the vanquished.

In fact a study of the records of the three-Power Sub-Committee and the discussion which took place in the plenary Conference on 7 May (ENDC/PV.32) has again made us aware that as regards the memorandum of the eight countries the delegations of both the United States and the United Kingdom continue to follow a course aimed at anything but truly facilitating the honest efforts manifested by the authors of the memorandum. By a method which they call interpretation they attempt to ascribe to the proposal of the eight countries elements which it does not contain. They attempt to change the very substance of the proposal. The basic features of the proposal of the eight countries, the features which make it a new basis for discussion, are exactly those related to the establishment of a control system which would rely on the national means of detection - means which, as is becoming even more evident, are fully sufficient for the detection of all types of nuclear explosions anywhere in the world. In fact, the recent French underground test, as reported by this morning's newspapers, was detected by a United States control system; French sources have confirmed what has been disclosed and published from United States sources.

Another basic feature of the memorandum is that, instead of the wide and far from flexible machinery of international control for which the Western Powers were pressing, it envisages the establishment of an international commission of scientists composed primarily of representatives of neutral countries.

Lastly, the memorandum solves the question of on-site inspection by proposing a voluntary invitation by the parties concerned to this international commission.

Such, in fact, is the substance of the proposal submitted by the non-aligned countries. I think this is clear to anybody at first sight, and intelligible to anyone reading the eight-country memorandum. Is there really any sense in searching for, still less building up, ambiguities and problems in these clear-cut proposals and principles? What is needed is acceptance of these principles in a straightforward and unambiguous manner, and on that basis further to negotiate and solve possible organizational and technical details of the problem that may arise.

Today Mr. Burns repeated the same question: do you include verification that there are no hidden weapons? Very well, if we include it, then what follows from this? Now I ask you: how do you envisage verifying the presence of these hidden weapons? Explain this to us. This point is not only included in our plan but it is in yours as well. Explain it. What do you have in mind when you speak of verifying the presence of hidden weapons in the territory of a country of 22 million square kilometres? How will you verify the presence of hidden weapons? Explain this, Mr. Burns. You are a military man. Explain how you envisage searching for these hidden weapons. Will you send agents to all parts of the country throughout the territory of the Soviet Union or the United States? What will these agents do? It suffices to raise the question in its practical aspect for you to realize that such an approach to this question is unrealistic.

How do you envisage the process of verification in the territory of a country like the Soviet Union or the United States? Will you send millions of people to verify the presence of hidden weapons?

You are merely raising the sort of questions you do in the expectation that they will embarrass those to whom you put them. But these are problems with which not only we are faced and which affect our plan; these are problems with which you too are faced and which affect your plan. Well then, out with it, answer us: how do you

envisage verification?

In principle, we are in favour of it. Explain to us now, how you envisage this verification. What system of control do you envisage? At the informal meeting I said: it is not without reason that you have now given up a 100 per cent verification of the remaining armaments. It is not without reason that you have given it up, representatives of the United States, because you realize that it is not feasible in practice. It would require such a huge amount of money, such a huge number of people, that it would be more costly than disarmament itself. So you shift over to a different system. You propose a sampling, zonal system of verification. Why? Not because of our objections but because you yourselves have realized that your talk about a 100 per cent verification of the remaining armaments and armed forces is impossible in practice. You yourselves have realized this. Then why are you now putting to us the question: How do you propose to verify whether there are hidden weapons? I put the question to you: how do you propose to do this? Explain this to me.

The Soviet Union is proposing a well thought-out system of control over disarmament. Under our proposals, the international disarmament organization will receive, before the beginning of disarmament, the necessary information concerning the armaments and armed forces which are possessed by States and which are to be reduced or eliminated. Thus the amount of the impending reductions will be accurately known. The actual implementation of the reductions of armed forces or the elimination of armaments will take place under the eyes of the controllers, who will scrupulously verify each operation of such reductions of armed forces and destruction of armaments.

The breadth and scope of control will continuously increase. One has only to read carefully the first stage of the Soviet disarmament plan to see how wide a control we are proposing. Controllers will be present at all places where the means of delivery of nuclear weapons are being eliminated. By the way, I take this opportunity to reply to some extent to the question put by the representative of Sweden. Control would cover not only missile storage depots or places where aircraft are stationed, but also missile launching pads. Controllers will be able to inspect plants engaged wholly or partly in producing nuclear weapon delivery vehicles. Finally, controllers will be present at the places where divisions and other military formations are being disbanded.

In the stage II, this control will be extended not only by further control over the subsequent reductions of armed forces, that is over the disbandment of further divisions and military formations, but also by control over the atomic industry. This will cover diffusion plants, plants for processing fuel elements, large reactors, plants producing mechanical and other devices, atom bombs, etc.

The further widening of control in the stage III will have the result that the whole territory of any State will be open for verification. In these circumstances, how can one seriously talk about weapons being concealed? Such talk can have only one aim, namely to confuse a clear matter, to sow the poisonous seeds of suspicion and to make unnecessary and unjustified difficulties in achieving an agreement on disarmament.

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First, advance notification of launchings would need to be provided in sufficient time to permit the necessary pre-launch inspection of space vehicles. Such notification should be provided with respect to all launchings of space vehicles and all launchings of relevant types of missiles. In this connexion it should be noted that the General Assembly resolution to which I have already referred provides for the furnishing of information to the Secretary-General concerning all launchings of objects into orbit or beyond. The disarmament programme should build on the experience to be gained in

implementing this arrangement and should provide for advance, rather than post-launch, notification.

Second, pre-launch inspection would need to be of a character which would provide assurance that weapons of mass destruction were not aboard vehicles to be placed in orbit or stationed in outer space. Inspection should be carried out in a manner presenting the least impediment to the conduct of launchings.

Third, a network of ground-based and possibly space-borne instruments would be needed to detect any unreported launchings. The extent to which such a network could serve other disarmament verification purposes remains to be explored, but there is a possibility that it might be part of a comprehensive system set up within the international disarmament organization.

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The fourth question, also on the zonal inspection system, was directed primarily to the United States delegation. The question evidently takes as a point of departure the suggestion that there might be initial overall declarations of the total inventories of armaments within a country without regard to zones, but that declarations by zones, and inspection of the selected zones, might be deferred for part of the first stage, until a significant cut had been effected. We have proposed that the initial declarations by zones should be made at the outset, and that inspection should proceed gradually. In the case of nuclear weapon delivery vehicles, for example, under our scheme the parties would make a declaration at the beginning of the first year of the first stage. During the first part of the first year, 10 per cent of the nuclear weapon vehicles would be placed in a depot for destruction. During the second part of the first year, verification of the retained level would proceed in accordance with the zonal inspection method. This is one way that inspection might begin. We are quite prepared to discuss detailed proposals such as this one, and we ourselves will have additional suggestions to make. However, we must confess that the initial Soviet response to the general suggestion of progressive zonal inspection has been so negative that we hardly consider it fruitful to attempt at this time to negotiate details or changes in our suggestions.

Mr. Edberg's fifth question is also addressed to the establishment and operation of the zonal inspection scheme. As I have already noted, the references in the United States treaty outline to zonal inspection, found in paragraph G 3 c of stage I in our document ENDC/30, are rather general. We put this forward in the form of a suggestion. Much remains to be spelled out, and that is why we solicit from our colleagues serious and constructive comments which are directed towards enhancing the acceptability of the plan to all delegations.

The problem of how zones will be chosen for inspection is one of the issues left open. The United States language is merely the following:

"The zones to be inspected would be selected by procedures which would ensure their selection by Parties to the Treaty other than the Party whose territory was to be inspected or any Party associated with it."
(ENDC/30, page 14).

In these circumstances, before a careful discussion here, we do not want to rule out any method of selection, including that of drawing by lot. However, there are many other possibilities.

I should point out in this connexion that one method of applying our proposal would be to put the responsibility on each party to divide up its territory, as it thinks most equitable and desirable, into an agreed number of zones. Thus it is that, at least in the

larger nations such as the United States and the Soviet Union, zones should be approximately equal from the standpoint of containing military objects. In such a situation, if a party had itself expertly divided up its own territory, there should be no reason to deny the opposite side the right to choose which zones should be inspected and in which order the zones should be inspected. In fixing the zones, each country would presumably take into account the deployment of its forces and armaments. We have no fixed ideas as to what the criteria for drawing zones might be, how large zones might be, whether they should have any particular shape, and so forth. We should like to explore all these matters a great deal further. But, assuming for the moment that it is up to the country to be inspected to divide itself up into zones, we think it follows that it should be up to the countries interested in seeing that adequate inspection takes place to take part in choosing the zone.

Some of the same comments apply to our Swedish colleague's sixth question as well. Nevertheless we feel we should add a few words about the problem of declarations in connexion with control measures. As Mr. Zorin said yesterday, both the Soviet and the United States disarmament programmes have provisions which call upon the parties to furnish various types of declarations at appropriate times to the international disarmament organization regarding specified facts and facets of their military establishments. It is clear, therefore, that neither side regards declarations per se as being damaging to military security, if they apply to the armed forces of a country as a whole.

The question arises, however, whether military security might be adversely affected if declarations applied not to the total armed strength of a country but only to certain geographical fractions of that strength. In other words, the Soviet Union might be willing to disclose its total strength in heavy tanks to the United States in the course of implementing a treaty on general and complete disarmament, but it might not be willing to say how many such tanks were in or around each major Soviet city or position.

The United States zonal scheme, however, does not contemplate the creation of a vast multiplicity of small zones. If it did it might well be said that a declaration about military strength within each zone would provide useful information on the deployment of armed forces and armaments. However, if the zones are fairly large in, let us say, the United States and the Soviet Union, then it seems to us quite obvious that a general declaration about military strength in a zone would tell little or nothing about deployment which would be useful to any opponent for target use. The information supplied would be useful solely for later cross-checking when the particular zone was chosen for inspection.

Let me turn now to the seventh question. I have already made some comments in connexion with the fourth question, concerning when inspection might begin. The seventh question also asks where inspection would take place: whether it would take place where units or armaments were located or at special depots at which units and armaments could be concentrated. In our outline treaty we have indicated flexibility concerning this point. Permit me to call attention to paragraph 3 a of our document ENDC/30. In that paragraph it is stated that the international disarmament organization would verify reduction of armaments at "agreed depots" and reduction of armed forces "either at the agreed depots or other agreed locations".(ENDC/30, page 13)

Practical considerations would obviously have to be paramount. We would have to agree on what would be the most sensible and efficient place for verifying reduction of particular types of armaments or reduction of armed forces. The answer might vary from case to case. Clearly in cases of installations such as missile launching pads and military production facilities, as our Soviet colleague stated yesterday, inspection

would have to be on the spot. The same might be true in the case of inspection of airfields and the like to ensure that they were converted to exclusively civilian uses. In the case of nuclear delivery vehicles, our draft proposes destruction at selected depots under supervision by the international disarmament organization. Other armaments would be treated similarly.

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I shall not enter into a difficult debate, but I shall draw your attention to specific paragraphs of the Soviet draft treaty, to which, in particular, the representative of India who spoke before me also drew attention.

Paragraph 2 of article 14 of our draft reads:

"The State parties to the Treaty shall provide advance information to the International Disarmament Organization about all launchings of rockets for peaceful purposes ..." (ENDC/2, page 12)

So you see that our draft treaty, in spite of the assertions of the United States representative, does provide for advance information to be given to the international disarmament organization about all - I stress "all" - launchings of rockets for peaceful purposes.

Paragraph 2 of article 15 provides that the international disarmament organization shall exercise control over the launchings of rockets and space devices for peaceful purposes, and I quote:

"...Through the establishment of inspection teams at the sites for peaceful rocket launchings who shall be present at the launchings and shall thoroughly examine every rocket or satellite before their launching". (ibid)

In my opinion, this is written quite clearly; the inspection teams of the international disarmament organization or, in other words, the controllers, will be present at the launching sites of rockets intended for peaceful purposes. They will not only observe the launching of these rockets, but will thoroughly examine every rocket and every satellite before their launching.

I also do not understand on what the United States representative was basing himself when he asserted that the Soviet Union does not provide for any measures of control over the production of boosters, as they are known in the United States, for space vehicles. In this connexion I must draw your attention to article 5 of our draft treaty. Paragraph 2 of this article contains a very clear provision for the discontinuance of production of all types of rockets and pilotless aircraft. Everything that has been used for the production, testing and storing of this type of weapon will be liquidated. There will remain the possibility of producing only one type of rocket, namely rockets for the peaceful use of space. This, of course, includes space rockets and boosters for them. It may be asked how this production will be carried out. I shall read out paragraph 4 of article 5 of our draft treaty:

"For the peaceful exploration of space the production and testing of appropriate rockets shall be allowed, provided that the plants producing such rockets, as well as the rockets themselves, will be subject to supervision by the inspectors of the International Disarmament Organization" (ENDC/2, page 6).

Perhaps the representative of the United States will understand more clearly, if I especially draw his attention to the words "appropriate rockets". In Russian it means rockets which are intended for definite purposes, and this, of course, includes all rockets as well as boosters for large space rockets and vehicles.

So as to leave no doubts about the position of the Soviet Union on questions of

outer space, I think I should sum it up briefly. This position is simple and logical. In the first stage of disarmament all means of delivery of nuclear weapons, including military rockets, are to be eliminated and destroyed. These measures, by removing the danger of a nuclear attack by one State against another, will create a solid basis for establishing control over the production of rockets for the peaceful use of outer space. The production of these rockets, their use and the placing in orbit for various satellites for the launching of space vehicles and so forth, will be carried out under international control. The international organization will be informed in advance about the launching of these devices and its inspectors will be able to satisfy themselves that the launching is carried out in full conformity with the announced programme and that the rocket carries nothing except the necessary scientific instruments.

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Poland/Naszkowski

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The Polish delegation is in full agreement with the representative of India, who considers that acceptance of the principle of a two-thirds majority for substantive decisions would save the control council from drawing conclusions that were incautious, ill-considered or harmful. Adoption of the principle of a two-thirds majority is not prejudicial to anyone. That principle gives everyone the same rights and the same opportunities. It provides a guarantee for the minority that their interests will be properly safeguarded. It is thus the most democratic and fair principle there is, and it is of advantage to both parties.

The arguments advanced by Mr. Dean and repeated yesterday by Mr. Stelle concerning the alleged risk of the Soviet Union capturing the votes of the non-aligned States on the control council sounded strange here. As Mr. Zorin, the Soviet representative, rightly pointed out yesterday, it is not a question of capturing votes, but of the use of persuasion which, thanks to this voting principle, remains open to all the parties. Does the United States already have doubts about its arguments and its ability to convince the other members of the council?

Mr. Godber, the representative of the United Kingdom, claims to see a contradiction between the principle of the vote in the control council and article 40 of the Soviet draft treaty. There is clearly no contradiction. Article 40 was included in the treaty mainly to stress once more the specific nature of the functions of the control council, which cannot have any rights that conflict with the Security Council's prerogatives under the United Nations Charter. The purpose of article 40, in our view, is mainly to draw a clear line of demarcation between the functions of the control council, which is called upon to establish facts, and those of the Security Council, which is competent to take suitable measures in the event of a threat to the peace or act of aggression.

The second point I wish to consider is the idea of what is called progressive zonal inspection. This proposal seems to show a recognition by the Western States that their former ideas on this subject were lacking in realism and that it is materially impossible to apply, especially over vast territories, the principle of total control over weapons alleged to be concealed — in other words, that it is impossible to control all the armaments of the other party in the absence of complete disarmament. Nevertheless, here too, at the root of this new idea, there is a lack of logic; for this idea of zones still implies the need for complete control and for inspection of the whole area of the zone selected. So we are dealing with the same old concept of control over the retained armaments of States, the only difference being that this control would be limited by the confines of a particular zone, and thus much easier for those wishing to effect it.

We cannot accept the argument advanced yesterday by the representative of the

United States, according to which disclosure of the overall levels of forces and armaments situated in a particular zone can be of no significance from the point of view of military intelligence if the zone is large enough. The size of the zone makes no difference to the fact that if complete control over armaments were to be authorized in zones chosen by the other party, it would be prejudicial to the defences of the country undergoing control.

In his statement of 11 May (ENDC/PV.35) Mr. Edberg, the Swedish representative, asked the United States delegation how it proposed to apply the system of zonal inspection to foreign bases. Mr. Stelle answer that question yesterday (ENDC/PV.37). He said that if a country in which such a base was situated adhered to the treaty, the base could be included in the system of zonal inspection. He thus envisages a situation in which foreign bases would not be subject to any control if the country in which they were situated had not adhered to the treaty or refused to negotiate an agreement with the control organization. We know, moreover, that the United States plan accepts the possibility of such a situation arising. It provides that the treaty on general and complete disarmament, and its first stage, shall still come into force even if the countries with a smaller military potential have not yet adhered to the treaty. It is also well known that a large proportion of the United States bases are situated in the territory of countries which can be described as not being of great military significance. Is this approach to the problem consistent with the principle of maintaining the balance while disarmament is being carried out?

ENDC/PV.38 Canada/Burns

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The position of the Western Powers is that we must consider the verification of the measure before we know if it is acceptable, in conformity with the sixth Agreed Principle which I have quoted previously: "All disarmament measures should be implemented from beginning to end under such strict and effective international control as would provide firm assurance that all parties are honouring their obligations" (ENDC/5, p.2). If any measure is proposed which is incapable of being so verified, then it is not in accordance with the Agreed Principles and should not have a place in the eventually agreed treaty. And this -- at least in the view of the Canadian delegation -- is the case with the Soviet proposal for a 100 per cent reduction of nuclear weapon vehicles in stage I.

However, the Soviet representative may have intended to ask the Western nations how they would propose to carry out verification of the measures in the United States plan, that is, the 30 per cent reduction of nuclear weapons vehicles in stage I proceeding by steps of 10 per cent at a time. We are certainly obliged to explain to this Conference how, in our view, verification could be carried out. I will not attempt to give a full explanation of the zonal sampling plan -- that will, I assume, be done in due course by the United States delegation -- but would like to advance some illustrative ideas which may give members of the Conference a notion of the practicability of this general idea in terms of time and manpower. I should say that the figures that follow are approximate and illustrative. No doubt later, when fuller studies of the zonal verification technique are available, we shall have much more precise estimates.

Suppose we say that under the United States zonal plan of verification when there is a 10 per cent reduction in nuclear weapons vehicles and other armaments, 10 per cent of Soviet Union territory, and of the territories of all parties, should be subject to verification procedures. This would amount to 2,200,000 square kilometres for the Soviet Union. In passing I would say that vast areas of the Soviet Union, like those in my country, are not developed to the extent that a close examination of what they

might contain would be necessary. But suppose that a block of 220,000 square kilometres, or one per cent, of Soviet Union territory is to be fairly carefully examined to see that it only contains those armaments and armed forces which are supposed to be there according to the agreement. Now, 220,000 square kilometres represents a square of 465 kilometres each side. This is less than one hour's flight for a jet aircraft, which could be taking air photographs; it is not a very long day's journey for a motorcar on reasonable roads.

But, to get an idea of the number of men and the time required to make an inspection, it occurred to me to compare this to a topographical survey. Many years ago, when I was engaged in this work, a surveyor with a plane-table could map about one square mile a day, which is approximately 2.6 square kilometres. Making a detailed topographical map of the area would probably be a longer job than looking through it to see if there were any unauthorised armaments. If one divides 220,000 by 2.6 one gets 85,000 man-days of work, that is to say, the equivalent of 500 men working for six months. The 500 men might be doubled to allow for administrative and transport personnel. Those figures are for one per cent of Soviet territory, and a simple multiplication will show what would be required to inspect 10 per cent. Given modern methods of transport and observation, it would be possible to examine such blocks of territory within a relatively short space of time — the six months I have suggested.

Of course, the inspection proposed in the United States plan would call for the co-operation of the country in whose territory the inspection was being carried out, and this co-operation really is the most important part in order to give reassurance that compliance with the disarmament obligations is genuine. If the military and other officials of the host country co-operated with the international inspectors, the latter would only have to ask to be shown what was in a certain building or establishment and it would be shown to them. This is really what would create the confidence that disarmament measures were being carried out in good faith — the acceptance of the obligation to show that there was nothing hidden "under the jacket".

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But, of course, there is this other factor which we should not forget: These control officers, even if they were widely distributed throughout a country, could still be ineffective as observers of the matters that they had been sent to verify if they had insufficient freedom of movement. Such freedom is essential. If our Soviet colleagues would concede that the controllers would have at least the same degree of freedom as, for instance, all of us here in this room enjoy in this country of Switzerland, then I think we would have moved closer together. I do emphasize that as a very salient point in the effectiveness of the verification officers.

Mr. Zorin has appealed to us to say how we envisage carrying out inspection with the aim of discovering hidden weapons. I think Mr. Burns today gave us some very graphic illustrations of how this could be worked out and what in fact would be involved. We, for our part, in the United Kingdom have made a fairly exhaustive study of the problems of verification and we shall be ready to discuss with our colleagues in considerable detail what can be done and what cannot be done. Personally, I rather doubt whether this is a matter which could be really satisfactorily dealt with in these large plenary meetings. One has to face this fact: it does raise questions of very considerable technical complexity. But equally I do not take the view that the right approach is to seek to settle all the political problems and only then to deal with the technical issues. The fact is that, in most questions of government nowadays, the arbitrary division between political, military and technical issues, leads one nowhere. This

is true even in the restricted field of internal government within a country.

What we have got to try to do is reach a solution by a series of successive approximations, if I can use a mathematical term here, in which political and technical views are looked at alternately until some kind of solution satisfying everybody is hammered out. I think we have got to think of the practicalities of this. I myself have in the past proposed that it would be useful in certain circumstances to think in terms of sub-committees; this might be one of the avenues where that thought could be followed. But certainly such studies as we have made of verification techniques do not lead us to the conclusion which Mr. Zorin sometimes seeks to put into our mouths: that 100 per cent inspection of remainders is always technically possible; in fact, such studies as we have made lead us to think quite the reverse.

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USSR/Zorin

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As you were unable to give an answer in the case of the two rooms which were locked, do you really expect that the entire territory of any country — the United States or the Soviet Union — will contain only open rooms? Surely you do not imagine that this will be so? This only shows how unrealistic your approach is and how much it smacks of propaganda, since only for propaganda purposes is it possible to talk of 100 per cent verification of what remains and to claim that the Soviet Union does not want this. I tell you that since we want 100 per cent elimination of armaments, we also want 100 per cent verification in order to ensure that nothing remains. You say that this is a change in our position. No. Our position has always been that 100 per cent elimination should be accompanied by 100 per cent verification. This is what we have always said. You ask how the Soviet Union thinks the detection of clandestine stockpiles should be undertaken. My answer is that we should discuss this together. How do you envisage the detection of clandestine stockpiles? After all, a number of provisions in your plan also refer to clandestine activity. It will get you nowhere to attempt to evade the issue by arguing that the Soviet representative should give an answer, because an answer is required from you no less than from us.

We are realists and we therefore say that the verification of which you speak is unnecessary. It is sufficient to verify what is reduced and for the destruction to be verified visually by the controllers. This gives, if not a 100 per cent, then at least a 98-99 per cent guarantee that the actual disarmament process is proceeding correctly.

ENDC/PV.39

Bulgaria/Tarabanov

18.5.62

pp.8-9

In our opinion, however, the question is not whether we could control the disarmament measures proposed in the Soviet draft - I shall revert to that point later - but whether we agree to adopt the disarmament measures proposed by the Soviet Union in its draft treaty, which are real disarmament measures. With regard to control, as the Soviet representative has pointed out, once we agree on the disarmament measures to be adopted, it will always be possible to agree upon the corresponding verification measures.

In his statement on 16 May, the Soviet Union representative emphasized that the difficulties and obstacles are in no way due to the alleged unwillingness of the Soviet Union to say how many control posts and inspectors there should be on its territory, but to the reluctance of the Western Powers to reach an agreement on general and complete disarmament. He then said:

"These are all minor points." (he was referring to the information request-

ed by certain Western delegations on the number of control posts and the freedom of movement of inspectors in Soviet territory) "We can reach agreement on all this; these are practical questions. But let us agree on what you are prepared to accept in the matter of disarmament." (ENDC/PV.38, pages 48-49)

The Soviet representative's conclusion that there are differences on disarmament measures is, moreover, confirmed by many statements made by the Western delegations.

In his statement on 11 May, Mr. Burns, the representative of Canada, said: "But as all delegations here have by now come to know very well, the West does not agree with the way in which the Soviet Union proposes to carry out disarmament for several other reasons besides those that we have given in criticism of its inadequate provisions for control." (ENDC/PV.35, page 38)

As we can see, it is not a matter of the corresponding control measures required to verify the disarmament measures proposed by the Soviet Union; it is those disarmament measures themselves that are not to the liking of the Western Powers.

Nevertheless, the representatives of the Western Powers continue, in their statements, to make the organization of disarmament control one of the major obstacles - the stumbling block - to all our efforts to reach an agreement on general and complete disarmament. They continue to discuss the alleged inadequacy of control and verification measures to be applied to disarmament measures which they are, a priori, unwilling to accept. This only leads to the prolongation ad infinitum of our discussion on the control of measures which appear unacceptable to the West for reasons other than those the Western delegations advance in this Committee.

Thus we go on endlessly discussing control in the abstract, with the result that we are not getting down to the work of formulating a disarmament programme and reaching agreement on it.

We consider that all discussion on control should be closely linked with the implementation of concrete disarmament measures. But the Western delegations are trying to draw us into a fruitless discussion on methods of control and hypothetical disarmament measures which they reject as such a priori. Some of them have even attempted to justify this procedure.

ENDC/PV.39 Brazil/de Mello-Franco 18.5.62 pp.16-19

As I have already said, the question of control is closely linked with the problem of confidence. It is the key to the whole system of disarmament; in every field, from every aspect and in every attempt, this is the obstacle. It is when control comes up that we hear these condemnations which, like a guillotine, decapitate the solutions proposed. It was this same guillotine which decapitated the eight-nation memorandum on the discontinuance of nuclear tests, and it is still working efficiently in the negotiations on the treaty itself.

At our last informal meeting but one, I had occasion to ask the indulgence of the countries, which have for years been at the centre of the negotiations on disarmament, in regard to the statements of representatives of countries newly admitted to the Conference, who are naturally less familiar with the subject. At the plenary meeting of 11 May (ENDC/PV.35) our Swedish colleague, Mr. Edberg, also stressed the lack of knowledge we are bound to show on certain technical matters. It is with the encouragement of such warnings, that I venture to take up the complicated problem of control.

First of all, I must say that Brazil favours a really effective system of control for

the whole process of disarmament. Our Minister for Foreign Affairs made that clear in this very room, in the opening statement he made for our delegation at the Conference (ENDC/PV.3). Later, in my contacts with my government, I have several times received confirmation of this support for a system of effective control that will create confidence and facilitate the drafting and subsequent implementation of a treaty. Speaking with the frankness demanded of all of us by our duties here, I must say that in the opinion of my delegation the problem of control has not been given the persistent and patient attention it deserves. True, it is treated as a question of the greatest importance in both drafts; but in reality, in the deadlock caused by the conflicting proposals, very little has been done in the way of real negotiation or an effort to break the deadlock. Let us consider, for example, the zonal inspection plan proposed by the United States. At least three of the eight delegations from non-aligned countries have recommended that this plan be studied more thoroughly to see whether it could serve as a basis for fruitful negotiations. The delegations of Nigeria, Sweden and Brazil made statements to that effect.

Mr. Edberg, in his interesting statement on 11 May, put three questions on this capital problem; it is highly significant that the answers given by the representatives of the Soviet Union and the United States on 14 May and 15 May respectively (ENDC/PV.36, ENDC/PV.37), did not in fact quite correspond to the questions asked. Ambassador Zorin confined himself to repeating that his delegation could not accept the proposal, referring in a general way to the reasons given earlier, but without stating them. Now it so happens that the Swedish delegation's questions were directed precisely towards the possibility of making certain changes in the proposal, which might render it acceptable -- or rather, they were intended to suggest negotiation. Mr. Stelle, in turn, replied to one of the questions put by the Swedish representative, the fourth, by repeating the terms of the United States proposal. As to the other two questions, which also concerned the system of the zones, he preferred merely to refer to the Soviet refusal. Dealing with the same subject on 16 May (ENDC/PV.38), Mr. Godber dwelt mainly on the difficulties of the problem. These answers show that the time to negotiate on control does not yet seem to have come.

Then again, the positions do not seem to us to be clear, and it appears that we could extract nuances and variations from these debates which, if carefully explored, might yield results. For instance, the apparent incompatibility of the concepts of verification of disarmament and verification of armaments, which is always presented as the main point of disagreement, is perhaps not always so radical, if I understand the sense of the discussions aright.

Let us see what Mr. Zorin said on 11 May, referred to a question raised by Mr. Burns:

"Today Mr. Burns repeated the same question: do you include verification that there are no hidden weapons? Very well, if we include it, then what follows from this? Now I ask you: how do you envisage verifying the presence of these hidden weapons? ...What do you have in mind when you speak of verifying the presence of hidden weapons in the territory of a country of 22 million square kilometres?" (ENDC/PV.35. page 56)

Before going into the question of how verification could be carried out, it will be well to look a little more closely at the position of the socialist countries on the substance of the matter, taking the statements made by their authorized representatives as a basis. It is possible to draw a distinction between the inspection of concealed armaments and the inspection of retained armaments. Both would remain after the destruction of armaments provided for in the treaty, but the retention of concealed armaments would be a violation of the treaty, whereas the retention of other existing weapons would be in keeping with its implementation.

On the basis of this difference, it could be argued that inspection of clandestine armaments is one thing, and inspection of retained armaments another; that one can be accepted without precluding rejection of the other. According to the texts I wish to refer to, if I have interpreted them correctly, I think the representatives of the socialist countries speak of the right to 100 per cent inspection only with regard to the search for clandestine armaments, without that entailing any obligation to accept a 100 per cent inspection of armaments retained under the treaty provisions. Indeed, Mr. Zorin, replying to Mr. Burns on 11 May, said:

"What do you have in mind when you speak of verifying the presence of hidden weapons" — I stress the word hidden — "in the territory of a country of 22 million square kilometres? How will you verify the presence of hidden weapons? Explain this to Mr. Burns. You are a military man. Explain how you envisage searching for these hidden weapons?" (*ibid.*)

And on 16 May Mr. Naszkowski, our Polish colleague, said:

"...that it is materially impossible to apply, especially over vast territories, the principle of total control over weapons alleged to be concealed — in other words, that it is impossible to control all the armaments of the other party in the absence of complete disarmament." (ENDC/PV.38, pages 10-11)

That is to say that if the two possibilities — verification of retained armaments and verification of clandestine armaments — are assimilated, the Polish representative, if I have understood him correctly, says this control is impossible. Why? Because it would be control of all armaments, not only of clandestine armaments. But by negation, which is a figure in logic, if he considers it possible to control clandestine armaments 100 per cent, he puts himself in the position of accepting that control. I do not think that the Polish delegation finds my conclusion very welcome, but it seems to me to be logical. Agreement must be reached on it, and it is precisely on this point that I wish to make the following comments.

To revert to the system of questions, which has produced such good results since the representative of Sweden initiated it, I too should like to ask the representatives of the Soviet Union and Poland whether our interpretation is correct and, if so, whether they think it possible to establish a system for verifying the existence of clandestine armaments, which is separate from the system for verifying retained armaments? I mean, of course, 100 per cent verification in both cases.

Amid all these uncertainties, only two things seem sure: the United States has proposed a system of total verification by zones, which the Soviet Union refuses; and the Soviet Union has proposed a system of total verification of equipment destroyed, which the United States refuses.

Both the systems proposed are at the same time partial and total. The United States inspection is total in respect of armaments and partial in respect of the territory on which it would be carried out. The Soviet inspection is total in respect of armaments destroyed and partial in respect of those retained. The two systems are incompatible, however, and faced with this incompatibility there is no denying that negotiations for a disarmament treaty have reached a deadlock. Now it is not merely a treaty on disarmament that the United Nations has asked us to draw up, but, as is perfectly clear from the Joint Statement of 20 September 1961, a treaty provided with a system of strict and effective international control. Consequently, refusal to accept such a control system would mean that the treaty would not be viable and that our work at Geneva had failed.

We may therefore conclude that it is absolutely essential and urgent to negotiate with patience, even with obstinacy, in order to find an acceptable solution of the problem of control. Considered rationally, this problem is difficult to solve because of

an initial contradiction which is inherent in it and cannot be concealed. This contradiction can be stated as follows: control cannot be based on confidence, for if there was total confidence control would not be necessary. But conversely, control cannot be carried out without confidence, for if there was no confidence at all control would be impossible. In order to solve this riddle we must negotiate on the basis of a system which can be put into effect and which at the same time will promote confidence.

ENDC/PV.39

USSR/Zorin

18.5.62

pp.36-37

The solution of the problem of control is not sought by those who, while stressing in every way the importance of control, do not at the same time ensure a realistic basis for its solution and for feasible measures of control, but by those who propose such control and disarmament measures as facilitate the establishment of effective international control without detriment to the national security of States.

Let us imagine for a moment whether a State which, owing to a number of circumstances is compelled to rely on rockets as its basic means of defence, can allow control over and inspection of its rocket installations, rockets and boosters, if the threat of a nuclear attack by the other side is not removed? I shall not give the answer in detail. It is obvious. Of course it cannot.

There is no need to prove that a reduction of the means of delivery of nuclear weapons by any percentage or proportion not only does not remove the possibility of the outbreak of a nuclear war but cannot even limit the scale of a nuclear war, in the event of such a war breaking out, since with the existing development of nuclear weapons and the use of powerful megaton bombs tremendous damage can be inflicted on any State. On the other hand, the complete elimination of the means of delivery of nuclear weapons, together with the simultaneous dismantling of foreign military bases in alien territories, removes the danger of a nuclear attack from any quarter. Such a solution of the problem facilitates the achievement of agreement on the 100 per cent verification of the 100 per cent elimination of the means of delivery and military bases. It thereby provides a real basis for a genuine solution of the question of effective control over disarmament and not over armaments.

When control questions were being discussed, the question of verification of the remaining armaments was also raised. What is the result of this discussion? The most important result is that it has shown the complete lack of grounds for raising the question of verification of the remaining armaments. In their statements, the representatives of the United States, the United Kingdom and other Western Powers were forced to recognize the practical impossibility of carrying out verification of the remaining armaments and that, in fact, it was not necessary for the purpose of ensuring the compliance of States with their disarmament obligations. The earlier demand for complete verification without exception of all armaments and armed forces has now been withdrawn by the authors themselves who realized that it was unfounded. That is why they are now putting forward the so-called sampling or zonal method of inspection. However, this inspection likewise does not remove the danger of its being used to the detriment of the interests of States, since here again we have the basically wrong approach of control over armaments and not over disarmament. In carrying out zonal inspection, there may also take place an ascertainment of military information which is of decisive importance for ensuring security in conditions where the possibility of carrying out a nuclear attack with the remaining means of delivery of nuclear weapons is retained.

On the other hand, the complete elimination of the means of delivery of nuclear weapons and foreign bases in stage I removes the danger of a nuclear attack and facil-

itates the task of control and verification of the fulfilment of the disarmament obligations agreed upon for this stage.

ENDC/PV.39 UK/Godber

18.5.62

pp.43-45

Our Soviet colleague has made a number of statements which, I am sure unwittingly, have led to a good deal of confusion of thought to many of us listening to them. Of course, first of all, it was the Foreign Minister of the Soviet Union, Mr. Gromyko, who stressed at our second meeting that they would not take the word of other countries about disarmament measures, nor would they expect other countries to take their word (ENDC/PV.2, page 11). That has been repeated since then by Mr. Zorin.

But also without confidence there can be no disagreement:

"Total verification, total disarmament and total confidence-generating measures are one and the same." (ENDC/PV.31, page 6).

These were the words used by the representative of Nigeria at our meeting on 4 May. They have already been referred to by our Brazilian colleague this morning. I think this is a basic point. Confidence has got to be built up; it can only be done, as we were reminded this morning, by adequate verification.

On the same day as Mr. Atta made the statement I have just quoted, Mr. Zorin said:

"I am telling you that we agreed to 100 per cent verification, and I add: 100 per cent verification throughout the territory of the Soviet Union." (ibid., page 50)

Now that was a very interesting statement. It aroused a certain amount of interest at the time -- indeed I think you, Mr. Chairman, commented on it -- and it did seem to be taking us definitely further than we had got at that stage.

But a difficulty arose. It seems that after Mr. Zorin made the above-quoted comment he felt that it was a little more than he had meant to say -- I do not know; perhaps he can tell us -- but I understand that at the Press Conference that he gave on 7 May, reported in the Journal de Genève on 8 May, he said -- I hope he will tell us if this is not correct -- that "For 100 per cent of destruction of vehicles, we would authorize 100 per cent verification over the whole territory of the Soviet Union in all these places where these vehicles are situated." Now that was a very important reservation, and I think one must take note of it.

So, having that in mind, the question of the verification of arms which have been described as "arms under the jacket" was still left open. It is clear from the verbatim records that both our United States colleague and my own colleague, Sir Michael Wright, in my absence, on 8 May did ask for further clarification on this (ENDC/PV.33); and on 11 May the representative of Canada recalled that he had previously asked:

"Would the Soviet Union be willing to let international inspectors visit every part of its territory to ensure that nothing existed outside the declared sites; and, if so, when would this be done?" (ENDC/PV.35, page 43)

Here it seems that our Soviet colleague has somewhat changed his arguments, because, having originally offered 100 per cent verification, he now begins to say that it is impossible. He has said this once or twice. He has added that we know it is impossible, and that this is why we have proposed the zonal inspection scheme. His remarks on this point are in verbatim record ENDC/PV.35.

In actual fact he has made this charge that we know that this is impossible and that this is why we have changed our own proposals. But this is not true, and I must

tell him so, because at the time when the zonal proposals were first made neither, as far as I know, our Soviet colleague nor indeed anyone else had ever suggested that 100 per cent inspection was physically impossible — difficult, yes, but nobody had said that it was impossible. The United States suggestion in regard to zonal inspection was made with the deliberate objective of trying to find some way to allay what we understood to be genuine Soviet fears in relation to espionage. This was an idea which was thought out and put forward as a suggestion in this regard.

Of course, one must face the fact that since zonal inspection is progressive, by the end of the process — when we have reached the goal of general and complete disarmament — it will itself be 100 per cent. It progresses by stages until it eventually becomes 100 per cent. Not all has to be inspected at once, but the provision is to leave behind sufficient people to see that the inspected zone remains clear, so it does eventually involve 100 per cent inspection.

On 16 May our Canadian colleague sought to interpret what this meant. He gave us some rather graphic descriptions and some interesting figures; but he made it clear that we did interpret 100 per cent literally, as meaning the right — and I emphasize the word "right" — to search every square inch of territory and every warehouse in it. This is what our Soviet colleague says is impracticable and I am afraid that in saying that he has tended in some degree to exaggerate — I am sure he did this unintentionally — the point in regard to Mr. Burns' proposal. At that time Mr. Burns specified the numbers concerned and he came to a figure of 1,000 for 1 per cent. Interpreting that, Mr. Zorin said:

"But, according to your own calculations, to cover the territory of the Soviet Union even for topographical survey purposes would necessitate the employment of 100,000 controllers for six months." (ENDC/PV.38, page 46)

That is a frightening figure. But of course, under the Western plan there is no intention to inspect the whole territory of the Soviet Union in six months. That is the whole basis of the zonal sampling plan. Under Mr. Burns' proposal, if one were to examine 10 per cent of the territory of the Soviet Union in one year one would need 5,000 people; if one were to do it in six months one would need 10,000 people. This brings it down to the proportions that were intended by Mr. Burns!. And 5,000 people — 5 infantry battalions — is not a very large figure in relation to the total number of people we are hoping to see disbanded in regard to the Soviet Union alone. I merely use the Soviet Union for illustration, but these things would happen in other territories too. Therefore, this is the sort of figure one would have to have in mind. Mr. Burns made out a convincing case, I thought. Our Soviet colleague thinks it is not feasible. On this I would say: let us agree to differ. Let us agree to leave it to the international disarmament organization to build up its forces and find out from experience what it can do. After all, it must be remembered that it is not consonant with the Western proposal that the international disarmament organization should actually inspect every square inch of territory. But what we do demand is the right to do this if and when it is considered necessary. That is the key to it: not actually to do it, but to have the right to do it if in fact it is felt desirable. And it is this right to inspect an area which must involve the right for the international disarmament organization itself on the spot to decide whether this should be done or not.

A study of the Soviet Union proposals will show that the proposed concrete measures of disarmament are broken up into three stages, no two of which are identical. However, the control measures proposed for all of the three stages are broadly the

same. Similarly, in the United States proposal the proposed concrete measures of disarmament are also broken up into three stages, no two of which are identical. Here again the control measures proposed for all of the three stages are broadly the same. Therefore, in respect of each proposal the variable factors are the stages, while the constants are the control measures. Both sides have explained to us at length their reasons for their adoption of their various stages, and we have of course taken due note of them. But, in addition to these reasons, it is evident that their proposals on staging have been powerfully influenced by the nature of their proposed control measures. This is only natural, since the link between disarmament and control is unbreakable. The consequence is that the deadlock which has been reached with regard to the control measures has tended to freeze all the three stages in each of the draft proposals. If we could somehow break this deadlock with regard to control, might it not un-freeze the stages and thereby make possible some movement in the direction of progress?

What I have in mind specifically is the employment of both the Soviet Union and the United States forms of control with regard to a treaty on general and complete disarmament. I would be less than frank if I failed to mention at this stage that this idea originated with our colleague from Nigeria, and that what I am trying to do is to develop it. In his thoughtful statement of 4 May, Mr. Atta said:

"We are told that inspection should relate only to the arms being destroyed or on the production line. If we destroy a very small percentage of arms, say, 5 per cent each year, I am prepared to accept the argument that there will be no point in verifying what remains. As soon as we begin to destroy a significant percentage, however, what remains becomes very important. In my opinion, a 30 to 40 per cent cut is such a significant figure. Whether or not we should agree to non-inspection of the remaining arms until we reach a significant cut is a matter to be discussed."
(ENDC/PV.31, p.9)

Reference to this has been made by several speakers, among them Sir Michael Wright, of the United Kingdom, who, speaking on 8 May, said:

"The question of evil intentions 'under the jacket' arises, of course, also in the context of the elimination of nuclear delivery vehicles. Indeed, as the representative of Nigeria pointed out in his intervention at our thirty-first meeting, as soon as we begin to destroy a significant percentage of weapons what remains becomes very important. In fact, the higher the percentage destroyed, the more important the remainders become, until at the point of 100 per cent elimination the possession of even a few weapons 'under the jacket' could give a decisive advantage to the country retaining them." (ENDC/PV.33, p.29)

Then Mr. Godber, speaking on 18 May, expressed much the same idea when he said:

"If only 30 per cent of delivery vehicles were eliminated in the stage I, of course a 5 per cent variation such as I have referred to would not be nearly so serious in regard to the actual destruction of nuclear delivery vehicles. If in fact somebody had hidden away 5 per cent, then it would mean that they would have 75 per cent left rather than 70 per cent, and there would still be a reasonable degree of balance between the two sides. If one wants to go to 100 per cent, then this becomes highly critical." (ENDC/PV.39, p.46)

Finally, Mr. Dean, speaking on 11 May, expressed the same idea when he said:

"If we have a cut-back of 30 per cent we know that the risk from clandestinely retained stockpiles is not as great as it will be later, because 70 per cent of Western strength will remain." (ENDC/PV.35, p.15)

In fairness to all these three gentlemen -- Sir Michael Wright, Mr. Godber and Mr. Dean -- I wish to say that none of them was in fact advocating that there should be no verification of remaining armaments even in the early stages of disarmament. But they were making the point that there was not anything like as much need for such verification in the earlier stages as during the later stages. What I would like them to consider is whether, given all the circumstances, they need to insist on receiving assurances, during the early stages and before a significant cut has been attained, with regard to remaining armaments. Might not a little "give" here result in a little "take" elsewhere?

Having given careful thought to this question, my delegation wonders whether the United States and its allies might be able to say to the Soviet Union and its allies, "All right, we will accept your control measures for stage I", and that the Soviet Union and its allies might then be able to say to the United States and its allies, "Since you have been able to accept our control measures for stage I, we will accept your control measures for stage II." Of course, stages I and II referred to here would not correspond either to the Soviet Union stages I and II or to the United States stages I and II. It would be my delegation's hope that between them these stages could contain all the major elements of disarmament such as the elimination of all nuclear weapons and their carriers, reduction of armed forces and armaments and liquidation of all potentially offensive military bases, and that stage III would be devoted mainly to providing for the smooth transition of States to a disarmed world. It would be highly presumptuous of us to try to suggest exactly how the elements of complete and general disarmament should be divided or split up between the three stages, or what the timing should be. These are matters which would need to be worked out in detail.

ENDC/PV.40 India/Lall

21.5.62

pp.47-48

More or less as a parenthesis, I should like to say that in one statement which I made in this Committee I suggested that there might be other ways of increasing the coverage of inspection in a country as the plan progresses. I still think that that is so. I still think it is essential that as the plan progresses there should be some progressive increase of the coverage of inspection in each country. I think that as we reach 100 per cent of the disarmament process the coverage of inspection should also be 100 per cent, and, incidentally, I believe that at that point there is again common ground between the Soviet Union and the United States. How this increase of coverage should take place is a matter which we will not go into at this stage. I should like merely to say that there is the zonal plan and there is another suggestion, which I made at an earlier date and which, if necessary, we will elaborate when we come to more detailed consideration of this matter.

I want to make a second point about this increased coverage in the countries which will be parties to a disarmament treaty. I am now going to refer to something rather tentatively, because it does not seem to me to have been brought out sufficiently, even by the two proposers of disarmament plans, and I am not sure what the intention of the plans is. However, as Mr. Zorin spoke today this point occurred to me with increased emphasis. When he was talking about article 22 of the Soviet draft treaty, he said that all plants, installations and laboratories specially designed for the production of nuclear weapons or their components should be eliminated or converted to production for peaceful purposes. We went on to say that all such plants, and so on, that are partially engaged in the production of such weapons should be destroyed or converted to production for peaceful purposes; these measures for the discontinuance of the production of nuclear weapons, and so on, should be implemented under the control of inspectors of the international disarmament organization. He told us that the interna-

tional disarmament organization would have the right to inspect all enterprises which extract raw materials for atomic production or which produce or use fissionable materials or atomic energy.

If this inspection is to be effective -- and I have no doubt that that is the intention of the Soviet Union -- I take it that at least the right to inspect will be a continuing factor; that is to say, that from time to time inspectors will be able to assure themselves that enterprises which are extracting raw materials for atomic production are doing so for peaceful purposes. I take it also that the inspection of factories which are converted to peaceful purposes will be such that the inspectors will have the right to assure themselves from time to time that those factories are being utilized only for peaceful purposes. If this is so, it would seem to me that there is an element in this plan which institutes a considerable degree of continuing inspection on the territory of the Soviet Union, and in fact on the territory of each country which becomes a party to the disarmament plan.

I suggested that this sort of continuing inspection, or the right to continuing inspection, which seems to me to be implicit in certain aspects of the Soviet plan and which, I take it, is implicit also in certain aspects of the United States plan -- though I have not actually checked this point -- will in fact make it rather difficult for countries to involve themselves lightly in clandestine activities of manufacture or in retaining arms, even arms which are not directly the subject of inspection by this process of continuing inspection, because there will be continuing activities of the international disarmament organization in all territories.

In short, it seems to me that there are already aspects of control in the two plans which do something more than just deal with the destruction under control of armaments or the reduction under control of force levels. If this is so, I would suggest that the whole problem of retained weapons is not quite in the context in which we have been debating it; it is not quite in the context of a total lack of control in the countries concerned. Therefore it would seem to me that there is room for compromise here.

One very interesting suggestion was made today by the representative of Burma which arose out of an earlier suggestion from the representative of Nigeria: namely, that perhaps the question of retained arms should attract direct controls only when the percentage of disarmament has already become significant. That, I believe, was in essence the suggestion -- or, as he described it, the thought -- of the representative of Burma, I think that that is a thought well worth pursuing, and I would suggest that it be pursued in the context of the fact that there will already be elements of continuing control in each country which is a party to the disarmament treaty which we do not seem to have considered sufficiently so far in dealing with this whole question of controls.

ENDC/PV.41 USSR/Zorin

24.5.62

pp.34-35

First, what the representative of Italy has said about his understanding of the Soviet Union's position in regard to 100 per cent verification of weapons to be destroyed, does not in fact correspond to the position of the Soviet Union. The assumption of the representative of Italy that the Soviet Union will not provide an opportunity to carry out full control over the type of armaments to be destroyed 100 per cent does not accord with the truth. We are prepared to provide an opportunity to carry out full verification of the 100 per cent destruction of such armaments, that is, of the armaments which are to be destroyed at a given stage.

How this can be carried out in practice is a question that obviously requires clari-

fication and a concrete study of the methods of verification. But in principle, we are in favour of it. Therefore, the suppositions and doubts expressed by the representative of Italy on this score are unfounded. It seems to me that if one read carefully our statements on this subject, it would be impossible to draw such a conclusion as that which the representative of Italy arrived at.

My second comment concerns the verification of what remains. In this connexion I should like to draw attention to one argument put forward by the representative of Italy when he gave as an example the photographing of the territory of Italy or part of it by a B-47 aeroplane. He put forward this example, if I understood him correctly, as proving that there are no particular difficulties in verifying the remaining armaments if one uses all means of verification, in particular, aerial photography. But I must say that the example given by the representative of Italy merely shows that with aerial photography it is indeed possible to obtain an idea about suitable targets for bombing. That is true. It is also possible to pinpoint all the main objectives situated in the territory of any country. But it would be impossible to verify by means of aerial photography the contents of warehouses. I think the representative of Italy will agree with that.

Therefore, when he put forward the example of aerial photography as proving that control over the remaining armaments is not very complicated, he was certainly wrong. By means of photography one can gain an idea about targets for future bombings. But we do not want to give such an opportunity to anyone who would like to check up on a country. We do not want this, because it does not create favourable conditions for disarmament but, on the contrary, it creates a danger of sudden attack. Therefore, we consider this method of verification altogether unacceptable.

ENDC/PV.42 USA/Dean

25.5.62

pp.17-19

....All members are aware of the rather short duration of stage I in the Soviet draft. In view of this short duration of stage I, I ask my Soviet colleague: Would this not require a very large number of inspectors over the entire national territory of a State, including the Soviet Union, at a very early point in the overall disarmament programme? How can our Soviet colleague reconcile charges that the United States progressive zonal inspection idea, which relates the amount of disarmament to the amount of inspection, would constitute espionage?

I do not see how he can justify that change when the personnel requirements of the zonal system in the same period, by virtue of the much smaller geographical areas involved and the lower level of disarmament measures set forth in the United States treaty outline, would, I think, be considerably lower than the extraordinary personnel requirements for the inspection and verification attendant on 100 per cent elimination of nuclear delivery vehicles alone.

Our Soviet colleague seemed to admit yesterday that there was some difficulty involved in the verification of a 100 per cent elimination. He said:

"How this can be carried out in practice is a question that obviously requires clarification and a concrete study of the methods of verification." (ENDC/PV.41, p.34)

I for one am very glad to have Mr. Zorin's agreement that verification is indeed a problem requiring further study.

My other point is closely related. I would like to understand clearly and in greater detail what our Soviet colleague meant, in connexion with 100 per cent elimination of nuclear carriers, by his statement on 4 May that:

"I am telling you that we agree to 100 per cent verification, and I add:

100 per cent throughout the territory of the Soviet Union." (ENDC/PV.31, p.50)

This statement, as made, would seem to indicate complete access to all Soviet territory by the international disarmament organization inspectors throughout the fifteen-month duration of the first stage of the Soviet draft treaty. But I ask: would it include some check to see that no military delivery vehicles had been retained and that no civilian vehicles — planes, ships, railroad trains or trucks — had been converted for use as nuclear weapon vehicles? How do you ascertain this fact? Mr. Godber, the representative of the United Kingdom, specifically examined this point at the thirty-ninth plenary meeting of the Conference (ENDC/PV.39, p.43) and added that he understood that Mr. Zorin had amended the aforementioned statement by making it clear that 100 per cent verification on the whole territory of the Soviet Union meant only the opportunity to look at the destruction of the particular nuclear weapon vehicles, wherever that might occur within the Soviet Union.

Mr. Zorin appeared to confirm this limitation yesterday when he said that the Soviet Union was:

"... prepared to provide an opportunity to carry out full verification of the 100 per cent destruction" —

I repeat, "prepared to provide an opportunity to carry out full verification of the 100 per cent destruction" —

"of such armaments, that is, of the armaments which are to be destroyed at a given stage." (ENDC/PV.41, p.34)

This is, after all, consistent with the negotiations Mr. McCloy and I had with Mr. Zorin last summer, and with the position Mr. Zorin took in the exchange of letters following agreement on the Joint Statement of Agreed Principles for Disarmament Negotiations, (ENDC/5, annex II) and I submit that until the Soviet draft treaty is revised to provide otherwise we have no real assurance that any other control than inspection of the particular weapons on the bonfire would be provided for arms reductions. I would therefore invite my Soviet colleague to provide us with treaty language which we could examine so that we could be satisfied on this point.

I would like now to say a word or two on the subject of the so-called veto in connexion with verification. As we have pointed out a number of times, I believe, in our discussions of transition, article 42 of the Soviet draft makes the control council the most important organ of the international disarmament organization, and in the Soviet draft this organization would have the power to, among other things, supervise the establishment and operation of the verification system. Article 42 of the Soviet draft provides further that all non-procedural votes would be by a two-thirds majority, and it states that the "composition of the council must ensure proper representation of the three principal groups of States existing in the world." (ENDC/2, p.26)

From long experience we know that this phrase, "proper representation of the three principal groups of States existing in the world", to which we have often taken exception, means in substance a troika. We suggested earlier that the Soviet Union probably had in mind a control council similar to that which it proposed for the test ban treaty, namely, with four States from the side of the United States and the United Kingdom, four from the Soviet side, and three not associated with the other side. To my knowledge, this has not been disputed.

This suggests, then, that the Soviet bloc, which almost invariably votes as a bloc in matters of deep interest to the Soviet Union, would have more than one-third of the votes in the control council, that is, four out of the eleven, and a veto over every substantive action of the council under the Soviet draft. Thus the Soviet Union would appear to be proposing a veto over even the very limited verification arrangements proposed in its draft of a treaty. Indeed, it would seem to me that it could prevent the

international disarmament organization from even watching the bonfire of the particular nuclear delivery vehicles to be destroyed in the first stage.

Then, if I read the Soviet draft correctly — if I do not, I would like to be so informed — it would appear to provide for even a second veto over significant aspects of disarmament verification, because article 40 of that draft provides:

"All questions connected with the safeguarding of international peace and security, which may arise in the course of the implementation of the present Treaty, including preventive and enforcement measures, shall be decided on by the Security Council in conformity with its powers under the United Nations Charter." (ENDC/2, p.25)

What does this phrase in this draft article, "international peace and security", mean? Examination of the United Nations Charter and of the proceedings in the United Nations shows that this phrase has a very broad meaning in international practice, virtually as broad as the jurisdiction of the United Nations Security Charter itself. What do we find if we look at the United Nations Charter? Article 24 of the Charter defines the Security Council's responsibility as the "maintenance of international peace and security". Article 11 of the United Nations Charter indicates clearly that the phrase "maintenance of international peace and security" includes "disarmament and the regulation of armaments". Therefore, by providing for Security Council action on "all questions connected with safeguarding international peace and security which may arise in the course of the implementation of the present Treaty", the Soviet draft appears to have given to all the permanent members of the Security Council a veto over all questions having to do with disarmament which may arise under the treaty. It would appear to me that this clearly indicates a veto over whether any important verification action, such as an inspection for hidden nuclear weapons, need be taken.

ENDC/PV.45

USA/Dean

30.5.62

pp.12-13

In his seventh question Mr. Hassan enquired how the United States defined the full measure of control considered necessary for ending the production of fissionable materials for use in weapons in the first stage. Our answer is this. The cut-off of the production of fissionable materials for weapons purposes would require two types of verification: first, the verification of the closing or conversion of declared production facilities and the monitoring of declared facilities that continue production for peaceful purposes; and second, inspection such as the progressive zonal plan to give assurance that no clandestine facilities are maintained.

While the United States believes that there should be an appropriate correlation between the degree of disarmament and the degree of inspection with regard to overall territorial inspection for clandestine facilities and agreed levels of armaments to be retained, it also believes that this principle in no way affects the requirement for specific inspection arrangements with respect to agreed reductions of armaments and restrictions on declared production facilities involved in the disarmament programme.

Thus in the case of the cut-off all declared facilities for the production of fissionable materials for weapons purposes would be subject to inspection to ensure that the obligations had been implemented. However, the United States was prepared in the past and is still prepared today to devise arrangements which would initially minimize this requirement, perhaps through such techniques as the plant-by-plant shutdown of production facilities proposed by the United States in 1960.

As to inspection to ensure that no clandestine facilities are retained, the United States would be prepared to rely on such methods of verification as the suggested progressive zonal inspection system or any other system which we can agree is better.

I should like again to make it clear that we have studied the progressive zonal inspection system and believe it has possibilities, but we are in no sense wedded to it if it can be improved upon or if a better system can be devised.

The eighth question of the representative of the United Arab Republic involves the way in which we envisage the application of control to our proposal for a prohibition on the transfer of nuclear weapons to non-nuclear Powers, and on assistance to such Powers in manufacturing nuclear weapons. Let me make it clear that the United States believes that this question of non-diffusion can best be treated through an across-the-board effort at nuclear containment and reduction of the nuclear threat. Our treaty outline, in section C of stage I, provides an aggregation of measures which would be helpful in preventing the proliferation of national nuclear capabilities (ENDC/30. pp.8-10).

Taken in this broader context it seems to us that the various measures of control required would, so to speak, complement each other, to provide what might be termed a system of collateral safeguards. For example, an inspection system based on proposed International Atomic Energy Agency safeguards on the transfer between countries of fissionable material for peaceful purposes would provide ways of dealing with this problem. So, too, would experience in implementing an agreement on a cut-off in the production of fissionable materials for weapons purposes, as well as on the transfer of agreed quantities to non-weapons purposes.

We believe that this problem can be most effectively solved through action aimed not at one isolated issue but at the nuclear complex as a whole, and consequently we have not attempted to work out specific inspection requirements for dealing with non-transfer apart from the other measures with which it is interrelated in our outline. But again we would be most happy to receive suggestions on this point.

ENDC/PV.47 India/Lall

1.6.62

pp.7-9

Now I should like to talk for a few minutes on the important subject of control or verification. During these last few days there has been much talk about verification and we have been talking, I believe, about three kinds of verification. First, we have talked about verification of arms and so on which are destroyed, that is to say, of reductions, or eliminations, of armaments. Secondly, we have talked about verification of retained arms. Thirdly, we have talked about verification to assure us that there are no arms hidden "under the jacket", no arms concealed unlawfully. I would suggest that the following questions and considerations arise in regard to these three categories.

So far as the first category is concerned, that is to say, verification of destruction, or reduction or elimination of a particular type of armament, both the disarmament plans before us work on the basis of presented inventories of armaments. The actual and verified destruction is to take place on the basis of inventory figures. This is common ground in the two plans.

So far as the second category of verification measures is concerned, that is, verification of retained arms, having listened very seriously and carefully to the discussions I am bound to say that the position in this matter is not clear to me. In fact, as I study this matter I find that the following question is raised in my mind: Are we not really after the third category, not retained arms but concealed arms, that is to say, clandestine activities rather than lawfully-retained arms? What is our law of disarmament? I am making a projection from the plans as they are. The law starts from the inventories; that, if you like, is article 1 of our law. It goes on to destruction; that, if you like, is article 2 of our law. It would follow from articles 1 and 2, if they were faithfully carried out -- I mean, if the inventories were good and if destruction was

made on the basis of agreed figures, percentages, eliminations or whatever — that what remained was a lawful remainder of arms.

But because of the lack of confidence, which we must admit, and because — and again we must admit and face this fact — disarmament deals with a most crucial matter touching the very basis of our security all around this table and all over the world, we do want to know and we will want to know whether article 2 of the law of our disarmament arrangements, that is to say, agreed reductions or eliminations, is not being got around by concealment or by surreptitious and counterveiling build-ups of arms. Surely that is the point. Is this not the real issue before us rather than that of lawfully retained arms?

I think I am right in looking at the issue this way, and I should like to quote from two statements which we might almost take as Scripture on this matter. I will first quote from the statement Sir Michael Wright made on 28 May. He said:

"If there were adequate peace-keeping machinery and an adequate peace-keeping force, there would be little, or at least less, incentive for the hidden retention of arms, for hiding arms 'under the jacket', and this would surely ease the problem of control". (ENDC/PV.43, p.10) —

for the "hidden retention of arms, that is to say, for clandestine, for unlawful retention of arms, not for lawful retention of arms. The issue there is hidden retention of arms.

If that is not sufficient, may I now read from Mr. Dean's most recent statement on this matter, which he made on 30 May? He said:

"Therefore the United States believes that regardless of whether reductions are effected by agreed numbers or percentages in such sensitive areas, the point is reached very soon where some assurance is needed that the weapons destroyed are not replaced and that no armaments are in fact concealed." (ENDC/PV.45, p.11)

Both of these would be illegal processes, of course — the replacement of weapons and the concealment of weapons. Mr. Dean did not raise any objection to lawful arms. Why should he? They are not objectionable. Mr. Dean is a lawyer and respects the law more than any of us here, perhaps; so he does not object to lawful retentions. Indeed, a little further on, when speaking of production of fissionable materials, cut-off date, and so forth, he spoke of:

"inspection such as the progressive zonal plan to give assurance that no clandestine facilities are maintained." (ibid., p.12)

It seems pretty clear to me that the problem is not one of retained arms, it is that of concealed, hidden, unlawfully retained, unlawfully built-up arms; that is a different matter from checking lawfully-retained arms. I think this comes out from the statements of Mr. Dean and Sir Michael Wright which I have just quoted.

I would therefore suggest that an important conclusion seems to present itself to us: that is, that we should focus our attention on the first and third matters regarding verification, namely, the question of destruction and the question of concealment, or getting around the lawful position, rather than on the second matter which we have been discussing, namely the verification of retained arms. Surely that follows from analysis of the situation.

The Working Draft of Part I also shows differences on questions of control. Whereas the United States objects on a number of important questions concerning disarmament obligations, and refuses, for instance, to include obligations on the prohi-

bition of nuclear weapons and on the dismantling of military bases on foreign territories, it demands comprehensive control from the very beginning of disarmament. It does not accept the provision that a definite time-limit shall be fixed for the whole disarmament programme, and insists on a procedure for transition from one stage to the next which would make it possible to halt disarmament at any point; and the wording it proposes for article 2, paragraph 1 on control over the levels of armed forces in fact means a substitution of control over armed forces and armaments for disarmament. Thus the last sentence of paragraph 2 of the second article, borrowed from the Agreed Principles for Disarmament negotiations, also acquires a different meaning contrary to that in the Agreed Principles. In view of the United States demands on control over the level of armed forces, a State which undertook to give unlimited access to inspectors of the international disarmament organization would simply be undertaking to permit unlimited espionage on its own territory.

The same applies to the disagreement over article 2, paragraph 4, on submission of information about armed forces, armaments, military production and military expenditures. The Soviet Union proposes a precise wording, requiring submission of information of this kind on the completion of each stage of disarmament. The United States wording gives carte blanche to demand from States information in no way necessary for implementing any particular stage and of interest only to intelligence agencies. Obviously the Soviet Union will not accept this.

ENDC/PV.48 USA/Stelle

4.6.62

pp.38-39

Let me now turn briefly to my second main topic, the use of information concerning military expenditures as one technique for verification of arms reduction. We have been pessimistic about the feasibility of military expenditure reduction as a substantive measure of disarmament. We feel, however, that we can be more optimistic about the possibilities of utilizing military expenditures as one of the techniques for verification.

The United States Outline calls for the progressive institution of verification procedures to ensure compliance at all times with the obligations assumed under the treaty. We believe that effective verification will probably encompass a variety of processes and the use of many kinds of data. Among the data that we believe might be made relevant and useful are those bearing on military expenditures which might be obtained from the inspection of national accounts.

There are two possibilities which we can see in the use of budgets and expenditure records for verification purposes. One obvious use would be fiscal inspection to verify a limitation on military expenditures if such a limitation, after study, proved feasible. A second possibility might be fiscal inspection to complement and reinforce other measures of control. We feel that both of these uses should be studied and evaluated to determine how they can best be employed and how usefully they could contribute to verification of disarmament measures.

In making this suggestion the United States recognizes that verification appropriate to any given measure of disarmament need not proceed only through the physical object of control. For example, expenditures of scrutiny of an industry like iron and steel, which provides an essential underpinning to an arms industry, might offer a supplementary means of verifying whether or not arms were being produced, though the industry itself would not be subject to limitation. Similarly, fiscal inspection might prove useful as a supplementary means of verifying compliance with measures of physical limitations, even though fiscal limitation itself was not feasible.

We agree that for a partial disarmament measure there should be partial control, by zones or otherwise, in order to prevent unduly extensive control creating dangers of what the Soviet delegation calls "espionage". But I think we also agree that for total disarmament there must be total control. The Soviet delegation has spoken of 100 per cent control of the elimination of vehicles. Now in practice it is impossible to apply partial control and total control during one and the same stage of disarmament. If, in the same stage, whether it be the first or the second, partial disarmament measures -- armed forces and conventional weapons -- are mixed with total measures -- elimination of vehicles and bombs -- it becomes impossible to apply control. The application of total control in a given sector, whether it be nuclear weapons, delivery vehicles or nuclear weapons themselves, would be superimposed on the partial control prescribed for the other measures.

There are only two alternatives: either we have total control of all armaments before the first stage, which is not acceptable to the Soviet delegation, or control is inadequate. For the forces retained in service, whether in the first or the second stage, should only be subject to partial control, since they are subject to a partial disarmament measure. But, I ask again, how can we make sure that these forces are not equipped with nuclear weapon vehicles or nuclear bombs that should have been eliminated in the first or the second stage? How can we verify that, without applying the total control which the Soviet delegation is only willing to accept at the end of general and complete disarmament?

Once again you can see that a sense of realism, even in regard to control, leads us to favour a gradual application of disarmament with a rational balanced distribution of all the measures in each stage.

....The Soviet Union rejects this as constituting a control over armaments, because it notes that the cut-off would not, by itself, prohibit or prevent the manufacture of new nuclear weapons.

I am sorry to say that I cannot follow this logic. As we see it, the Soviet Union should have no objection to the inspection of plants fabricating fissionable materials, once there is a 100 per cent stoppage of military production. In fact, the Soviet Union itself proposes such full controls over shut-down plants in other categories, even in stage I. It is true that some fissionable material plants will continue production of limited quantities for peaceful purposes. However, I am sure that the Soviet Union would not object to the control of such output, any more than it would object to the control of continued production at plants formerly producing missiles which, in stage I of the Soviet plan, are thenceforth restricted to producing space launching vehicles for peaceful purposes.

As I am sure everyone here is aware, the plants producing fissionable materials are not at all the same plants which fabricate the nuclear weapons themselves. All of the nuclear Powers take fissionable materials from the producing plants and transport them to other arsenals where the actual preparation of nuclear weapons is undertaken. The United States does not, of course, propose that any controls be installed over such nuclear weapons factories in stage I.

It can thus be seen that the United States programme approaches stage II with a very substantial record of accomplishment behind it in stage I as to nuclear weapons. The aim of stage II measures is to carry forward the work started in stage I and to use

measures of a more advanced type which are commensurate with the greater degree of confidence — and control — which will exist in stage II. Let me explain how this will be done.

The stage II provisions concerning nuclear weapons, that is, warheads, fall into two main subdivisions. First, there is the direct reduction of nuclear weapons and second, there is a registration of nuclear weapons.

In the light of the examination of control procedures by the commission of technical experts in stage I, or even before treaty signature, stocks of nuclear weapons in stage II would be reduced to minimum levels. This reduction would be preceded by a declaration of the amounts of fissionable materials held by each nuclear Power and would be accomplished by the transfer of agreed quantities of fissionable materials from nuclear weapons to non-weapon stockpiles for future peaceful uses. The non-nuclear components and assemblies of nuclear weapons from which the fissionable materials had been removed would then be destroyed.

The production, fabrication, or reworking of nuclear weapons from remaining fissionable materials would be subject to rigidly-controlled and agreed limitations. Further, all the nuclear weapons remaining in the last six months of stage II would be registered with the international disarmament organization. This would be intended to facilitate verification during stage III to ensure that no nuclear weapons remained available for use by any State.

In this further review of the portions of stages I and II of the United States outline programme which deals with the reduction and elimination of nuclear weapons, I hope that it has become apparent to all delegations that our plan is indeed realistic and effective on this subject, as it is on all other aspects of disarmament. Despite the peculiarities of nuclear weapons and of the verification problems connected with their liquidation, we have tried to ensure that their reduction will begin in stage I, as is the case with all other weapons. The steps advocated for stage II would guarantee a very major further advance towards the ultimate goal of the total elimination of nuclear weapons in national possession.

At the same time, we make no pretence of closing our eyes to monitoring difficulties; these have been recognized for a long time by all nuclear Powers. Since nuclear weapons are such a key factor in the existing arsenals of the great Powers, control over their liquidation is as crucial a factor as any other single item in the disarmament programme. We propose to face this frankly and at an early stage of the disarmament effort. Indeed, it would be our preference to clarify the verification situation even before our negotiations on a treaty have been completed, so that the requisite provisions can be spelt out in the treaty itself.

ENDC/PV.50

USA/Stelle

6.6.62

pp.36-39

The Soviet delegate, we submit, has yet to give this Committee a forthright explanation of its position on the verification of a total elimination of means of delivery in the first stage. The United States delegation and, I believe, most of the other delegations share the interest expressed by the representative of Sweden, Mr. Edberg, concerning this matter. At our thirty-fifth meeting Mr. Edberg stated the following:

"Furthermore, we have heard from the Soviet delegation that 100 per cent disarmament — for instance, of nuclear delivery means — would be accompanied by 100 per cent inspection. In order to form an opinion on this offer, we would be interested to hear in more detail how this 100 per cent inspection would be operated." (ENDC/PV.35, p.34)

The important question here is how the 100 per cent elimination would be verified to ensure that no possible means for the delivery of nuclear weapons continued to exist.

The representative of the Soviet Union, Mr. Zorin, in replying to Mr. Edberg's very discerning and thought-provoking questions, did not directly answer this question. Professing a practical Soviet approach to the problem, Mr. Zorin discussed, in a very general manner, means of controlling and inspecting the armaments to be destroyed, and concluded with the following statement which we found somewhat evasive:

"In short, we believe that this is a purely practical question and one on which we could easily reach agreement after we have settled the main issue, namely, what we are going to destroy, when we are going to destroy it and in what quantities." (ENDC/PV.36, p.38)

Let us now turn from this review of the situation as it would present itself at the beginning of stage II to the actual measures concerning the reduction of armaments proposed in the United States treaty outline for stage II. As I pointed out earlier, implementation of these measures would be a significant step in the orderly, progressive disarmament outlined in the United States proposals, with an assured ultimate result of general and complete disarmament.

In the United States treaty outline those parties to the treaty which had during stage I reduced their armaments in agreed categories by 30 per cent would during stage II further reduce each type of armament in these categories by 50 per cent of the inventory remaining at the end of stage I. In addition, those parties to the treaty which had not been subject to measures for the reduction of armaments during stage I would submit to the international disarmament organization an appropriate declaration of the inventories by types, within the categories listed in stage I, of their armaments existing at the beginning of stage II. During stage II these inventories, by type of armaments, would be reduced by 65 per cent in order that such parties would accomplish the same total percentage of reduction by the end of stage II as would be accomplished by the parties which had reduced their armaments by 30 per cent in stage I.

To ensure that appropriate reduction was accomplished during stage II in all armaments, the United States treaty outline provides that all parties to the treaty would submit to the international disarmament organization a declaration of their inventories, existing at the beginning of stage II, of the types of armaments in categories additional to those declared in stage I. These inventories would be reduced, by type of armaments, by 50 per cent during stage II.

The United States treaty outline contains an illustrative list of the further categories which would be subject to reduction in stage II and which would be declared by types within categories. These categories are:

- (1) Armed combat aircraft having an empty weight of up to 2,500 kilogrammes.
- (2) Specified types of unarmed military aircraft.
- (3) Missiles and free rockets having a range of less than 100 kilometres.
- (4) Mortars and rocket launchers having a calibre of less than 100 millimetres.
- (5) Specified types of unarmoured personnel carriers and transport vehicles.
- (6) Combatant ships with standard displacement of 400 tons, or greater, which had not been included among the armaments listed in stage I, and combatant ships with standard displacement of less than 400 tons.
- (7) Specified types of non-combatant naval vessels.
- (8) Specified types of small arms.

In addition, the United States treaty outline calls for the reduction of specified categories of ammunition for the armaments reduced in both stage I and stage II. This reduction would be to levels consistent with the levels of armaments agreed for the end of stage II.

Production of armaments in the specified categories would be halted except for

production, within agreed limits, of parts required for the maintenance of the agreed retained armaments. Production of ammunition in specified categories would also be reduced to agreed levels consistent with the levels of armaments agreed for the end of stage II.

The development and testing of new types of armaments would be halted, and flight testing of existing types of missiles would be limited to agreed annual quotas. The measures concerning production and testing would, of course, be verified by the international disarmament organization at declared locations. Under our plan, provision would also be made for assurance against the possibility of clandestine activities.

With reference to chemical and biological weapons of mass destruction, the following measures would be implemented in an agreed sequence during stage II to reduce the production and the stockpiles of such weapons in the light of relevant studies to be conducted earlier: first, the cessation of all production and field testing of chemical and biological weapons of mass destruction; second, the reduction, by agreed categories, of stockpiles of chemical and biological weapons of mass destruction to levels 50 per cent below those existing at the beginning of stage II; third, the dismantling or conversion to peaceful uses of all facilities engaged in the production or field testing of chemical and biological weapons of mass destruction.

Like the other measures of stage II, the international disarmament organization would verify these measures and provide assurance that retained levels of chemical and biological weapons did not exceed agreed levels, and that clandestine activities were not conducted at undeclared locations.

The provisions in the two plans for verification of reductions in armed forces indicate, as in the reduction of armaments, a basic difference in verification procedures. The Soviet plan provides merely for inspectors of the international disarmament organization to exercise control at places where troops are actually disbanded, while the United States plan provides for positive verification by the international disarmament organization of reduction of force levels and for assurance, perhaps by such means as progressive zonal inspection, that agreed levels of armed forces were not exceeded and that activities limited or prohibited by the treaty were not being conducted clandestinely. The importance of this adequate verification cannot of course be over-emphasized. On 8 May, in our discussion of the United States stage I proposals concerning armed force levels, we pointed out that soldiers who have been released to civilian life can be called up again readily. This inherent reversibility factor is more applicable to the Soviet Union, where greater emphasis is placed on the needs of the State than those of the individual. (ENDC/PV.33, page 33)

ENDC/PV.51 USSR/Zorin

7.6.62

pp.8, 14

In our draft treaty a specific procedure for accomplishment of the third stage is proposed. Under Article 31, the States parties to the treaty will first disband the entire personnel of the armed forces which remained at their disposal after the accomplishment of the first two stages of disarmament and completely abolish the system of military reserves. Secondly, they will destroy all armaments, military equipment and munitions remaining at their disposal, whether held by troops or in depots. All military equipment and munitions which cannot be converted to peaceful uses will be destroyed. All this will be carried out under the supervision of the International Disarmament Organization whose inspectors will exercise control over the disbanding of troops and the destruction of material resources and also control the conversion to peaceful uses of transport and other non-combat equipment, barracks, auxiliary premises and depots,

training and proving grounds, and so forth. At this stage of disarmament the International Disarmament Organization will have access to documents pertaining to the disbanding of all personnel of the armed forces of the States parties to the treaty.

The elimination of the remaining armed forces and armaments will be simultaneously accompanied by the cessation of military production. Article 32 of the Soviet draft treaty provides for the discontinuance of military production at factories and plants, except for the manufacture of agreed types and quantities of light firearms required for arming units of the police (militia) contingents retained by States parties to the treaty for the purposes of maintaining internal order and complying with their obligations in respect of the maintenance of international peace and security under the United Nations Charter. This article also provides that factories and plants subject to elimination shall be dismantled, their specialized machine tools and other specialized equipment destroyed, and the premises and general-purpose machine tools converted to peaceful uses.

In addition,

"All scientific research in the military field at all scientific and research institutions and at designing offices shall be discontinued. All blueprints and other documents necessary for the production of the weapons and military equipment subject to elimination, shall be destroyed."

The Soviet draft treaty on general and complete disarmament accords an important place to measures to prevent the re-establishment of armed forces in disarmed States. These control measures are set out in article 38 of our draft. On this question we have two aspects in mind. First, we propose to subject to strict control by the international disarmament organization the police (militia) contingents retained by the States parties to the treaty with the object of verifying compliance with the obligations in regard to the strength, armament and location of these contingents and also of revealing substantial movements of police (militia) units. Secondly, we believe it necessary that the International Disarmament Organization should ensure effective control over the prevention of the re-establishment of armed forces and armaments, for which purpose it should have the right of access at any time to any point within the territory of each State party to the treaty. In addition our draft treaty — and this is also reflected in article 38 — accords the International Disarmament Organization the right to institute aerial control, both in the form of aerial inspection and aerial photography, over the territories of States parties to the treaty.

ENDC/PV.52 USA/Dean

8.6.62

p.15

For example, in the Soviet view it will somehow still be a compromise if only existing national detection stations are used and if these are not in any way tied together, standardized and co-ordinated by the international scientific commission. It seems to us that it will also be a somewhat meaningless compromise if the country where a suspicious event has been recorded always has the complete option of deciding whether or not to invite an on-site inspection to take place on its territory. Not very much confidence can be engendered if the right to inspect is 100 per cent on the basis of invitation. As far as control purposes are concerned, such an arrangement by invitation would amount to no inspection at all in those instances where inspection could really be vital, namely, in those cases where a State might actually be trying to conceal a clandestine nuclear detonation conducted in violation of a treaty. It is no wonder, therefore, that the joint memorandum, by the terms of paragraphs 4 and 5, did not leave matters on any such basis of invitation but, indeed, introduced elements of

obligations.

I shall not press my views on these matters further at this point. But it seems to us that the Soviet Union is apparently still so preoccupied with its concern for secrecy and with its fear of espionage that it has allowed this factor to colour its every action concerning the eight-nation plan. Their whole method of negotiation — if one could call it "negotiation" — in the Sub-Committee is to say that they have their own interpretation of the eight-nation memorandum and that until we adopt their interpretation there can be no further progress. In other words, the Soviet Government would now like to be rewarded for its resumption of testing last September and for its repudiation last November of all past agreements. It is asking that the Western Powers completely surrender every principle concerning a test ban treaty and international control arrangements for such a treaty which are reasonable, sensible and justified.

ENDC/PV.52 USSR/Zorin

8.6.62

pp.22-24

This is the conclusion Mr. Dean says he has reached on the basis of the memorandum. Thus the gap has been filled by the re-entry on the scene of the previous United States demand for obligatory inspection. Thus Mr. Dean calls meaningless the inspection by invitation with which the memorandum deals, and insists on obligatory inspection. Mr. Godber confirmed this on 29 May, saying:

"As far as the question of inspection is concerned, we continue to think that the parties to the treaty should be obliged to accept on-site inspection if the international commission is unable to determine the nature of a detected event without on-site inspection: in other words, a 'suspicious and significant event', in the words of the memorandum." (ENDC/SC.I/PV.18, p.16).

Thus on all the basic questions, the substance of the memorandum, we see the same tactics: formal acceptance as a basis, and even discussion; but in fact verbal gymnastics to emasculate the memorandum, remove from it the proposed compromise, and insert instead the old one-sided Western demands which in fact made agreement impossible. The conclusion drawn by the Soviet delegation at the last debate on tests at the thirty-fourth meeting of the Committee held on 9 May, which I read out at the beginning (supra, p.18), remains completely valid. To make agreement possible the Western Powers must straightforwardly and honestly accept the eight-Power memorandum and not turn it inside out to suit themselves. The Soviet Union has really accepted the eight-Power memorandum as a basis for negotiations. It has adopted the new compromise position.

First, whereas in the previous position of the Soviet Union — I mean the proposal of 28 November, to which Mr. Dean has frequently referred — there was no question of creating any international body, we have now, by accepting the proposal of the non-aligned countries, agreed to the creation of an international commission consisting of a limited number of highly qualified scientists, possibly from non-aligned countries, together with the appropriate staff.

Secondly, whereas on 28 November 1961 the Soviet Union objected to any kind of on-site inspections, now by accepting the proposals of the non-aligned countries we agree that inspection is admissible under the conditions and procedure provided in the memorandum of the eight neutralist countries: that is to say, by invitation of the States parties to the agreement.

Thirdly, the Soviet Union considers, like the non-aligned countries, that the basic means of control over an agreement on the discontinuance of nuclear weapon tests must be national detection systems. Incidentally Mr. Dean, when he spoke today of the

sins of the Soviet Union, for some reason did not even mention the declarations of Mr. Kennedy and Mr. Macmillan of 3 September 1961, in which both statesmen publicly stated to the whole world that they considered the existing national detection systems adequate for all nuclear explosions in the atmosphere. For some reason the United States now passes this over in utter silence. Experience of monitoring nuclear explosions has shown that these systems, no matter in what environment the explosions are carried out - underground, under water, in the atmosphere or in outer space - have been proved reliable and effective.

I will not repeat again the arguments supporting this conclusion. They have been expounded both at meetings of this Committee and in the Sub-Committee. Moreover, we have stated that we have no objection to the establishment of new seismic stations provided that they form part of a national detection system. With regard to technical requirements, about which the United States representative spoke at length today, I should like to refer to the authoritative statement by Professor Leet of the United States, professor of geology at Harvard University and one of the world's greatest experts in seismology, who clearly stated in the weekly "National Guardian" of 9 April that the Government - that is to say, the Government of the United States - might merely be seeking a pretext to demand inspection in Russia, but was not entitled to justify itself by seismology. This is what the leading United States seismologist, Professor Leet, said. So you had better not refer to seismology and technology, Mr. Dean. The key is not there, but in the policy of the United States Government.

Further, the Soviet Union agrees to the proposal of the non-aligned countries for the establishment of an international commission to process and analyze data received from national observation posts, the facts necessary to establish the nature of any suspicious and significant event which may take place on the territory of parties to the agreement. The Soviet Union has moreover agreed that all States should co-operate with this international commission, furnish it with data from their observation posts, reply to its enquiries, supply it with additional information, consult with it concerning further measures of clarification to assess the nature of any particular suspicious event, and so forth.

States parties to the agreement could invite the Commission to visit their territory or the site of the event the nature of which was in doubt. All this is contained in the joint memorandum of the eight non-aligned countries, and ensures perfectly adequate control over the implementation of the agreement on the discontinuance of nuclear weapon tests. But in the memorandum, as everyone can see, nothing is said about obligatory inspection or the setting-up of an extensive international control system headed by a control commission possessing wide administrative powers and the right to dispatch its agents to sites in order to control and inspect the operation of national detection systems, to dispatch on-site inspection teams at its discretion, and so forth. This is all a complete fabrication of the United States and the United Kingdom, which interpret this memorandum in their own way.

ENDC/PV.54

Brazil/de Mello-Franco

9.6.62

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I shall begin by examining fundamentals of the control problem. The discussions which have taken place here and the reflections of each individual give the impression that control is both a political and a technical process. This preliminary conclusion is important because of the consequences that follow from it. For if we attach too much importance to the political aspects of control and neglect its technical aspects, we run the risk of finding, after the successful conclusion of political negotiations, that we cannot implement the decisions reached, because in the absence of technical prepara-

tion for control the results cannot be achieved within the stipulated time. Conversely, if we lose ourselves in the complexities of technical discussions on control we shall hold up the progress of the political negotiations, without which no treaty on general and complete disarmament can be concluded. In our view, the political aspect of control merges with the actual negotiation of the disarmament treaty and is thus necessarily an essential issue at this Conference; but the technical aspect of control can, and to a certain extent even must, be the subject of scientific studies parallel to the work of this Conference, though they can, of course, be carried out under its auspices and supervision.

If we trace, in the general history of disarmament, the period following the second world war, we can see a separate history of control emerging, in which the positions of the two blocs have changed very little. The Western bloc attaches more importance to the technical aspects of control, and the Soviet bloc attaches more importance to the political aspects. Now it seems clear that on this point, more than any other in the long discussion on disarmament, it is urgent to secure a rapprochement of the two blocs, failing which -- and I think everyone round this table will agree with me -- nothing will be accomplished.

It should be remembered that the problem of disarmament control has become much more acute and intractable since the discovery of nuclear weapons, as indeed have all questions relating to disarmament. Before the nuclear age, the enemy's armed forces were ultimately assessed on the basis of actual hostilities. It was in armed conflict that any remaining doubts about the armaments possessed by the enemy were removed. This is impossible in the case of nuclear weapons, for the great military powers, as has often been noted, accumulate weapons as a deterrent rather than with the intention of using them. Today disarmament is a necessity because arms no longer lead to victory, but to general disaster. But control is also necessary, because without it, not only is disarmament impossible, but the arms race will become more and more desperate, precisely because disarmament is impossible. This difficulty in reaching agreement, which may bring the world to ruin, marks the difference between the Soviet and the Western positions, and can be expressed by two phrases differing slightly in word order. The Western Powers say there can be no disarmament without control, whereas the Soviet Union maintains that there can be no control without disarmament. It seems to be almost the same thing, and yet there is a great gulf between these two phrases.

Here, then, we have the two views clearly stated side by side: disarmament control and arms control. Or rather, here is the deep significance of the slight difference between the two phrases: "no disarmament without control" and "no control without disarmament".

A comparison of the control systems proposed by the two blocs to the United Nations, with the systems embodied in the two draft treaties submitted for our consideration, shows that the main outlines are retained in both cases. All the provision concerning control in the Soviet draft are subject to the general rule in Article 2, paragraph 2, which reads as follows: "Each disarmament measure shall be accompanied by such control measures as are necessary for verification of that measure". (ENDC/2, page 3) This preliminary rule in the Soviet draft shows that control measures must be restricted to the corresponding disarmament measures. The formula in the United States draft is different, but is also in line with the views which United States representatives have always upheld. For in paragraph 3 of section B, which sets forth the Principles of the treaty, we read: "Compliance with all disarmament obligations would be effectively verified during and after their entry into force". (ENDC/30, page 3)

There is no need to go beyond these highly significant words to see the profound difference between the two proposals. By emphasizing that all disarmament obligations

— and I stress the word "obligations" — are subject to control, the United States draft goes considerably beyond the limits set by the Soviet draft, which refers only to control over measures — I stress the word "measures". Indeed, these measures are a way of partially establishing an obligation. Hence control over a measure means verification which is also partial. On the other hand, control over an obligation parallel to the execution of the measure opens up a much wider field for the exercise of control.

My purpose in emphasizing these aspects is not to reveal something that nobody knows. On the contrary, I merely wish to emphasize the fact that the basic conflict between the positions of the Soviet Union and the United States on the subject of control — a conflict that all the parties to this Conference know only too well — is as firmly rooted as ever, and has passed on from United Nations texts to the drafts we are discussing here. For that very reason we consider that the problem of control is one of the most serious of all the problems we have to examine. It has, of course, been argued against this view that the importance attributed to control is only a pretext used to disguise fundamental opposition to real disarmament measures. It is not for us to judge the validity of that argument, the importance of which cannot, incidentally, be denied, since up to a point it justifies the attitude of one of the great nuclear Powers towards the conduct of our work. I venture to say, however, that that argument is a way of logically separating disarmament from control, in conflict with the Soviet view which joins the two things together, and comes nearer to the principal defect which the Soviet delegation finds in the Western draft.

To examine this argument objectively we must dwell for a while on the meaning of the word "political". We all know that a political act is, in the last analysis, one which gives effect to an expression of free will by authority. The difference between politics and administration is precisely this element of free will inherent in a political decision, which is not subject to the limitations of the legal system, whereas they do govern administrative decisions. A political act is one which, under all systems of government, reflects the ability of the government to exercise its power within the framework of the constitution. Now there is nothing to prevent a political act from being carried out with knowledge of certain social or natural phenomena which only technology or science can establish. In some cases scientific or technical knowledge is essential to make the execution or even the existence of a political act possible. It therefore seems to me unwarranted to say that the technical examination of a question can in any way hinder or prejudice a political decision.

Our belief — which I think will be shared by any observer who examines this question without prejudice — is that the negotiations on disarmament will make no progress unless the nuclear Powers reach an understanding on the question of control. Even those who avoid speaking on this question are constantly thinking about it.

....The delegation of Brazil, justifiably concerned, like all the other delegations, at this delicate situation, suggested, in the statement I delivered on 18 May, that a technical committee should be set up to carry out special studies on the various aspects of control under the auspices of the Conference.

There are further points which militate in favour of agreeing on a study of the problem. I will mention some of them. The progress of nuclear technology is an incontrovertible fact which can be verified even by a layman like myself. Now with such a dizzy rate of progress, the political negotiations may be in danger of being left behind by the advance of technology. In other words, the joint disarmament measures might be outstripped and even found impracticable as a result of new technical developments. It may also be pointed out that political talks are liable to break down when the conflict of interests reaches a deadlock, whereas scientific talks are not liable to such inter-

ruptions.

Let us now turn to another point which is of greater importance. The proposals on control in the two drafts say nothing about the modus faciendi. I do not wish to go any further into the matter, but even a casual reading of the two texts will show that this is so. There is no doubt that the zonal inspection system proposed by the United States is the greatest contribution yet made to the examination of this problem. But it is still only a criterion, not an implementation procedure. Mr. Zorin has often said - and rightly, I think - that no one knows how the verification measures could be applied, once the idea of zones is accepted. Again in the meeting of 6 June, Mr. Godber gave us some impressive information about the intrinsic difficulties of inspection, given the mobility and the possibilities of modification of modern nuclear weapons.

If no one will explain how to implement the control system, my delegation really cannot understand why a suggestion that the problem should be studied is not accepted. Mr. Lall, the representative of India, proposes that the countries which have experience in this field should give some information to those which have not. The proposal is a good one, but I venture to say that it does not go far enough. Joint study does more to advance knowledge than the exchange of information.

Quite recently, at the meeting on 7 June, Mr. Godber and Ambassador Zorin had an important debate on the problem of the joint study of control measures. Unfortunately, it did more to show up their differences than to remove them.

For our part, we do not advocate any particular formula. We merely remain convinced that without an exhaustive technical study of the subject - which should be jointly carried out by the two parties because of its political importance - the negotiations will make no progress. It is because I am not a technician that I say this; it is because I am a politician, a man whose whole experience has been in the sphere in which the decisions of authority are taken. The delegation of Brazil considers that the most logical and natural solution would be to form a corps of experts who, without intervening in the political discussions of the Conference, could provide it with the material foundations necessary for the progress of its deliberations. Informal contact, without any commitment, between the technical advisers of the delegations, as Ambassador Lall suggested in one of his recent statements, might be a tentative first step towards the formation of such a group.

Brazil is sincerely opposed to the retention of nuclear weapons, as stated by its Government and reiterated recently by Mr. Santiago Dantas, its Minister for Foreign Affairs. But Brazil is convinced that effective international control is indispensable if the scourge of nuclear competition for military ends is to be eliminated.

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USA/Dean

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....Progressive zonal inspection or some comparable technique which would do the job effectively would be used to provide assurance, as a substantive and not merely a technical matter, that arms and armed forces which were supposed to be reduced were not in fact retained, and that prohibited activities were not being carried out at undeclared locations. This would, of course, be absolutely crucial by the time we got to stage III. None of us, I assume, would relish the thought of waking up some morning after we have, for example, in good faith eliminated all our nuclear and conventional weapons only to find that others have not done so and now threaten to take advantage of that fact. By the end of stage III, therefore, progressive zonal inspection or some adequate substitute for it would have to cover effectively all territory, because there will come a time when we will have to be sure that this process is going to work; we cannot afford to have some papering-over formula as a substitute for real destruction

and verification. Only then can we have real assurance that there are not secret weapons or activities in existence.

The Soviet draft provides that the international disarmament organization shall have the right in stage III "of access at any time to any point within the territory of each State party to the Treaty" (ENDC/2, page 24). On the face of it, this would seem to be close to what we have in mind.

However, I call attention to the fact that the purpose of this inspection is not to verify whether parties to the treaty have retained arms or continued prohibited activities secretly. According to this same article in the Soviet draft, it is "for purposes of control over the prevention of the re-establishment of armed forces and armaments." (Ibid.) This may be intended to limit what the inspectors can look at or what they can do with the information they find. Last Thursday, in discussing this language, our Soviet colleague put the same qualification on it. He said that his delegation thought it:

"necessary that the international disarmament organization should ensure effective control over the prevention of the re-establishment of armed forces and armaments, for which purpose it should have the right of access at any time to any point within the territory of each State party to the treaty." (ENDC/PV.51, p.14)

In analyzing what this means, I call my colleagues' attention to the fact that in our negotiations on part I our Soviet colleague agreed that the treaty should ensure that "control arrangements are instituted progressively throughout the disarmament process". (ENDC/40/Rev.1, p.3)

I would like to conclude by saying that I agree with what our Brazilian colleague said at our meeting yesterday — namely:

"...if the United States draft involves measures which may resemble espionage, then this espionage would also be carried out on American territory with consequences similar to those feared by the Soviet Union." (ENDC/PV.54, p.28)

I would like to assure this Committee that we have not at any time or under any circumstances had the idea of using the features of our general and complete disarmament plan as a means of espionage. If there is any other way that we can carry this out which would satisfy our Soviet colleagues' feelings on the question of espionage, or if there is any method better than progressive zonal inspection, on which we spent a lot of time and which we thought was a unique contribution in the field of general and complete disarmament, we would be only too happy to hear about it.

We do not approach these methods of verification, or even progressive zonal inspection, with a closed mind. Merely because we have already spent a great deal of time on zonal inspection and recommend it in the absence of some better method, does not mean that we are frozen to it. We have done everything we can to try to get around this question of espionage while disarmament is going on, but I do agree with my Brazilian colleague that if verification is onerous its burdens will fall equally on the United States and the Soviet Union. We do believe, as I know all of us here believe, that we have to push forward on this question of general and complete disarmament. And, speaking only on behalf of the United States, we are quite prepared to pay whatever price we have to pay in having inspectors from the international disarmament organization roaming around our country and making inspections in order to accomplish general and complete disarmament. But we would be happy to co-operate in an effort to reduce this burden.

....During the whole course of our discussions hitherto, the United States has been telling us that it does not insist on overall verification of retained armaments but that what it has in mind is zonal inspection, which, in its opinion, simplifies the problem of verification. Today's statement, however, indicates that the United States is, in fact, adopting its former attitude and insisting on overall verification of retained armaments. This is what we call control of armaments and it is, of course, a position that is not only unacceptable to us but also impracticable and inexpedient, as has been shown throughout our discussions.

The fact that the United States has now returned to this position only shows that all its talk of having adopted a more flexible attitude on this question was without foundation. In this connexion, I should also like to explain (as, incidentally, was done during the discussion of the working draft of article 2) that we pointed out that our opposition to the clause in article 2 mentioning control without veto is motivated by the United States insistence on verification of levels, i.e. of all armaments and armed forces, whatever the strength of the armaments and armed forces subject to reduction.

For precisely the same reason we feel that it is impossible to tolerate a situation in which all armaments and armed forces, even those not subject to reduction, would be controlled and in which there would be complete freedom of movement in any district of the country being inspected. We are, of course, opposed to this. Our negative attitude to this second paragraph on the veto is therefore connected with our negative attitude to the very principle of verifying existing armaments without their being subjected to reduction and without verification of these armaments in process of reduction.

The second remark that I should like to make in this connexion is a clarification of the question raised by the representative of the United States, when he dealt with control over the prevention of the re-establishment of armed forces. He read our text of article 38 and, in so doing, offered an explanation. Paragraph 2 of the article states:

"For purposes of control over the prevention of the re-establishment of armed forces and armaments, abolished as a result of general and complete disarmament, the International Disarmament Organization shall have the right of access at any time to any point within the territory of each State party to the Treaty." (ENDC/2, p.24)

Mr. Dean has cast doubt upon this "right of access at any time to any point", and in doing so referred to our negative attitude to the analogous paragraph in article 2 on control (ENDC/40/Rev.1, p.3), in which it is stated that the inspectors can visit any locality without veto. I must say that there is no foundation whatsoever for these doubts since the reference here is to the last stage of disarmament, when there will no longer be armaments and armed forces and when all that remains will be a defined category of militia and police, the strength of which has been agreed and the stationing of which has also been agreed. Paragraph 2 states that under these conditions we are entirely willing to afford the "right of access at any time to any point within the territory of each State party to the Treaty." Here we do not envisage any restrictions. I wish to clarify this so that there should not be any misunderstanding on this score.

My final remark concerns nuclear weapons. The representative of the United States asked us where we mention the inventory of nuclear weapons to be destroyed and where we refer to the lists and data to be submitted before the destruction of nuclear weapons. I must say that if the United States delegation had studied our draft treaty attentively they would probably have noticed that we do not in general make separate mention of an inventory, of lists or of data at each individual stage, but that there is

one general paragraph that defines our attitude to this question at all stages of disarmament. This is paragraph 5 of article 2, "Control Obligations", which reads:

"The States party to the Treaty shall in good time submit to the International Disarmament Organization such information about their armed forces, armaments, military production and military appropriations as are necessary to carry out the measures of the corresponding stage."

(ENDC/2, p.4)

These are the general provisions and general obligations which we deem it essential to accept ourselves and which we recommend any State to accept. In conformity with this principle and this obligation, it is our intention that the information necessary for the execution of a given stage will be made available at that stage. If 100 per cent reduction or destruction of a given type of armament is proposed at this particular stage, information will be submitted on all 100 per cent of this type of armament. This is a general principle that applies to conventional armaments, to means of delivery and to nuclear weapons. There is, therefore, no foundation for the doubts here expressed by the representative of the United States. We envisage supplying the information essential to the stage at which nuclear weapons are destroyed.

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...I am afraid that my Soviet colleague either misunderstood the remarks I made this morning or has misstated them. At that time I stated specifically that the United States did not seek -- I repeat, did not seek -- to verify the level existing at the beginning of disarmament. I thought that in that way we had overcome one of the previous obstacles to disarmament. I said specifically that the United States seeks effective verification only after the first steps of disarmament have taken place -- and I said that even then we do not seek access to the entire territory of States.

We do say that it is essential to have a clear idea whether the declared initial levels or the subsequent levels are accurate, as well as to verify the actual arms that are being destroyed. However, I said specifically that the United States does not ask for this assurance by means of actual inspection of either the initial level or all the retained arms and forces. We shall be satisfied by the assurance that will arise from a partial check, on some effective mathematical sampling basis, either by this progressive zonal inspection system we have put forward or by any other equally adequate scheme if the progressive zonal scheme is not satisfactory.

Under the progressive zonal plan the amount of inspection would be related to the amount of actual disarmament. That is why we studied this system and put it forward. Under that system only a small part of the territory would be inspected after the first step reduction in the first stage.

The United States has not changed its stand at all on this matter. It seems to me to be important for all the representatives at this Conference to know at this stage in our work that there has been no change in the attitude of the United States in this respect.

ENDC/PV.60

Canada/Green

24.7.62

pp.27-28

The difficulty of finding a satisfactory verification system has been the main obstacle in the way of an effective test ban agreement. A major contribution to overcoming this obstacle has been the compromise proposal (ENDC/28) tabled by the eight uncommitted members of this Conference. It is of course encouraging that the nuclear

Powers have all indicated their acceptance of this neutral proposal as a basis for further negotiations. But in my view the nuclear Powers have not exploited sufficiently the possibility for progress which the eight nation memorandum affords and have been engaged in a largely fruitless debate over how it is to be interpreted. The time is overdue to enter upon real negotiation based on this memorandum.

There are three basic elements in the compromise suggested by the eight Powers: first, a detection system based on existing national networks with new posts if necessary; secondly, the establishment of an international scientific commission to process the data yielded by these stations; and, thirdly, the obligation for States parties to the agreement to provide adequate assurances that a suspicious event on their territory is not in fact a nuclear explosion.

As far as we can see the combination of an improved system of national detection stations and an international establishment to collect and analyse the data received from them provides a satisfactory technical basis for agreement acceptable to both sides. The crucial question which remains is how to deal with doubtful events that may be detected on the territory of one of the parties to the treaty. The United States representative made an important suggestion at the beginning of last week when he proposed (ENDC/PV.57, p.13) that the latest scientific data provided by recent research be thoroughly reviewed in this Conference and that in the detailed examination of this information qualified experts from all delegations should participate. I believe that a discussion of that sort should be held, and held just as soon as possible. It could lay the foundation for an agreement acceptable to all concerned. The conclusion of a treaty to halt tests for all time not only would be of immeasurable importance as a first step in halting the arms race, but also would create the right atmosphere for constructive progress in other areas of disarmament.

ENDC/PV.63 Czechoslovakia/Hajek

30.7.62

pp.34-35

We have on many occasions expounded our view that the 100 per cent elimination of all nuclear delivery vehicles in the first stage would also make possible 100 per cent adequate and effective international control, which of course could not be carried out under the United States proposal. All the problems that control, inspection and verification would meet in the conditions of the Soviet plan (ENDC/2) would also occur in implementing the measures provided for in the United States plan (ENDC/30 and Corr.1), in addition to the fact that adequate control in connexion with the 30 per cent reduction is not provided for in the United States proposal, which creates much more of a problem.

Our delegation would like to ask our colleagues once more, in comparing the two proposals, to look at the problem from the point of view of the greatest security for all nations and for humanity — that is to say, from the point of view of the possibility of removing the threat of nuclear war in the first stage. All the objections voiced by the Western delegations tacitly recognize that the Soviet proposal really removes such a possibility and, if implemented, really would be a major contribution to the security of the world. So the Soviet analysis, and the considerations based on it, give us a clear picture showing that if all the nations discussing this problem were concerned to maintain the possibilities of defence, and not of aggression, the situation that would be created on the basis of the Soviet proposals would certainly be less favourable to a potential aggressor than the situation which would be created on the basis of the implementation of the United States plan — because, first of all, the maintenance of 70 per cent of nuclear delivery vehicles, with all the stocks of nuclear arms, plus the control planned and proposed by the United States, would certainly give a premium to a

potential aggressor.

Of course the Western side maintains that it does not intend to undertake an aggression. Well, we do not wish to contest those intentions but, after having heard Mr. Burns's military considerations, we should like once more to draw attention to the fact that, apart from the maintenance of 70 per cent of nuclear delivery vehicles, the kind of control which Mr. Burns was stressing — which means knowing about the quantity and location of any force of armaments which remain, as I read it from his statement — is just the category of control to which the words of Henry Kissinger, the well-known authority on military problems and arms control in the West, apply. I would like to quote from his book, The Necessity for Choice, page 219, where he speaks about this kind of control and says that:

"... such surveillance may help a potential aggressor more than the defender, thus violating one of the cardinal principles of arms control. The defender learns only what he already knows: the instant readiness of the aggressor's force. At best he gains an additional warning time, which is so short that his retaliatory force cannot possibly be designed to make use of it."

Here, of course, he speaks of this control under the existence of nuclear weapon delivery vehicles which the United States proposal presupposes. He goes on:

"The aggressor, on the other hand, gains vital strategic information. He learns the exact location of every missile at every moment — thus nullifying to a considerable extent whatever advantage his opponent may have achieved through mobility. He will know precisely the pattern of operation of the retaliatory force he is planning to destroy. The conclusion is inescapable: that inspection to obtain tactical warning may detract from stability rather than add to it."

ENDC/PV.64 Sweden/Myrdal

1.8.62

pp.13-17

I need only mention in passing that other methods for recording explosions are also, of course, available, and their degree of efficiency is being studied. In atmospheric tests the electromagnetic signals are spread over vast areas. Again I might mention that the Swedish geophysical observatory at Kiruna is following this development with keen attention. Similarly, we are among those interested in mathematical on-line processing of the recorded signals. In these newer fields the predominating concern is with the further development of research rather than, as yet, with using the methods for practical servicing, as in the more firmly organized discipline of meteorology.

The purpose of my summary exposition is quite obviously to permit us to draw some practical conclusions as to how we can utilize the existing observation posts and their international co-operative arrangements for the task of monitoring nuclear testing. But it should go without saying that this is only a side aspect of the work of those institutions, while scientific development is and must continue to be their primary concern.

The unavoidable main conclusion is that there already exists an international apparatus which is capable of providing considerable knowledge. Many reports have been published to demonstrate how nuclear tests in different parts of the world have been detected and identified in various countries. Take, just as one example, the recent French underground test in the Sahara. Within six weeks of its occurrence, on 1 May this year, no less than sixty-five stations had reported on their registration of it. They reported to the United States Coast and Geodetic Survey. Among those who most rapidly produced the data were stations in Bolivia, Canada, the Congo, Czechoslovakia, Ethiopia, Finland, France, the Federal Republic of Germany, Eastern Germany, Greece,

Greenland, Iran, Israel, Italy, Morocco, Norway, Peru, Puerto Rico, Spain, Sweden, Southern Rhodesia, Turkey, the United States and Yugoslavia. This is just to show the breadth of the co-operation. Similar international comparative studies have been undertaken on many other tests, especially on the Rainier, Logan and Blanca shots in Nevada in 1957 and 1958, and the results and conclusions have been published in scientific journals both in the United States and in the Soviet Union. May I suggest that those who pretend that no truly international co-operation exists are as much retreating from reality as those who assert that international co-operation might mean espionage?

Obviously results so far observed and obtainable through the network of geophysical stations do not assure any 100 per cent detection capability. There is still less evidence of a satisfactory identification capability, and it will remain difficult to establish any meaningful reliability index without full knowledge of all underground tests by the United States, the United Kingdom and the Soviet Union. But that is not the main thing. The main thing is that, practically speaking, a more complete collation of data from stations in widely different geographical positions would greatly add to the effectiveness. Further, we might bear in mind that the risk one wants to be insured against if a test ban treaty is signed is not a unique occurrence which might happen to go unnoticed. Tests to be executed for the improvement of weapon systems would then, as now, have to be repeated, and probably even continue to reappear in series. Therefore the possibility of detecting them would increase by the law of numbers. What has hitherto been most glaringly lacking, both in political speculations about detection capabilities and also in the practical analysis and calculation of the wealth of observations actually recorded, has been the statistical approach.

Since observations abound, there would just be needed a more systematic attempt to collect, collate and compare them. The missing link is, in other words, an agency for the central processing of the data. If it were put into operation, there is no doubt that much more information than has until now been acknowledged as lying within the field of possibilities would flow from the already-existing stations. May I mention in passing that many of them are located in territories of non-nuclear Powers, and therefore our co-operation must be of fundamental importance to the work of any international system. This does not seem to have been sufficiently recognized when the experts from the nuclear blocs made their report in 1958. It is this crucial question of our willingness to co-operate which has been given a much more positive turn by the submission of the eight Power memorandum last spring.

A second conclusion is that the cost of making the apparatus effective would be comparatively moderate. What would be called for is more modern equipment in many local observation posts; the cost of cabling, or of other rapid communications; the services of some electronic computers; and finally some top-level scientists for the central international assessment of the data obtained. The costs could by no play of imagination be brought into the neighbourhood of \$2,500 million for installation and \$500 million for annual costs which Mr. Dean recently mentioned as the cost of an international control system.

Although I would not want to hold anybody down to estimates once given, I might mention, for the sake of comparison, that the International Seismological Summary, on which seismologists from the United States and the Soviet Union -- as well as others -- actively co-operate, made cost estimates for their desired international centre amounting to about \$250,000 for initial outlay and, with a staff of thirty-four people, together with publications et cetera, running up the annual costs somewhat higher, but still not beyond \$500,000. Now these figures, I want to stress again, are only given for the sake of comparison of magnitudes. The task of working out tenable cost estimates belongs, of course, to our Sub-Committee, or any group of experts it might want to co-operate with.

A further conclusion from our quick inventory is that the time interval between a political decision to countersign a test ban agreement and the actual functioning of some control system which could service it would be shortened to the utmost possible extent. It has rarely been made explicit that, according to the report by the 1958 Committee of Experts (EXP/NUC/28) and also according to the draft treaty of 18 April 1961 (ENDC/9), a considerable time would elapse before the envisaged control system would be functioning to any satisfactory degree. I do not need to review the timetable which was outlined for first the signing, then the ratification and then the entry into force of a treaty and the building up of the system of control stations and the international agency which these plans provided for, but it may just be recalled that the three stages through which the control system was to be developed would only have been completed six to eight years after the entering into force of the treaty. On the other hand, if we utilized the existing stations the monitoring system — and I hope it is noted that I consistently refrain from calling it "the control system" — could begin right away, and as a matter of fact is already in operation, while the setting up of the international commission might be a matter of months only. If the preparatory work were taken in hand now, its inauguration might be made to coincide with the target deadline for stopping all tests.

Finally, to me and to many others, the most imperative reason for preferring utilization of the existing observation posts instead of building up a vast system of control posts for following eventual nuclear tests, is that only thus can we be certain that scientists, attracted as they are by the full freedom of research, being subservient to nothing but truth, will feel a lasting propensity for playing an additional role in this international scheme for promoting peace-making. They would continue their present work with its centre of interest being the progress of science and the concomitant utilization of its findings for practical application — protection against radioactivity, etc. Certainly, scientists in the disciplines concerned are anxious to be left free to pursue their scientific endeavours, albeit, we hope, willing to take on certain additional duties for the sake of helping to detect, identify and localize man-made geophysical upheavals as well as those caused by nature. They could, on the other hand, not be expected to muster any enthusiasm for a system with an exclusive task of policing a nuclear test ban.

What then should be the next practical step? First, there must be a more detailed and more up-to-date inventory of the kind I have tried to indicate. Next, there must come an elaboration of specific plans for the equipping of some stations with modern instruments, for inviting the institutes to accept as a more definitive obligation the duty to register internationally the data observed. Further, there must be a study of what a more rapid communications system would imply and, probably, blueprints for some additional stations, either in countries willing to erect new ones within their territories or, as an international endeavour perhaps, placed on ships in international waters.

When our Sub-Committee starts such work it will find that certain other plans are already on their way in that direction. The World Meteorological Organization has recommended that an international network be instituted for collecting data as to radioactivity in air and rain-water. This network would rely on some 100 collecting posts transmitting their results to some 15 stations for scientific analysis. In the field of seismology, as was mentioned a few moments ago, planning is going ahead for an international centre which should be able to base its computations on data received from the majority of the world's seismic stations — its functions, budget and location are to be decided upon in 1963. The requests for grants to be principal organs in this field — the international scientific unions — are usually channelled through UNESCO, of which, I believe, the eighteen nations in this Committee are all members.

Against this background I hope it becomes self-evident that, if the interest of the nuclear Powers in monitoring a test ban treaty should call for the creation of an international commission, plans for setting it up must be made immediately. At least the scientific nucleus which is to process all related data must be discussed, together with the agencies which are handling similar plans for centralization and internationalization within the various disciplines. I think, at the same time, financial plans to meet the cost of making the international exchange of data effective should proceed immediately. It should be noted particularly that the international commission must be attached to one or other scientific institute or centre, since it must continually be in close touch with actual research in order not to lose the high-power technical skill of its scientists. The open availability of the data-flow will, by the way, permit every geophysical institute to calculate and verify the results which are to form the basis for the commission's decisions.

I am fully aware that in this context I have bypassed, on the one hand, the political problem as to how sufficient or insufficient the nuclear Powers of both sides will judge the detection and, more particularly, the identification capability of existing institutions and existing methods to be, and, on the other hand, the even more politically loaded problems with regard to what degree of on-site inspection will be considered necessary or acceptable. Those questions are left out purposely, as they must remain items for the finally decisive negotiations. In these matters the nuclear Powers are the primarily interested parties, but in the other ones, which I have been concentrating on today, we are all — nuclear and non-nuclear Powers, great Powers and those not so great — directly involved. Either we all co-operate and build up confidence, or else.

ENDC/PV.64 USSR/Zorin

1.8.62

p.19

We have noted with particular attention Mrs. Myrdal's comments on the factual aspects of present-day observations of various natural phenomena, on those which have a bearing on the observation of nuclear weapon tests. The facts and information she adduced on the existing national posts, the existing national detection systems, both in the atmosphere and underground, showed that we already have a sufficiently firm basis for the observation and identification of all nuclear tests. As you know, the Soviet Union has repeatedly emphasized that it considers this system quite adequate for the detection of any nuclear weapon tests, wherever they may occur.

I therefore feel that the facts and information which the representative of Sweden adduced this morning should enable all of us to approach more soberly the possibilities of reaching agreement, provided we set aside extraneous considerations and base ourselves solely on the interests of the task and the real possibility of detecting such tests. We shall therefore study very thoroughly the verbatim record of the statement made by the representative of Sweden and shall analyse the facts and information which she adduced at our meeting.

What struck me as particularly important in Mrs. Myrdal's statement were the conclusions she drew towards the end of her speech, when she spoke about the use of the existing verification system in various countries of the world, a system which includes a very great number of countries and a great number of observation posts and stations, and also her remarks to the effect that it was desirable that the staff working at those national posts and stations should not be treated as people to whom some special international function had been assigned. I think that is a very important point, which was quite well argued by the representative of Sweden, who stressed that if the

staff at these posts did not feel that they were national scientists and technicians engaged in a definite field of science, but were people performing some international functions and subject to some special directives and instructions, this would of course inevitably affect their whole work and the quality of the results derived from it. I believe that these points merit serious consideration.

ENDC/PV.64

UK/Godber

1.8.62

pp.46-47

If I could summarize the first paper, I would say that its conclusions are the following:

1. We know of no satisfactory means of differentiating between military and civil rockets. The only safeguards in our view lie in control and inspection.
2. We believe that the number of inspectors required to cover this problem in all the countries concerned would be of the order of thousands rather than hundreds.
3. The degree of insurance against evasion is directly proportional to the effectiveness of the inspection system which is, in turn, a combination of sufficient numbers with adequate powers of inspection; and,
4. Complete international collaboration is, in our view, the only certain method of ensuring against misuse of future developments in space. Such collaboration could serve also to remove suspicion that the resources of a legitimate space programme might be diverted to launching a strategic attack. Failing effective collaboration, increased control and supervision of rockets would be required at all stages from design to launching.

Now I should like briefly to develop a little further the subject of the verification of the destruction of certain types of delivery vehicles, and, remembering what I said earlier about qualifying the term "delivery vehicles", I would hasten to add that what I am thinking of here are two particular types, namely, military rockets and aircraft. That is a subject which is touched upon in the paper which I have just been discussing, but because it raises a certain number of special problems we thought it desirable to produce our second paper devoted particularly to the point.

ENDC/PV.66

Canada/Burns

6.8.62

pp.20-22

What is the problem that we are concerned with? It is the problem of verifying that 100 per cent of nuclear weapon vehicles have been destroyed in the first stage of disarmament, and I should like the Committee to take note that this is a different problem of a different order from that of verifying the 100 per cent elimination of nuclear weapons through three stages. Gradual, three-stage elimination, the Western delegations think, can be verified without encountering the insuperable difficulties of verifying which the Soviet Union 100 per cent first-stage proposal would meet; and we will be prepared to explain and discuss the United States proposals, including their verification provisions, in as much detail as is necessary.

Now, with regard to the Soviet proposal. Let us suppose that the specialized means of delivery of nuclear weapons have been identified as long-range bombing aircraft, shorter-range aircraft specially adopted for the purpose, and rockets and artillery of all kinds down to certain minimum sizes and calibres. The Soviet Union proposes that those nuclear weapon vehicles should be assembled at various places and destroyed, and that international disarmament organization inspectors should watch that being done. But the representative of the Soviet Union knows very well that the West is not going to destroy all its nuclear weapon vehicles until it has been made perfectly certain that

the means of delivering nuclear weapons are eliminated from Soviet Union territory and the territory of its allies and friends. That could mean that before destruction could take place teams of inspectors must go everywhere in those territories where they think that any of those vehicles might be concealed, and make sure that none are hidden away and that all those declared in the inventory and located for destruction are, in fact, the only nuclear weapon vehicles existing.

What would that mean? It would mean that the exact location of all the nuclear weapon vehicles belonging to the Soviet Union would be known to the international disarmament organization, and hence to the Western Powers — and, of course, also to those circles the Soviet Union is so fond of telling us about which are itching to begin a preventive war. Those villains, the Soviet Union tells us, are just waiting for that precise information in order to deliver an unprovoked, aggressive nuclear strike.

I would ask Mr. Zorin how he proposes to escape from this dilemma. The West is not going to destroy all its nuclear weapon vehicles until it knows what items the Soviet Union proposes to destroy, where they are, and that there are no others anywhere else. I have put this question before, and I have received no answer. What Mr. Zorin said, in effect, was "Well, that is a matter of detail; we can settle all those details after we have accepted the principle that we are going to destroy all nuclear weapon delivery vehicles in the first stage."

I submit that that is not a good answer; it is not a sufficient answer; and unless a real answer is forthcoming the Canadian delegation will have to conclude that the proposal of the Soviet Union to destroy all nuclear weapon vehicles in the first stage is not a serious proposal, and that it has never been intended to be executed. We hope that we shall receive a proper answer from Mr. Zorin and that he will not brush this question aside as a matter of little consequence and tell us again that what must be decided are matters of principle, that we must take political decisions. The Canadian delegation cannot accept that what is vital to the whole process of disarmament — that is, verification that the measures agreed upon are carried out — is to be treated as a matter of detail of secondary importance.

....Furthermore, Mr. Khrushchev said nothing more about the subject we discussed on 3 August (ENDC/PV.65): the dangerous potentialities of the rockets which are being retained and manufactured during and after disarmament for the harmless — if rather expensive — feat of bombarding the moon. They could be readily equipped with nuclear warheads and used for threatening people on this earth. The representative of the Soviet Union told us that it would be impossible for that to be done, as there would be inspectors in the various places where those "peaceful" rockets would be kept.

I regret to say — and I have pointed this out before — that the inspectors of the international disarmament organization would not be an infallible guarantee that the peace would not be threatened or broken. I have mentioned that in my own experience United Nations military observers of the United Nations Truce Supervisory Organization in Palestine were forcibly removed from places where they were supposed to be supervising compliance with the terms of the armistice agreement in accordance with the directions of the Security Council, which in that matter has been unanimous. That was done when it suited the purposes of one of the parties to have observers out of the way so that they should not see actions which would contravene the agreement.

Inspectors of the international disarmament organization, according to the Soviet Union plan, would have no means to oblige a host country to let them stay and do their duty. They would have no force to protect them. We know that inspectors in municipal or national employment can only report on what they see or otherwise learn. When they see something which is being done contrary to the law it is not they — the inspectors — who enforce the law but the judges and the police. And where would be

the police to enforce international law at the end of the first stage of disarmament? Perhaps one may argue too long on this point; but while alternative or substitute means of delivering nuclear weapons exist we cannot be sure that at some time, somehow, in some crisis, those means may not be brought into play.

ENDC/PV.66 USSR/Zorin

6.8.62

p.45

....You want to send international inspectors who would have access to any place in our territory, even before the destruction of armaments takes place. What does that mean? It implies control before disarmament. Is that not quite obvious? You want first to acquaint yourselves with all the places where delivery vehicles are located and then you might decide that it was not worthwhile destroying them. You would simply depart and your allies would strike a nuclear blow at these delivery vehicles. That is all. But can control questions be approached in this way? It is perfectly clear that this is control before disarmament.

Therefore, Mr. Burns, if you are going to take that path, then it will mean in the first place that you are demanding the destruction of all our delivery vehicles before you start eliminating yours, and, secondly, even before destruction takes place, you want to send inspectors everywhere to check whether any delivery vehicles are hidden away in any place. But in that case we have no possible basis for any agreement whatsoever on questions of control. That is quite clear. If that is your attitude and the attitude of all the Western Powers, then we are talking in vain. Can any agreement be reached on such a basis? I think that, with all their goodwill, sensible people would find it impossible to reach agreement on such a basis.

Therefore, since you asked me today how I proposed to answer your arguments, I am giving you my answer — this approach is utterly unreasonable; it is an approach which has already been condemned by all who have spoken, even in this Committee. There must be no control before disarmament. You cannot demand that one side destroy its weapons before the opposite side has even started to eliminate its own. How can we conduct reasonable negotiations with such an approach? We have always regarded your statements as the statements of a man who takes a sober view of all events and measures, but today you adopted a position which is obviously at variance with the most elementary common-sense approach. Of course my answer is therefore negative to both these questions. We cannot approach the problem in such a way. I am sure we are not alone in this; no country about to start disarmament could approach the question in the way you suggest.

ENDC/PV.67 UK/Godber

8.8.62

p.11

....Apart from the safeguards of the most complete verification there is in fact no physical defence on which we can rely, and nothing indeed, until an adequate United Nations peace force has been established, to protect us except our defence through deterrents. This is what we have to rely on in the early stages of the disarmament process.

That is one reason why the United Kingdom can never — yes, I repeat, never — agree to any scheme which would have to assume the abolition of all delivery vehicles in this early stage. I say "assume" because no serious attempt has been made to show how 100 per cent verification could be achieved in the first stage. If Mr. Zorin wants us to take his proposal seriously, let him explain; let him explain his verification proposals in detail and not pass them over in the glib way of which he is so fond.

I am bound to comment in that connexion also that I have many times been struck by the complete apparent lack of interest shown by the Soviet delegation in ensuring that, for instance, the United States would get rid of every one of its nuclear delivery vehicles at the same time as the Soviet Union in this first stage, as it contemplates. I wonder, does any single delegation round this table for one moment think that the Soviet Union will throw away every single one of its nuclear delivery vehicles in the first stage unless it has absolute proof that the United States is doing the same? Both Mr. Gromyko and Mr. Zorin have said that they will not take the word of the West. Why then do they show no interest in a problem which is at least as acute for them as for anyone else? I wonder.

Perhaps Mr. Zorin would answer by saying that his Government does, of course, intend to trust the Government of the United States to carry out its undertakings honestly and conscientiously. But that would accord very ill with the attitude which our Soviet colleagues have adopted so far. If Mr. Zorin were to take that line we should find it very hard to reconcile the existence of so much trust of the Western Powers' intentions where their own observance of the treaty is concerned with so much mistrust as the Soviet Union insists on showing when there is any question of allowing a few inspectors — not necessarily United States inspectors, but a few inspectors — to carry out adequate inspection on Soviet soil.

ENDC/PV.67

Czechoslovakia/Hajek

8.8.62

pp.20-21

Finally, the third main argument used by the delegations of the countries of NATO against the total elimination of nuclear delivery vehicles in stage I is the allegation that the Soviet draft treaty does not provide for an effective control and that such measures cannot be controlled at all. We cannot accept the basis of such an allegation adduced by the delegations of the Western countries. Articles 5, 6, 7 and 8 of the Soviet draft lay down the principle that all the anticipated measures relating to the liquidation of nuclear delivery vehicles and relevant facilities or to their transmission for peaceful uses together with the dismantling of all plants or parts thereof and their conversion to peaceful uses will be subject to on-site — I repeat, on-site — control by inspectors of the international disarmament organization. A 100 per cent elimination of nuclear delivery vehicles and their production will be accompanied by 100 per cent control. In that way the Soviet draft treaty complies fully with the basic requirement of article 6 of the joint statement of agreed principles (ENDC/5) that the extent of control should be commensurate with the extent of the disarmament measures carried out.

In connexion with this question of control in stage I of the Soviet draft we cannot let pass in silence the opinion expressed by the representative of Canada during his intervention of 6 August. He said:

"...the inspectors of the international disarmament organization would not be an infallible guarantee that the peace would not be threatened or broken." (ENDC/PV.66, p.22)

That of course applies to the Soviet proposal. The opinion on control expressed in the quoted words puts in question the entire purpose and meaning of any control and is, I would say, in some contrast to the attitude of the Western delegations, which have so often emphasized the importance of control. Scepticism with regard to the question of control in general also of course applies to the measures of control contained in the United States draft, because in that draft too for the institution of inspectors, whose general capability of ensuring the implementation of disarmament measures is now within the logic of the words of the representative of Canada, is being questioned. As

we have asked, what harmony is there between this scepticism in regard to control and the emphasis put on it by the Western delegations? What is the logic in asserting that the measures contained in the Soviet draft are uncontrollable whereas the opposite is said to be true of the United States draft?

This double yardstick applied to control in general is yet another proof that, in regard to the Soviet draft, the actual basis for scepticism on control on the part of the Western Powers is their opposition to the implementation of the measures proposed therein. Apparently it is even something more than mere opposition to these measures, because the representative of Canada stated:

"Inspectors of the international disarmament organization, according to the Soviet Union plan, would have no means to oblige a host country to let them stay and do their duty. They would have no force to protect them. We know that inspectors in municipal or national employment can only report on what they see or otherwise learn. When they see something which is being done contrary to the law it is not they — the inspectors — who enforce the law but the judges and the police. (ENDC/PV.66, p.22)

That would mean that the international disarmament organization and its organs, in the sense and logic of what has been said by the representative of Canada, should enjoy a kind of super-State position and impose their will on the controlled party, instead of simply ascertaining facts as is the sense of the function of inspectors. Of course no sovereign State can agree to such a concept of international control, which is in flagrant contradiction of paragraph 6 of the joint statement. That is all the more so when one takes into consideration what the representative of Canada said, namely, that the Western Powers will not destroy their delivery vehicles until after they have assured themselves that the Soviet Union has first completely destroyed its own.

ENDC/PV.67 India/Lall

8.8.62

pp.26-29

I should like to draw attention in this connexion to two brief quotations from The Observer of London. The first is from an article by the science correspondent of The Observer, dated 22 July, which ends:

"In this case a reasonably effective detection system which would not need any on-site inspection is within reach now, although there would still have to be some method of settling disputes if one country accused another of violating the ban."

Then I would like to draw attention to views which were attributed to Dr. Baath, a Swedish seismologist and the Director of the Seismological Institute of the University of Uppsala, which appeared in The Observer for 5 August. Dr. Baath said that:

"Some uncertainty — calling for occasional inspections — would remain, especially if tests were conducted in earthquake areas or if underground explosions could be deliberately muffled.

But with further research it would probably be impossible to make test explosions without the danger of detection."

What I am doing is drawing attention to the fact that science is moving in the direction of the kind of arrangements which were suggested in the joint memorandum. I should like to draw attention, in a general way, to the fact that the new long-range detection and identification systems which have recently been applied successfully are known now to be superior to the close system of control posts which was suggested in the report of the 1958 Committee of Experts (EXP/NUC/28), which had been the basis of the proposals put forward by one side or the other in the early stages. Not only does the new long range detection system have an effect on the number of control

posts: it also affects the whole subject of on-site inspection. I will not attempt at the moment to go into detail as to how it does so, because that is well known to both sides. What I want to say is that those new arrangements all confirm the validity of the eight nation memorandum.

Now I should like to turn to paragraphs 2(e) and (f). Paragraph 2(e) says that the flight testing of missiles would be limited to agreed annual quotas. Paragraph 2(c), as I pointed out, said that the testing of new types of armaments would be prohibited. Would it not be possible, then, to prohibit also the flight testing of missiles? Would that raise extreme difficulties for anyone? In fact, it would, of course, save a lot of money if both sides were to stop flight testing their missiles. At any rate, I do not see why it should be necessary to continue the flight testing of missiles.

Finally, paragraph 2(f) deals with verification and says the following:

"In accordance with arrangements which would be set forth in the annex on verification, the international disarmament organization would verify the foregoing measures at declared locations and would provide assurance that activities subject to the foregoing measures were not conducted at undeclared locations."

My first reaction is that this paragraph is acceptable in terms of the kind of verification arrangements which it sets forth, and we are glad to see that paragraph there.

Recently, I stated in general terms that the delegation of India was in favour of the total cessation of the production of all armaments in the very first stage as being the most logical position in a programme on general and complete disarmament; and we were glad to see that there was some support for that view by delegations which had theretofore supported the present terms of the Soviet draft plan, which do not conform to our suggestion. We hope that both sides will be able to accept our general position on the cessation of all production of armaments in stage I, with the possible exception — and I say only possible exception because even this is a matter which, we believe, deserves further consideration — of certain allowances in respect of spare parts. We should like to come back to these details on an appropriate occasion later.

I wish to state even more clearly how we would envisage this matter of production. We would, first, stop production of all armaments in stage I. Secondly, the dismantling and conversion of armament factories would be carried out under the control of the international disarmament organization. Thirdly, continuing checks on converted factories — that is to say, those factories which had been converted to peaceful purposes — would be made in accordance with arrangements which would be set out in the agreed annexes on verification.

Of course, if there are further checks agreed on, some assurance against clandestine and illegal activities which are not permitted and which go against the disarmament already undertaken, those, too, would become relevant in a general sense. But these would be the three measures which we would think were directly germane to this question of production, and we hope that these suggestions can be considered by both sides.

ENDC/PV.67 USA/Dean

8.8.62

p.33

There has been considerable progress made in the field of detection. But the advance in the field of detection must not be confused with the advance in the field of identification — in which there has been very little progress. Nor must one overlook the very important factor of location because under this new system of reducing the 180 control posts around the world to something like 80, which we are about to pro-

pose, it may well be that the problem of location will become somewhat more difficult.

ENDC/PV.68 USA/Dean

10.8.62

pp.11-18

Verification of the reduction of major armaments involves three types of measures. One is verification that the arms to be reduced are, in fact, destroyed or converted to peaceful purposes. The second is verification to ensure that the production of new types of armaments has, in fact, been halted and that strict limitations on the amount of production for replacement have not been exceeded. The third is verification to assure that remaining quantities of armaments do not exceed agreed levels; to do this it must be assured that undeclared weapons are not hidden or that undeclared production facilities do not, in fact, exist.

My purpose in speaking today is to give some elaboration of each of these three types of verification measures and then to comment on some aspects of verification in general. The first aspect of verification for major armaments involves a check to see that weapons being reduced are actually destroyed or, if not destroyed, are -- in fact and in truth -- converted to peaceful purposes. Both the plans of the United States and the Soviet Union now before the Conference provide for that type of verification.

Under the United States plan, during the first year 10 per cent of armaments to be reduced would be brought to agreed depots for destruction or for conversion to peaceful uses. We must decide where those agreed depots should be located in each of our respective countries, and what types of armaments are to be deposited at each depot. These questions of detail need not be decided at this moment, but they must in time be worked out. In the United States plan a reduction of 10 per cent of the armaments in 12 months will involve many thousands of individual pieces of armaments, and the actual dismantling of those many thousand of pieces -- which must take place each week and each month -- is a process that can proceed smoothly and efficiently only if an agreed upon schedule is worked out prior to the entry into force of the treaty.

One question, for example, is: must the armament to be reduced be in usable form before it is placed in the depot? That is, must a plane be actually flyable, or a tank workable, or a submarine able to operate efficiently submerged; that is, are we going to count a submarine as a submarine if most of its effective parts have been removed before it is turned over to the depot? If we did not require that armaments be usable it is possible that a country might dismantle only its most run-down equipment -- that is, its most out-of-date or its most inefficient equipment, and perhaps, even some with parts missing. It might "cannibalize" a piece of equipment, retain all the parts and turn over only the shell. If that were permitted, to what extent would it be a violation of the agreement? Some of these problems are dealt with in the two papers submitted by the representative of the United Kingdom (ENDC/53 and ENDC/54). Although these are most important questions they are, in fact, easier to solve than the other two types of verification measures I mentioned earlier. Also, the methods for solution suggested by the United States and the Soviet Union do not seem -- on the surface, at least, for this type of measure -- to be too far apart.

The second aspect of verification for major armaments concerns production. Both the Soviet Union and United States plans provide for a limitation on the production of major armaments. In the Soviet plan, production of vehicles capable of delivering nuclear weapons is supposed to be halted. As has been mentioned, there is a most considerable amount of ambiguity in the Soviet draft in that it also provides for the production of rockets for the peaceful exploration of space. Whether something is for the peaceful exploration of space or for warlike purposes may only be subjective in the mind of the particular nation. We do not know to what extent production of conven-

tional armaments would be stopped under the Soviet plan. We are waiting for some Soviet comments on these as well as other points in the Soviet plan which are to us quite unclear. When it is said that something will not be destroyed because it is for the peaceful exploration of space, I submit that that is merely a subjective explanation.

Under the United States plan all facilities involved in the production of major armaments would be declared in toto. We would submit a list of all the plants in the United States that have been producing major armaments. That list would be accompanied by certain specific kinds of information which we, the parties, would deem necessary to present to the international disarmament organization. For example, we might want to specify the types of armaments or parts thereof being produced or assembled at each facility, and certain other economic records might also be supplied to the international disarmament organization.

To verify that production was in fact being limited according to the agreement, the United States plan does not require the stationing of inspectors at all production plants, but only at those that are relevant. The United States plan makes a distinction between all military production facilities and relevant military production facilities. In other words, under the United States plan the declaration would include a listing describing the nature and location of all facilities involved in the production of major armaments. However, inspectors would not necessarily have access to all major production facilities that would be declared. Our plan only calls for inspectors to have access to relevant facilities wherever they are located in the territories of parties to the treaty.

What do we mean by "relevant facilities"? The United States delegation does not think it is necessary at this time to give a detailed definition of what it means by this term "relevant facilities"; but some mention can be made of what we do and of what we do not mean by that term in order that representatives may think about it. We should not want inspectors to have access to every facility producing only small parts of a given nuclear delivery vehicle or other armament. We do not think that that would be either efficient or necessary, but we should want inspectors to have access to all the major assembly plants for armaments and to all plants producing key parts for each armament. For example, they ought to have access to plants producing missile engines, air frames, and tank bodies. Perhaps even fuel production facilities might also be included. I mention these by way of examples.

The third aspect of verification for major armaments is that if each party is reducing its armaments by a certain percentage of its total amount, then there must be some means to assure that the declaration of the total is an accurate and not a fictitious figure. There must also be verification that clandestine production is not going on, either in that country or by contract in other countries.

The hiding of weapons or the concealment of production must be prevented. Let us look for a moment at what might happen if a State did attempt to hide certain weapons. Let us just assume that a State has, for example, 500 inter-continental ballistic missiles of which, under the United States plan, 30 per cent would be reduced in stage I — that is, 150 missiles. But if — instead of the true number, 500 missiles — that State declared only 300 missiles that would mean that 90 and not the correct number of 150 would need to be reduced.

During the very early part of the disarmament process a discrepancy of 60 missiles in the number that should have been destroyed compared to the large number retained might or might not affect a State's security to a crucial extent. But only the other day the Soviet Union tested a weapon of some 40 megatons and it is supposed to have tested another of 58 megatons, or perhaps even more. And as these weapons go up to perhaps 100 megatons, the concealment of half a dozen weapons of that size would be

very significant. As the process goes on, as the countries reduce their armaments, naturally the importance of the concealed number does become really crucial. It becomes far more important as we proceed from stage to stage.

By stage III, this assumed State concealing inter-continental ballistic missiles would have 200 left while the State not concealing missiles would have none. The implications of this situation need not be laboured. Under the Soviet plan the importance of accurately verifying the total amount becomes even more crucial in stage I because every military missile, every aircraft, every ship, every tank, every piece of artillery, every rocket and every spacecraft capable of delivering a nuclear weapon, without any exception, would have to be destroyed or converted to peaceful uses over a period of two years.

In the past the United States had a position on verification which involved verification before actual disarmament took place. Previously the United States had proposed verification of initial levels and either verification of reductions or verification of remaining levels. Excluding the question of production, if initial levels and actual reductions could be verified, it would not be as necessary to verify remaining levels as it would be if the declaration was not subject to verification at the very beginning of the disarmament process. This would be the most accurate, the most efficient and the most consistent with modern accounting methods. But in view of the attitude that has been expressed by the Soviet Union with respect to any verification of initial levels before the actual process of reduction has begun — since the Soviet delegation refuses to go along with that theory — the United States and other Powers have suggested the possibility of another approach to verification, in order to make progress.

It is fundamental that we understand the real significance of the verification of agreed remaining levels has necessarily been increased by a willingness of the United States and other Powers to forgo verification of initial levels before any reductions take place. That is the way accountants would normally do it, but the Soviet Union has objected to that proposal.

With respect to this third aspect of the verification question, the United States has suggested the possibility of a plan for verification by selecting only a certain portion of the territory of a country to be inspected at a time. We have termed this verification by zones. Thus, the amount of inspection on any country's territory would be related to the amount of disarmament undertaken and to the degree of risk involved.

In the United States plan as now presented some disarmament actually takes place before any verification. In other words, armaments would be taken from their arsenals and placed in agreed depots under the supervision of the international disarmament organization. This is a part of the reduction process and would take place before any actual verification had occurred.

So what is important is to ensure that the armaments placed in a depot for destruction or conversion to peaceful purposes accurately represent the actual types and the actual number of armaments that each nation has agreed to reduce within a determined schedule. If one does not start off accurately every other reduction is of course coloured accordingly. If there were no opportunities to verify the accuracy of the remaining levels each State party to the treaty would have no assurance whatsoever that a given percentage of a nation's armaments was in fact and in truth being destroyed.

The United States has suggested, purely for illustrative purposes, that before armaments placed in the international disarmament organization's supervised depots are destroyed each party to the treaty would divide its territory into an agreed number of zones. Let me say something about this term "agreed number of appropriate zones". Let me make it clear that the United States has no fixed idea about how many zones there should be for any particular country or what is the best or most efficient size for a

zone in any particular country. We have been hoping that the Soviet Union would give us some ideas on how it would like to see verification carried out; but, since the Soviet Union has not responded at all and has so far failed to give any details whatsoever on this question of verification, let me describe some of the possible methods for determining zones. We want to put them before our colleagues clearly for their consideration.

One possibility is to divide a country into a small number of zones of approximately equal size. For example, without prejudice, and using very simple arithmetic in order to make the presentation of the problem as simple as possible, let us take nine zones. In that case it would be likely that only one zone would be chosen for inspection at any one time. That would mean that over a staged disarmament process consisting of three steps within each stage one zone would be inspected for each step of each stage. Once a zone had been inspected it would remain open for further inspection. By the end of stage III all zones would have been inspected.

A system involving a small number of large zones might work somewhat as follows, and I give this also just by way of example and without prejudice. In this example, before the beginning of the inspection process parties to the treaty would divide their territory into an agreed number of large zones and would declare by zones to the international disarmament organization the total number of forces and the total number of armaments of the types to be limited. At the very beginning of the disarmament process one side would choose a zone in each country of the other side. As soon as the zone was selected the host country would declare for the selected zone the detailed location of the forces and agreed armaments in that zone. Once a zone had been selected for inspection no forces or agreed armaments could be shifted to or from that zone until inspection was under way; after that, shifts to or from that zone would be permitted, provided that sufficient notice had been given to the inspecting authorities and that the declared inventories were adjusted accordingly.

In order to deter or discover any attempts to remove forces or limited armaments from the zone in question each side would be allowed to station inspectors at major airports and at major railway and highway centres situated on railways and highways crossing the boundaries of the zones or located near zonal boundaries to the extent deemed necessary by the inspecting authorities. When a zone had been selected the inspectors stationed in it would be free to start immediately to employ such verification measures as they might deem necessary, including mobile inspection teams and aerial photography. The inspectors situated at rail and highway centres near the boundaries of the selected zone would be entitled to check to ensure that no forces or agreed armaments were removed from the selected zone after the moment of selection. The inspection of the first zone would take place during the first step of the first stage. Two more zones would be inspected during the second and third steps of stage I. Similar procedures would be followed in the second stage, if there should be only nine zones — which, as I said, is the example I took for illustrative purposes only.

Another possibility might be to have a large number of small zones. Each country could be divided into an agreed number of zones. For example, the United States might be divided into some 200 to 400 zones. In that case several zones, the number of which would be agreed upon, would be chosen for inspection at a time. The host country would provide the international disarmament organization with the total number of forces and agreed armaments in each zone. The host country might appoint a senior military representative in each zone who would keep more detailed records of the disposition of agreed armaments and forces in his zone. Inspection teams of the international disarmament organization would be permitted to travel by prescribed routes at times of their own choosing to the cities in which the senior zonal military representatives were located. The inspection would involve the physical count — using some

sampling, such as counting one unit out of five, or any other agreed system -- of forces and agreed armaments.

Under this example, in order to relate the amount of inspection to the actual amount of disarmament and to the degree of risk, the number of zonal inspections made during the first step of stage I might be relatively small. The number of zonal inspections could be increased in the second step, and so on, as experience warranted, so that the number of zonal inspections in any step would be generally related to the actual amount of disarmament and to the risks incurred.

It is important to stress that only when a zone or zones were selected for inspection would the specific geographical location of any armaments be declared. Prior to that the declaration would cover only totals of troops and armaments in a zone without indicating their actual location or deployment. If the area of each zone were fairly large -- as would surely be the case in both the United States and the Soviet Union -- then the initial general declaration on the military establishment in the zone would not give a hostile Power any militarily useful target information, as the Soviet Union has incorrectly claimed. After the location of armaments had been given the international disarmament organization would check the zone or zones to ensure that the declaration of armaments within that zone given earlier, but without location at that time, was accurate.

What would the disarmament inspectors look for in a zone? They would not go to relevant production facilities because other inspectors would already have been stationed at such facilities. They would verify the levels of forces and armaments declared for that zone as well as check for undeclared production facilities.

I should like to point out also that prior to the declarations each State would be free to distribute its armaments and military forces throughout the zones as it wished. Each State would be free also to draw the armed forces and armaments to be reduced from whatever zone it wished, although of course if part of the forces and arms to be reduced were drawn from a zone selected for inspection the State would necessarily have to inform the international disarmament organization so that its declaration for that zone could be appropriately modified.

These possible verification arrangements, examples of which I have been describing -- and I wish to emphasize that they are only examples -- are aimed at starting the disarmament process with a limited amount of inspection. The degree of verification would necessarily have to be increased as the number of armaments destroyed grew larger and the consequences to a nation's security became more serious in the event of one nation hiding arms in violation of the agreement. In the early steps of disarmament the access to the territory of a nation would be small compared to the amount of access at later stages, when accuracy would become much more important. That concept is intended to meet the concerns of those States, such as the Soviet Union, which feel that they must conceal as much information as possible. The problem of concealing may be somewhat more complicated in countries where people may move around freely without permission from the authorities, or where there is a free Press.

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"4. For the peaceful exploration of space the production and testing of appropriate rockets shall be allowed, provided that the plants producing such rockets, as well as the rockets themselves, will be subject to supervision by the inspectors of the International Disarmament Organization."
(ibid.)

Where is the ambiguity? In my opinion, it is all perfectly clear. In other words, we

agree to allow inspectors into the plants which would be left for the production of rockets for peaceful purposes in order to ensure that nothing unconnected with the peaceful exploration of space happened to be introduced during the production of these rockets for peaceful purposes. We speak of this quite frankly and do not object to it. But when the rockets are brought to the appropriate launching site, we propose that there should be present a group of inspectors who would observe a rocket being assembled and what is being put into it, whether there is being put into it a nuclear bomb or a cockpit for the next astronaut who is to fly into space. Where is the ambiguity? What is there that is not clear? I don't quite understand, Mr. Dean.

Furthermore, article 6, paragraph 2, reads as follows:

"2. The production of all military aircraft referred to in Paragraph 1 of this article shall be completely discontinued. Enterprises, or workshops thereof, designed for the production of such military aircraft shall be either dismantled or converted to the production of civil aircraft or other peaceful items." (ibid.)

And paragraph 3 reads:

"3. Inspectors of the International Disarmament Organization shall verify the implementation of the measures referred to above in paragraphs 1 and 2." (ibid.)

Therefore it is clear that if you wish to discontinue the production of all military aircraft and if enterprises and workshops designed for this production are to be dismantled or converted to the production of civil aircraft and other peaceful items, this must of course be controlled and verified. That is what we say in paragraph 3. You will send inspectors to these enterprises and they will verify whether the machine tools required for the production of certain types of equipment for military aircraft are really dismantled or whether something has been concealed. That is quite a simple matter to verify in a factory; a factory is a limited area. Therefore you can easily verify whether dismantling has really taken place or not.

In Article 7, Paragraph 2, we read the following:

"2. The building of warships and submarines referred to in Paragraph 1 of this Article shall be completely discontinued..." (ibid., p.7)

And paragraph 1 states that:

"1. All surface warships, capable of being used as vehicles for nuclear weapons, and submarines of any class or type shall be eliminated from the armed forces and destroyed..." (ibid., p.6)

Paragraph 2 states further:

"... Shipyards and plants wholly or in part designed for the building of such warships and submarines shall be dismantled or converted to peaceful production." (ibid., p.7)

Paragraph 3 of the same article states once again:

"3. Inspectors of the International Disarmament Organization shall verify the implementation of the measures referred to above in Paragraph 1 and 2." (ibid.)

In other words, inspectors will also be sent to shipyards and plants designed for the building of such ships and submarines in order to verify whether production has actually been discontinued. What is there not clear in that? Where is the ambiguity? Where is there anything different from what you have been saying? It even corresponds on the whole with what you too have been saying. By the way, since Mr. Cavalletti was so interested in artillery, I shall also read what we say about artillery. Paragraph 2 of article 8 reads:

"2. The production of the artillery systems referred to above in Paragraph 1 of this Article shall be completely discontinued..." (ibid.)

I shall not repeat Paragraph 1 which deals with artillery systems, capable of serving as means of delivery for nuclear weapons. Paragraph 2 continues:

"To this end all plants, or workshops thereof, engaged in the production of such systems shall be closed or dismantled. All specialized equipment and machine tools at these plants and workshops shall be destroyed, the remainder being converted to peaceful uses. The production of non-nuclear munitions for the artillery systems shall be discontinued. Plants and workshops engaged in the production of such munitions shall be completely dismantled, and their specialized equipment destroyed." (*ibid.*)

Paragraph 3 of article 8 states once again:

"3. Inspectors of the International Disarmament Organization shall verify the implementation of the measures referred to above in Paragraphs 1 and 2." (*ibid.*)

In other words, inspectors will go to these plants and verify again whether everything laid down in paragraph 2 has been carried out.

I do not understand why any doubts or questions should arise. I consider that what Mr. Dean has said today is not at variance with the provisions in this part of the draft, and our position, I would say, is not at variance with the position which Mr. Dean has expounded on these matters.

Therefore, in regard to two types of verification, I think that the main provisions coincide.

Now for the third type of verification concerning the remaining armaments, that is, verification for the purpose of ensuring that they do not exceed the agreed level and that they are not being concealed. I must say, in the first place, that in regard to this third type of verification concerning the remaining armaments, under our programme for stage I in respect of nuclear weapons delivery vehicles this question either does not arise at all or is reduced to an absolute minimum. Why? Because we propose to eliminate completely all types of weapons which could be used as delivery vehicles. They are to be eliminated 100 per cent. Then what remaining weapons would there be? 100 per cent are to be eliminated. Therefore you can go to the depots and see for yourselves whether all have been eliminated and also visit the various plants and see whether all production of these types of weapons has been stopped. We agree to this. Certainly you can verify. Therefore this question does not arise at all. And when Mr. Dean said that if, let us assume, the production of rockets had not been discontinued or, say, two hundred rockets were being concealed, would not that be very terrible? Of course, it would be very terrible.

But under your plan it would be much easier to conceal two hundred rockets than under our plan, because under your plan you would destroy only 30 per cent of the rockets. Isn't that so? Therefore 70 per cent would remain, but among the remaining 70 per cent of rockets it would be much easier to conceal two hundred excess rockets than when, as we say, they must be eliminated 100 per cent. In other words, with 100 per cent elimination, if you merely see in any place that there are rockets, or you receive information that there are rockets, that would mean that the treaty is being violated. Am I not right? With our 100 per cent elimination, even if a single rocket turned up that was undestroyed, that would imply a violation of the treaty.

If, under your plan, any of us discovered that in the United States there were some excess rockets, well, you would say to us: "I beg your pardon, we are entitled to retain 70 per cent. Why do you consider that these are excess rockets? Let us count our rockets again. We have such and such a number of rockets and those which you consider to be in excess are part of the permitted 70 per cent." We will then say to you: "No, we don't believe you." And you will say in reply: "But why don't you believe us? We have told you that we have so many rockets. You say that we have put away a

certain number of our rockets in such and such a place. Yes, they have been put away, we have them, but they are of a number that forms part of the permitted 70 per cent."

It is quite obvious that in such a situation it would be much more difficult to carry out verification and to obtain evidence that the other side is hiding something. Under our plan the situation is quite different. We say that 100 per cent of the rockets will be eliminated and we will present this 100 per cent for elimination. But imagine for a moment that you have received information that at a certain place there is still another rocket, and if you verify this information and find that rocket in that place, you will catch the violator red-handed, as the expression goes, because to find even a single rocket is to prove violation. Is that true or is it not?

Or let us take the case of submarines. We have told you that we have 100 submarines which we have presented for destruction. But afterwards you suddenly discover yet another submarine, and you find that it is a Soviet submarine. That would be an unquestionable case of violation and it would immediately be obvious that it is a violation, because 100 per cent should have been eliminated and yet another one turned up. We would be quite unable to justify ourselves, because under the treaty we should not have a single remaining submarine, as submarines must be eliminated 100 per cent.

Under your system of percentage reduction not one but hundreds of submarines may turn up and you will tell us that they form part of the permitted 70 per cent that remained. How can we verify this? What can we do? How can we verify the actual numbers?

I am putting these questions because I simply wish to approach the substance of the matter in a businesslike manner, and I think that what I am saying now is deserving of attention because under the system of 100 per cent elimination it is easier to detect any clandestine violation. That is unquestionable, because with 100 per cent reduction any detection would immediately show whether you had violated the treaty or not. With 70 per cent of the armaments remaining it would be almost impossible to prove this, because we should then have to inspect the entire country from one end to the other and, it seems, to act as General Burns has told us, that is literally scour the whole country if we wished to prove that any remainder was not part of the permitted 70 per cent but in excess of it. Just try and prove it. To do that one would have to count every type of armament. But is that possible in practice?

I am raising this question in order to make it clear to you that there is no question of any lack of good will on our part nor of our prestige because, they say, we have put forward a proposal for a 100 per cent reduction and we do not want to accept anything else. No, we say that our approach is reasonable, first, from the point of view of the substance of the matter, because 100 per cent destruction of the means of delivery is a certain guarantee that there will be no nuclear attack right in the first stage of disarmament. This is reasonable from the point of view of the substance of the matter. And, secondly, it is reasonable from the point of view of control, because it is easier to control any remaining quantity when there is 100 per cent elimination than when there is 70 per cent reduction. That is perfectly clear. I do not think that you will be able to put forward any arguments against that. If you have any arguments I am prepared to listen to them.

....In what way would it involve any danger? We say: as regards the first two elements of verification, about which Mr. Dean has spoken today, namely verification of what is to be destroyed and verification of production, there are no differences between us. I would go ever further and say: in the agreed articles of the draft treaty we have

already provided for much of what Mr. Dean mentioned. Look at paragraph 4 of article 2 of the text of the treaty (the working draft which we have submitted) — we have an agreed paragraph 4. This agreed article reads:

"To provide for (a) co-operation with the Organization by the Parties to the Treaty; (b) implementation within their territories of all its control measures set forth in Parts — of the present Treaty; and (c) submission by them to it of such information about their armed forces, armaments, military production and military expenditure as is necessary to carry out the measures ..." (ENDC/40/Rev.1, p.4)

That is to say, we provide for the declaration of everything about which Mr. Dean has spoken today. If we provide for the total elimination of the means of delivery in stage I, it means that we must submit information regarding all means of delivery. Furthermore, we must afterwards verify on the spot, in the depots and at the places where these means of delivery are located, whether they actually correspond to the quantities which we have declared to you. So that is an already agreed part of our treaty. There is no dispute about that. Then what are we arguing about?

The dispute is about something else. You say that it is essential to propose the zonal method of verification. It is true you said this morning that these zonal proposals are not necessarily the complete answer to the problem and if there are defects in them we should let you hear about them. So I tell you that there are serious defects in this method of selective zonal inspection. To sum up, there are two defects: the first is that it does not guarantee the effective verification of the 100 per cent elimination of any type of weapon; there is absolutely no such guarantee. Secondly, it discloses the defence system of the other country and the system of all types of armaments possessed by that country. In these circumstances what is the value of this method of zonal inspection? We are outspoken people and we say straight out that it is worth nothing, because we cannot accept such a method in the form in which you are proposing it; in the first place, it provides no real guarantee of verification and secondly, it does not afford a country which fears aggression the possibility of avoiding such aggression.

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The Soviet delegation dealt with these questions also at many other meetings of the Committee. We have stated quite clearly and we continue to state that the Soviet Union is prepared to agree to the 100 per cent verification of the 100 per cent elimination of means of delivery of nuclear weapons. We proceed from the premise that for such 100 per cent verification international controllers and inspectors will of course have to be present at the rocket launching sites, aerodromes and other units connected with the launching and, in general, with the putting into action of nuclear weapons. We declare ourselves in favour of the presence of international inspectors at the places where the means of delivery of nuclear weapons actually existing in the various States are to be destroyed. We are in favour of international control at all plants producing rockets, aircraft and other means of delivery of nuclear weapons, and also at all places where the means of delivery are stored.

We take a firm stand on the position that strict international control must be exercised in stage I over implementation of the measures laid down in article 14 of our draft treaty, such as the prohibition of placing into orbit or stationing in outer space of any special devices capable of delivering weapons of mass destruction, the leaving of their territorial waters by warships, and the flying beyond the limits of their national territory by military aircraft capable of carrying weapons of mass destruction.

We have said many times, and we repeat, that the Soviet Union considers it essen-

tial, from the very first stage of general and complete disarmament, to establish international control over the launchings of rockets and space vehicles for peaceful purposes. We propose for this purpose the setting up of control teams at the sites for the launching of rockets for peaceful purposes, who will be present at the launching and thoroughly inspect each rocket or satellite before it is launched.

What more do you want? What further guarantees are required in order that all the parties to the treaty should be mutually convinced that each of them is carrying out its obligation to destroy the means of delivery of nuclear vehicles in stage I? As the representative of Czechoslovakia, Mr. Hajek, correctly noted at our last meeting, an additional guarantee of this would be "the sufficiently speedy rate of implementation of disarmament measures" (ENDC/PV.67, p.23). This is precisely one of the reasons why we are in favour of short time-limits for implementing all the measures of the first stage of general and complete disarmament, although we also express our readiness to seek for mutually acceptable solutions to this problem. We are in favour of short time limits, not because we are in any hurry, but because this is the best way to arrange things in order to achieve the actual implementation of general and complete disarmament.

Now allow me to put the question from another angle. If the Western Powers are not satisfied with our concrete proposals for eliminating the means of delivery of nuclear weapons and for control over their destruction, why do they not submit their own proposals on this subject? The Western Powers seem to speak in favour of eliminating the means of delivery of nuclear weapons, if not in one stage, at least in three stages. How do they envisage control over such complete elimination? Moreover, how do they envisage control to ensure in the first stage of disarmament when, according to their plan, there is to be a 30 per cent reduction of nuclear weapon delivery vehicles, that States carry out this obligation to the letter and do not retain, let us say, more rockets or aircraft than are provided for by the plan of the Western Powers? What Mr. Dean has told us today about the way they envisage this matter does not provide any guarantee, but gives definite advantages to those who are interested in aggression.

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Therefore, it seems to me that the position still remains that, under the zonal inspection scheme, as I understand it, there would be the opportunity to build up an effective position until, at the end of the day, we would have that real 100 per cent inspection, that 100 per cent verification and, I would believe, 100 per cent confidence with it. But the Soviet Union representative tells us that under his scheme we could have greater guarantees. I am afraid that I just do not understand that, and I would ask him to explain to us more fully on another occasion just how in fact he would achieve it. It is a serious problem between us, as I have said. I have suggested in the past that there should be special experts working on this problem, but nevertheless I do, as I say, welcome the way in which our Soviet colleague has seriously tried today to enter into discussion of this difficult problem.

As for the zones themselves, the United States representative made it clear this morning that there could be either a small number of large zones or a large number of small zones, and I think that that deals with the point which Mr. Zorin made when he talked about the generals — they are always NATO generals — who would select the zone of greatest interest to them. The whole point, as I understand it, is that when territories have been split up into nine equal parts — or whatever it may be — the home country would be the one which split up its country into zones. It would split it

up in such a way as to give equality of war potential in each zone. That could be either in the nine zones or in ninety zones; and if it were ninety zones, presumably one critical zone would be married up with several very much less critical zones. The international disarmament organization would then choose this group of small zones, which would cover possibly one critical one with a number of others less critical. But it would be for the country which was to be inspected, I think, to have the opportunity — and this is a matter which I would wish to discuss in detail at some time — of forming a decision on the way in which its country might be split up. There is this safeguard against abuse of that opportunity by any country: the fact that the choice of zone would lie either with the international disarmament organization or with the other side, however it is decided. Therefore no country would wish to have the one area to be inspected at one time — whether it were one contiguous zone or a number of small zones — more vulnerable than others. Therefore there is an impetus to force forward any country to see that all the choices which it makes are roughly equal, and thus the degree to which a country may suffer from espionage could never be over-great in regard to the choice of any particular area. Those are the sort of complicated issues which I should think we could discuss, as I have said, in other ways.

These are, of course, just a few immediate reactions and comments on the very interesting speech to which we have just listened, but I think it would be wrong of me to seek at this moment to give any final views in relation to it. It is a speech which deserves the greatest care and study, and I hope that it does presage a new attempt on the part of our Soviet colleagues to discuss these serious matters seriously with us, and to let us get down to discussion of them in depth.

I should like just to take up one small point which our Soviet colleague made (supra, p.39) when he quoted an English newspaper, The Daily Herald, to us in regard to my speech of two days ago. Unfortunately The Daily Herald, having to rely on certain reports, had its facts wrong in this regard. It had understood that I had said that verification of 100 per cent destruction was impossible. What I said, of course, as I am sure our Soviet colleague remembers, is that verification of 100 per cent destruction would be impossible in the first stage — which is a very different matter. Now I can excuse The Daily Herald for getting it wrong, because it had to study the reports it received, but I find it difficult to excuse my Soviet colleague for getting it wrong because he had the immense pleasure of listening to me personally, and the only assumption I can draw is that he may have fallen asleep at that particular point in my speech. That I would very much regret, but I would suggest that he rely on his own hearing and that of his colleagues and, if he likes, on the verbatim record, and not necessarily always on The Daily Herald, which is not a paper which is always absolutely right. So I leave that point there and suggest that he sticks to what I actually said and not to some newspaper report which was not strictly correct.

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The first development is a reassessment, on the basis of technical developments and increased experience, of seismic detection capability which indicates a substantially better capability to detect — that is, to record — seismic events at long range as compared to short range than had been predicted in the past.

The second development is that the number of earthquakes occurring in certain areas of interest comparable to an underground nuclear test of a given magnitude has been substantially reduced from the previous estimate.

These developments are significant, both as to what they change and as to what they do not change. They are significant in three respects.

First, the increase in the long-range detection capability makes it possible to develop without serious degradation a network of control posts with substantially fewer detection stations in the Soviet Union, the United Kingdom, the United States and other countries than the number proposed in the United States-United Kingdom treaty draft of 18 April 1961 (ENDC/9). This increase in long-range detection capability makes it possible to place increased reliance upon stations outside the territory of any party to a treaty for detecting events within that country, using a system of stations which includes posts both within and without the country. Also, this development means that the findings of stations near to a seismic event can now be more easily correlated with data received at greater distances from the event. Thus it is possible to rely on a detection system composed of internationally supervised national stations rather than of internationally operated stations.

Second, the decrease in the number of unidentified events with which a verification system will have to cope makes it possible to decrease the number of on-site inspections required for verification.

Third, these developments do not provide a definitive way of determining from seismic data in all cases that a particular seismic event was not an underground explosion and, therefore, do not eliminate the certain requirement of effective, reliable and objective on-site inspections as an essential element of any efficient system of international verification.

On the basis of these technical conclusions my Government has presented proposals which involve:

- (1) acceptance of the obligatory nature of on-site inspection;
- (2) a willingness to consider a reduction in the number of on-site inspections;
- (3) a willingness to consider a network of detection stations which would involve a number of stations substantially smaller than the number previously proposed, including a substantially smaller number of stations in the Soviet Union; and would involve nationally manned, internationally supervised stations instead of a network of internationally manned and operated stations.

Those new proposals have been presented in hope that the Soviet Union would make a similar urgent and far-reaching effort to narrow the gap which lies between us. They were presented to the Soviet Union at two informal meetings held on Sunday and Monday a week ago and at a meeting (ENDC/SC.I/PV.23, pp.3 et seq.) of the Sub-Committee on a Treaty for the Discontinuance of Nuclear Weapon Tests held only last Thursday. The initial reaction of the Soviet Union has been disappointing so far, to say the least. The representative of the Soviet Union has completely rejected the concept of any obligation on the part of a country to facilitate on-site inspection. He has rejected, as nothing new, the change from internationally manned and operated detection stations to nationally operated and internationally supervised detection stations. In this connexion I refer representatives to page 40 of the verbatim record (ENDC/SC.I/PV.23) of the Sub-Committee meeting in question. Mr. Zorin has dismissed as mere details the possible reduction of the number of detection stations, including those on Soviet soil, and the possible reduction of the number of on-site inspections. He bases his position in large part on the eight-nation memorandum which, he states, only allows inspection by invitation. I have read and studied that memorandum many times with the greatest of care. I submit that the representative of the Soviet Union has completely misinterpreted both its spirit and its purpose.

Much has been said here about the eight-nation memorandum and the various types of control systems which might be negotiated on the basis of the principles which the eight-nation memorandum contains. While we have differed about the meaning of some of those principles and how they would be incorporated into a system of effective control, there appears to have developed a consensus that at least the principles of the

memorandum are concerned with the three essential elements of verification: first, identification, including on-site inspection; second, detection stations; and, third, an international commission. The international commission, I believe we have all agreed, is to play an important role in seeing that the three major elements of verification -- detection, location and identification -- are carried out properly and promptly.

The proposals my delegation has made are an attempt to work out a verification system which includes all three elements presented in the eight-nation memorandum: in short, an attempt to use the memorandum as a means of bringing agreement nearer. The Soviet Union, however, is attempting to use the memorandum for exactly the opposite purpose -- as a means of blocking agreement. Moreover, in relying on the eight-nation memorandum as providing the basis for his flat rejection of the United States proposals, the representative of the Soviet Union, Mr. Zorin, has made a unilateral interpretation of that memorandum in a manner clearly not justified by its provisions.

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The United States has now proposed a revised verification system, based on new technical data obtained through much research. As I mentioned earlier, the essential aspects of these new data are the increase in long-range detection capability and the decrease in the number of earthquakes of a given magnitude. The verification system which the United States is prepared to consider if the obligation to facilitate on-site inspections is accepted by the Soviet Union would have the following main features:

First, there would be a network of nationally manned, internationally supervised stations to detect, locate and, wherever possible, identify seismic events. That network would involve substantially fewer stations than the 180 internationally operated stations dealing with detection in all environments which were called for under the system proposed (EXP/NUC/28) by the Geneva Conference of Experts, and which at one time both the Soviet and United States Governments accepted. Some of those stations might be existing ones, improved and equipped with modern, advanced standard instruments, but there definitely would need to be new ones, installed in properly located sites with the best guidance and help of the nations which would operate them as nationally manned stations under international supervision. The reason for that is clear. With only a modest number of stations it is important, for good detection, that they should be geographically well located, particularly in terms of detecting and, where possible, identifying events in seismic areas. Furthermore, it is important that all of this group of superior stations should be in suitable sites for maximum sensitivity.

Secondly, the staff of the stations would be nationals of the country in which the station was located, rather than non-nationals who had been hired and selected by the commission. The stations would be internationally supervised, but would retain their character as essentially national stations. They would, of course, record natural seismic events for the use of the operating country. They would contribute basic research information to the operating country and, through the international commission, to the entire world. This integrated network would be a fine research tool for use by scientists in all countries. Since a larger proportion of stations outside the nuclear countries would be reporting events within those countries, a somewhat lesser reliance would be placed upon the stations within those countries. The detection stations inside the territory of the nuclear Powers would, however, remain very important for the collection of data for the international system. The international commission must be able to process systematically and regularly the data received from all stations. For that reason the international supervision or monitoring by the commission must be of such a nature as

to assure the rapid and reliable means of sending data to the commission; the continuous operation in accordance with the high scientific standards which the commission would be expected to prescribe; the additional training of national personnel according to agreed standards; the equipping of stations with the latest scientific instruments, calibrated according to standards which the commission would establish; and the locating of the control posts, after consultation with the commission, at quiet sites in regions satisfactory to the commission.

Thirdly, there would be a reduction of the number of on-site inspections from the 12 to 20 proposed previously by the United States and the United Kingdom. This position of the United States is, I submit, wholly and totally consistent with the spirit of the eight-nation memorandum. That memorandum attempts to reach an accommodation of the fundamental interests of the parties. True, it uses the term "suspicious event", while I have used the term "unidentified events"; but when one considers that the process of identification is a process of elimination, all seismic events are suspicious which have been detected and located and not eliminated from consideration by being identified as earthquakes.

I should like to explain again to the members of this Conference how the United States position on the need for on-site inspection is based on scientific and political realities. The United States position is that present scientific knowledge does not enable one always to form a firm judgement that an event is of natural origin. Both underground explosions and earthquakes generate waves, and those waves travel through the earth and may be detected in many cases at great distances from the source of the disturbance. Those signals are transmitted through the very complicated layers of the earth and are drastically altered by the character of the earth through which they travel. For that reason the signals from both types of events are, when detected at a great distance, rather similar. In some cases, however, there are still enough properties of the source of the disturbance present in the signal so that one may determine that a signal has been generated by a natural event -- that is, an earthquake. For instance, one may be able to determine that an event has occurred at a great depth, and hence must be considered as natural; or one might be able to see that in some places the event has caused the earth surrounding the event to move first towards the origin of the disturbance. That would also indicate a natural event, since a man-made explosion could not cause a first motion of the earth to be towards the origin of the disturbance.

However, at this time, no certain way is known of determining that any particular signal has been positively generated by a nuclear explosion. Let me repeat that statement because it is very important: at this time, no certain way is known of determining that any particular signal has been positively generated by a nuclear explosion. Furthermore, many events detected by any control system will have their characteristics obscured by the seismic noise present at all detection stations and, therefore, no determination of the nature of the origin of the event will be possible. Such events are called "unidentified".

To summarize: it is our view that any system will be able to identify some events as earthquakes; there will be others that it will not be able to identify either as earthquakes or as nuclear explosions. We believe, therefore, that a verification system must include some on-site inspections to identify enough events to provide a reasonable assurance that the treaty is being observed.

We have heard today a statement by our colleague from the United States on the

new scientific information which United States and United Kingdom research has made available. The United Kingdom wants to use that information to draw up an acceptable treaty banning all nuclear tests in all environments for all time. We want to share that information with our partners in negotiation, to find out whether any other delegation has any better information and, through a pooling of the best scientific information we all have, to arrive at the best result. Our colleagues will have had the opportunity of reading the verbatim record (ENDC/SC.I/PV.23) of the meeting of the Sub-Committee on a Treaty for the Discontinuance of Nuclear Weapon Tests of 9 August. I should like to try to clarify the position a little further, and in the light of comments made, in particular by our new Soviet colleague at the end of his speech, I feel it absolutely necessary to refer once more to the background against which all this is set.

In 1958 experts from the Soviet Union — just as much as experts from the United States and the United Kingdom, and from other countries, of course, — reached a set of agreed principles (EXP/NUC/28) which their Government then endorsed. With regard to detection the agreed principle was that there should be 180 detection posts around the world. Those detection posts were to be operated by an international commission. With regard to inspection, every unidentified event was to be liable to inspection by the commission. In subsequent negotiations it was agreed between the three Governments that at each detection post in the territory of the nuclear Powers there should be about 30 technicians, 10 from the host country and 20 foreigners.

In the course of three years' negotiations from 1958 to 1961 the United Kingdom and the United States made wide concessions to the Soviet point of view. And I would inform Mr. Kuznetsov that that did not all happen in those early months, as he led us to believe: it happened very largely over the period 1959-1960, through patient, long, exhausting negotiations. At that time the Soviet Government said that it would not like any foreigners on Soviet soil, whether in detection posts or in inspection teams, and in a spirit of compromise in order to take account of Soviet wishes, the two Western Governments agreed that instead of every unidentified event in the Soviet Union being liable to inspection, which would have meant 100 or more inspections a year in the Soviet Union alone, there should only be 20, as we said at first — later we offered a sliding scale of between 12 and 20 inspections a year. As a compromise on detection posts the Western Governments agreed that 10 out of the 30 technicians at each post should be foreign nationals. To that the Soviet Government agreed at that time. The Western Governments also reduced their request on the number of detection posts in the Soviet Union from 25 to 19. The Soviet Union offered 15, so we were not very far apart in numbers and we were fully agreed in principle at that time.

The Western position, therefore, when the Western draft treaty (ENDC/9) was tabled in April 1961 was that there should be 19 permanent detection posts in the Soviet Union with 20 foreigners out of a total of 30 persons at each post. In other words, there were to be 380 foreign technicians operating permanent detection posts in the Soviet Union. As regards inspection, the West was asking for a maximum — a maximum — of 20 inspections a year. Since an inspection team was estimated to consist of about 6 foreign technicians, that would have meant inspection visits by 120 foreign technicians a year. On the other hand the Soviet Union was at that time prepared to accept, as I have said, 15 detection posts, which would have meant 300 foreign technicians operating permanent detection posts on Soviet territory. The Soviet Union was also prepared to accept three inspections a year, which would have meant about 18 foreign technicians visiting Soviet territory. I was therefore very puzzled when Mr. Kuznetsov said so vehemently just now that of course there could be no question of having foreign nationals on Soviet territory, and indicated that all this was at the instigation of the Pentagon. If the Pentagon is such a frightening thing today, why was it not so when these things were being discussed in the past? Surely he cannot mean

that the Soviet Union was not discussing this matter sincerely when it agreed to those particular points?

I want to be absolutely clear on these facts. I think they are important. On 31 May 1961 the Soviet negotiator at those talks, Mr. Tsarapkin, said:

"First of all I must say that even before the start of the present political Conference of the three Powers the Soviet Government declared that it fully agreed with the conclusions and recommendations of the 1958 Geneva Conference of Experts which had worked out a system of control over the discontinuance of nuclear weapon tests. Consequently, even before the start of our Conference, the Soviet Government had publicly declared that it accepted the methods of detecting and identifying nuclear explosions and the system of control worked out and recommended by the Conference of Experts." (GEN/DNT/PV.313, p.9)

On the same day Mr. Tsarapkin said:

"Our disagreement with you over the number of on-site inspection teams to be dispatched for the purpose of establishing whether a nuclear explosion or a natural event has occurred does not at all mean that we are opposed to on-site inspection as a measure of control." (ibid., p.12)

Again, on control posts, Mr. Tsarapkin said:

"Our rejection of your proposal to establish nineteen control posts on USSR territory does not mean at all that we oppose control. ...I repeat once more that our agreement to fifteen control posts on the territory of the Soviet Union still holds." (ibid., pp.9 and 10)

Those were control posts with 20 foreign nationals at each post, as will be recalled. That was the position on 31 May last year. The Soviet Union was proposing that there should be 15 permanent detection posts in the Soviet Union, containing 300 foreigners, and three inspections in the Soviet Union, involving about 18 foreigners. Those are facts. That is what the Soviet Union then agreed.

Some people say that the attitude of the Soviet Government on the presence of foreigners on Soviet territory, in detection posts and in inspection teams, changed as a result of the U-2 incident at the time of the Summit Conference in May 1960; but, as I have said, it was one year later, on 31 May 1961, when the Soviet representative in Geneva said clearly and categorically that the Soviet Union still admitted both those principles. It was not until 28 November 1961 that the Soviet Government, which by that time had resumed nuclear testing on a massive scale, said that it was no longer prepared to admit any foreigners in the operation of detection posts in the Soviet Union or any foreigners visiting Soviet territory for nuclear test inspections. It was that change of attitude on the part of the Soviet Union which caused the present deadlock.

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...In my view, there is a field for discussion and negotiation in which surely agreement ought not to be too difficult to reach. It requires the will, and I believe that with the will it is certainly possible.

Among the points for discussion in the light of the new detection data would be the number of detection posts required throughout the world. The Geneva system provided for 180 detection posts (EXP/NUC/28, annex VII, para.3), all of which included seismic detection. The new data suggests that for seismic detection alone a very much smaller number of posts would be required, assuming such posts to be equipped with the best possible recording techniques and assuming that they can be located in the most

favourable environment. But before a complete system can be decided upon, in terms of station numbers and their location, it is necessary to consider the capabilities and to examine the joint location possibilities for all those methods, other than seismic, which have already been agreed upon as essential to monitoring a nuclear test ban. It does appear to us, however, that the total number of stations required for all methods of detection and identification of nuclear tests would still be very much smaller than that required by the system proposed by the Geneva Committee of Experts in 1958. Additionally we foresee the possibility of improving the total seismic capability of a system by providing for the reception of data as required from existing seismological facilities of approved standards of performance. All this must, of course, be a matter for discussion and negotiation.

I turn now to the issue of inspection. The new data indicate that there will be substantially fewer earthquakes that provide signals equivalent to an underground nuclear explosion of a given yield than hitherto expected. That means that there will be fewer earthquakes that might be mistaken for possible underground nuclear explosions and therefore, of course, a smaller number of inspections required. But unless the Russians have methods which they have not yet explained to us, unless they can provide that information, then there will still be a residue of underground events which will be detected and located to within a comparatively small area but which it will still be impossible for the commission to identify without on-site inspection.

I want to be very clear about this because if the Soviet Union does know scientific methods of identification which would leave no residue of unidentified events we earnestly invite it to show us how it could be done. Is that such an unreasonable request? Why do we never get any response when we ask such simple questions? If such techniques really exist, then there ought no longer to be any problem. The commission could use those techniques, and every event would be identified without the necessity for on-site inspection. But, for our part, we hope that with continued scientific research that happy moment will in due course be reached; and, at the worst, we hope that the necessity for any on-site inspection need only be temporary. This is such a key point, it seems to me; if the Soviet Union can help us with information to overcome this problem we can obviate the necessity now. If the Soviet Union will help us and work with us then it may not be long before we can all be agreed that that is in fact the state of affairs. And once that was so, then we could all agree to eliminate on-site inspections. But we have to base ourselves on the scientific facts as we know them, to the best of our ability, and our position remains that as long as there is a residue of events which the commission cannot identify without on-site inspection there must be an obligation which we are ready to accept ourselves, and which we have always been ready to accept. The important thing about the new data is that it enables us to agree to a smaller number of inspections than we could have accepted before.

There has been a good deal of discussion in the Sub-Committee on nuclear tests of the question whether the eight Power memorandum provides for an obligation on States Members to accept on-site inspection by the commission if the commission cannot otherwise establish the truth about an event. I do not want to embark this morning upon a further discussion on the interpretation of documents; our discussions have been in the records over a long period of time. I would only say that it seems to me evident that if the commission decided that it could not establish the truth about an event without on-site inspection, and if a State refused a request from the commission for on-site inspection, that State would not be giving the commission the speedy and full co-operation required by the last sentence of paragraph 5 of the memorandum.

Verification of underground unidentified events is still said to be the major stumbling-block in the path of reaching a test ban agreement. We believe that a test ban should be the first and major step towards disarmament, in fact facilitating disarmament and leading up to it; and although we believe effective physical verification to be a "must" for disarmament, and the only guarantee for the proper implementation of its measures, we fail to see why there should be so much disagreement on the modalities of a test ban verification. Unlike disarmament measures, which have no way of being ensured except by effective physical verification, nuclear tests in all environments do not fail to announce themselves to far-flung observation posts, such as are suggested in the eight-Power memorandum. That was demonstrated by the detection and identification of Soviet tests by Western stations, and vice versa.

Nothing has changed our conviction that to date the eight-Power memorandum remains the best, the most practical and the fairest basis for a test ban settlement which might safeguard the national security as well as the national prestige of all the parties concerned. In her thought-provoking and scientifically documented statement of 1 August Mrs. Myrdal, the representative of Sweden, once again gave proof of the adequacy and the well-foundedness of the basic theory of that memorandum. She pointed to the existence of a vast network of observation posts actually co-operating among themselves, and she said also that:

"Many reports have been published to demonstrate how nuclear tests in different parts of the world have been detected and identified in various countries." (ENDC/PV.64, p.13)

She added that the French underground test in the Sahara on 1 May 1962 was recorded, identified and reported by 65 different stations, among them many Western and Eastern stations (*ibid.*).

We do not claim that gaps will not be found in the memorandum but, in harmony with the statement made by Mr. Lall, the representative of India, on 8 August we also believe that they may be gaps of detail but not of principle (ENDC/PV.62, p.). To our delegation the basic principles of the memorandum are not in question; they are even more valid today than when the memorandum was delivered on 16 April.

Among those principles, one in particular seems to go to the heart of the matter: I am referring to paragraph 4 on page 2 of document ENDC/28:

"All parties to the treaty should accept the obligation to furnish the Commission with the facts necessary to establish the nature of any suspicious and significant event."

The same paragraph goes on to spell out clearly that pursuant to that obligation -- namely, the obligation referred to above to furnish the commission with the necessary facts --

"the parties to the treaty could invite the Commission to visit their territories and/or the site of the event the nature of which was in doubt."

We feel that this is an essential concept of the memorandum which must be accepted if the memorandum is to stand together.

We shall refrain from attempting to interpret the memorandum at this juncture, just as we have so far religiously refrained in our statements and in all our private talks with any of the members of other delegations from interpreting the memorandum, the powers of the commission or the nature of the obligation. Nevertheless, we find it possible to say that that essential concept of the memorandum is in harmony with the theory of the memorandum based on the establishment of speedy and full co-operation between the parties and the international commission, which is to be entrusted with the tasks clearly enumerated in the memorandum -- namely, processing the data

received from national networks of observation posts, consulting with the parties and reporting on the results of its processing and consultations. If, however, the nuclear Powers fail to agree upon an interpretation of the memorandum before the next session of the General Assembly, and if they carry their differences to that body, might not the General Assembly want to ask the eight co-sponsors of the memorandum to submit their own opinions on the memorandum as well as on a draft test ban treaty?

It seems to us that, more important than going on about the interpretation of whether the international commission's powers are mandatory or not, our deliberations should turn to the question: "When should on-site inspection be necessary in practice?" I underline that question. Rather than holding to positions of principle, I would emphasize that discussion should move to the realm of the practical, the adequate and the necessary. Might it not be possible and more profitable for the two co-Chairmen to lay down agreed practical criteria to govern when on-site inspections become necessary, so as to dispel any doubts as to the nature of suspicious and significant events? We would rather not go into the specific details or give examples of such practical criteria, but would prefer to leave it to the two co-Chairmen to reach agreement upon them. If, however, at any moment they wished to consult other representatives for their opinions on this point, we are confident that they would find members of the Committee eager and willing to contribute towards such a solution.

From what I have said it is obvious that we believe that practical and adequate solutions for an underground test ban are not beyond the resourcefulness of the nuclear Powers. We all have confidence in their ingenuity; yet what is needed is a little more "give" on points of principle and prestige. The suggestions put forward by the neutral Powers have taken into consideration both the question of security interests as well as the question of national prestige of both parties. Given the real will to agree, they should now produce a satisfactory solution.

If the nuclear Powers cannot present us with some semblance of a justification for their differences on underground tests, they now face a challenge on their real intentions and their desire to end the madness of the nuclear arms race. If the nuclear Powers, now more than ever, fail to agree on a test ban in the atmosphere, in outer space and under water, it will not be — as the next session of the General Assembly will judge for itself — for lack of projects or for any dearth of fresh ideas.

As it happens, a very encouraging and significant event has taken place over the last few days. It is the successful launching by the Soviet Union of two cosmonauts, which deserves our most sincere congratulations without doubt. That in itself is a significant development, but it is not the only one we have in mind. What should be the source of encouragement to our negotiations to end atmospheric and outer space tests is the agreement between the Soviet Union and the United States to suspend atmospheric and outer space tests during the flights in orbit of the two astronauts. Thus, for all practical purposes, the nuclear Powers have actually agreed on a moratorium of atmospheric tests — although of a certain limited duration. The Soviet Union asked for the cessation of tests and the United States willingly agreed and graciously wished the two Soviet pilots success in their mission. That same spirit of practical common sense, tolerance and, indeed, attention to the interests of mankind at large should now guide the nuclear Powers towards extending the time limit of the aforementioned moratorium.

On 13 June, the day before our Committee went into recess, my delegation was among the very last to comment on the subject of a test ban. We were bold enough to hope to leave a few thoughts with members of this Committee for consideration during the recess.

With reference to the offer of the Western Powers of 3 September 1961 (GEN/DNT/120) and to the offer of the Soviet Union made on 28 November 1961 (ENDC/11) we took the opportunity offered to ask the question:

"Since less than a year ago it was possible for one party and the other to offer a test ban treaty banning atmospheric tests, with no additional international obligatory controls required, and relegating the solution of the more thorny, less important underground tests to some future date, would it not again prove possible for both parties to give a little here and a little there and arrive at a settlement which might embody the desires, and indeed the spirit, of the offers of both parties already referred to?" (ENDC/PV.55, p.34)

I went on to say:

"I should like to leave this thought with the Committee for further consideration and study during the imminent recess.

Within the next round could this not be brought about? Could not an agreement be signed, reiterating the spirit of those previous offers, carrying them one step further and harmonizing them with the spirit and content of the joint memorandum?" (ibid., pp.34, 35)

Furthermore, the representatives of Brazil, Nigeria, Mexico, Sweden, Ethiopia, Burma and India, in their respective statements, were good enough to formulate definite and elaborate suggestions and proposals along similar lines. Indeed, my delegation finds itself in general and complete agreement with the spirit of hope contained in those statements and with many specific points expressed therein.

ENDC/PV.70

Czechoslovakia/Hajek

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Following their unsuccessful attempt to ignore completely the eight-nation memorandum of 16 April, the Western Powers stated that they accepted it as "one of the bases" for discussion, but immediately thereafter they insisted that the memorandum be interpreted in such a way as to mean in fact the very opposite of what it actually stipulated. In other words they insisted that the network of national detection posts and inspection by invitation should be replaced by an international control system and obligatory on-site inspection. We have already stated that this strange kind of interpretation can convince no one, and it discredits not only the delegations of the United States and the United Kingdom but also the discussions taking place in this Committee. It was obvious that with such an attitude on the part of the Western delegations it was impossible to reach agreement, and that it was because of that attitude on the part of the Western delegations towards the eight-nation memorandum that we did not achieve a solution in the first part of our session.

The period which has intervened since has only brought new evidence, first of all, of the urgency of the cessation of nuclear weapon tests. We have mentioned today one of the events that have brought this necessity before us and emphasized it once again — namely, the space flights of the Soviet cosmonauts and the importance of not hindering or obstructing that important achievement by high-altitude tests. But there were, of course, many other instances and facts; the period also brought new evidence of the expectations, hopes and desires of nations regarding the achievement of that aim, and of the fact that the core of the eight-nation memorandum — that is, the national detection system and inspection by invitation — is absolutely correct, and that is very important. It is already generally recognized by world public opinion, it is a commonplace in the world Press and throughout the world and it is recognized in scientific circles, including those of the United Kingdom and the United States, that the detection, identification and location of tests, including underground tests, requires today neither an international system of control posts nor obligatory on-site inspection. Even the United States was well aware that its previous position was untenable, and

therefore indicated, immediately upon the resumption of our discussions in mid-July, that a new position would be forthcoming. The Press and the United States delegation here spoke of extensive research in the United States, of the many hours and days spent in discussing the results of that research with scientists and of the millions of dollars allocated for that purpose. Mr. Dean's journey to Washington and the consultations of top-ranking United States representatives regarding the new attitude which the United States Government was about to take on the question of the cessation of nuclear tests were widely publicized.

Now we have read the new proposals in the verbatim record (ENDC/SC.I/PV.23, p.14) of the Sub-Committee meeting and we heard them yesterday (ENDC/PV.69, p.9) directly from the representative of the United States, and we cannot hide our dissatisfaction because what we heard proved quite clearly that the so-called new United States position contained in the proposals with which Mr. Dean returned from Washington does not represent any substantial or qualitative change in the original United States concept. The fact that under the new United States proposals the numbers of control posts and on-site inspections required have been reduced as against the original proposals merely demonstrates that only quantitative changes have been made, which do not, however, at all imply the adoption of the principles embodied in the eight-nation memorandum. Indeed, Mr. Dean proved that himself when, during the discussion in the Sub-Committee and once again in the plenary meeting yesterday, he pointed out with emphasis which amounted to the delivery of an ultimatum that unless an agreement were reached on obligatory on-site inspection the United States did not intend even to discuss other conditions for the conclusion of a treaty on the discontinuance of nuclear weapon tests. Moreover, Mr. Dean implied by his ultimatum that even agreement on control measures to be carried out under general and complete disarmament would depend upon acceptance of the untenable United States proposals concerning the cessation of nuclear tests.

Similarly, the so-called acceptance of the concept of the establishment of a worldwide network of control posts made up of national posts under international supervision and control does not represent any real change in the original United States position. It is clear that the insistence upon extensive international control of the activities of national posts and the setting of many conditions regarding the manning and the technical equipment of such posts are expressions of the endeavour to deprive those posts of their genuinely national character. The entire course of action followed by the United States delegation during the discussion on the discontinuance of nuclear weapon tests, the climax of which was reached in the abovementioned modifications submitted last week to the Sub-Committee and yesterday to the plenary Conference, proves that in fact the United States still adheres to its original position. Apparently the concept in the memorandum is not in harmony with the plans of those circles in the United States which do not desire the cessation of tests but orientate themselves on continued nuclear armament. At the same time the United States delegation still tries to convince us that, by inserting into the eight-nation memorandum what is not written there and what cannot be deduced by any effort, however painstaking, it is merely interpreting that memorandum. What kind of interpretation is that?

At the same time the United States representative criticized the Soviet Union for favouring the principle of inspection by invitation and tried to prove (ENDC/PV.69, page 19) how inadequate such inspection by invitation would be. But in fact — and this is confirmed by what the representative of the United Arab Republic said earlier today — that is an essential concept of the memorandum which must be accepted if the memorandum is to hold together. He said that after quoting once again the part of the memorandum in which it is stipulated that the parties to the treaty "could" invite the commission to visit their territory — that is, the principle of inspection by invitation.

If the United States is criticizing the Soviet Union for taking an intransigent stand on that basic principle of the memorandum of the eight it is in fact demonstrating in great detail the opposition of the United States delegation to the eight-nation memorandum itself.

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...Mr. Green pointed out that the proposal in the eight-Power memorandum for an improved system of national detection stations combined with the establishment of an international centre to collect and analyse the data received from those stations should provide an adequate technical basis for an agreement acceptable to both sides.

The Canadian delegation finds it encouraging that, in broad terms, the results of the intensive research which two of the nuclear Powers have been carrying out in the field of detection and identification of nuclear explosions appears to bear out that assessment. The Conference has been told that, as a result of recent research, it should be possible to modify and simplify very considerably the requirements which had previously been thought necessary to establish a sound and workable detection system. In our view the data yielded by this research programme — which delegations now have an opportunity to discuss in detail with the scientists who have come here from several nations — taken in conjunction with the approach originally suggested by the eight non-aligned members of this Conference provide ample material for decisive negotiation between the nuclear Powers on an acceptable test ban treaty, and we hope that that available material and that opportunity will not be allowed to remain unused.

The Canadian delegation has studied carefully the verbatim record of the meeting held by the nuclear test Sub-Committee on 9 August (ENDC/SC.I/PV.23) and has, of course, followed with great care what has been said in our debate in the plenary meetings yesterday and today. It is evident to all of us that the issue which must be resolved if we are to avoid yet another deadlock in the negotiation of a test ban treaty is the question of on-site inspections, whether they are obligatory or whether they are by invitation, and what is meant by "by invitation" in the case of events which cannot be identified with certainty as nuclear explosions by external instrumentation alone. And here I should like to say that the Canadian scientific advice available to my delegation is that at the present time, no matter how good the detection system which we devise, events will still be reported whose character can be determined only through actual inspection on the spot. That is what our scientists tell us and we believe that they are stating the scientific facts.

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To be sure that there is no misunderstanding, let me explain our concept of the relationship between these factors of on-site inspection — the numbers of detection or control stations and the numbers of on-site inspections. The position of the United States is that it is quite willing, and more than willing, to negotiate about a reduction in the number of on-site inspections to be permitted on the territory of the three nuclear Powers from the number the United States and the United Kingdom proposed in their draft treaty of 18 April 1961 (ENDC/9).

As all the delegations here are aware, that number was from twelve to twenty; it depended on the number of unidentified events. Mr. Tsarapkin, the representative of the Soviet Union, said one day (GEN/DNT/PV.307, p.12) that there was not more than fifty unidentified events. At that time we thought there were about three hundred events in

total; and, on the principle of taking one hundred unidentified events as maximum and on the principle of one inspection for five unidentified events, I said to Mr. Tsarapkin that if his scientists were correct, then, on that principle, there would never be more than twelve on-site inspections, while if, on the other hand, there should be 100 unidentified events, then we would have one on-site inspection for each five unidentified events about sixty (GEN/DNT/PV.311, p.7). We thought that was a very fair offer at the time, but nevertheless we have continued to do our homework and, as I say, if this principle of on-site inspections is accepted we are prepared to go further than we have gone before.

The United States now believes that, because of the research which has been carried out, this number of on-site inspections can probably be reduced. But I submit it would be a rather fruitless exercise for the nuclear Powers represented at this Conference to negotiate about a number of on-site inspections unless they knew first that this vital element of obligation, obligatory on-site inspections, would be provided for under the treaty. That is something we have to know first. We just wish to establish that there will be permitted, if there is proper certification by instruments, some number of inspections greater than zero; otherwise it is difficult to see any purpose whatsoever in negotiating about a number of on-site inspections, if we still have not established the principle that we are going to have any.

By the same token, in order to negotiate about the number of detection stations, where they should be located and what should be the extent of their supervision by an international commission we must first acknowledge that they have a purpose. To the United States the purpose of the detection stations is to record events and, where possible, to identify them. The better the equipment, the better the location, the better operated the detection stations are, in the case of seismographic stations, the better able they will be to identify events as earthquakes. And it follows that the more earthquakes that can be identified as earthquakes the fewer unidentified events there will be to qualify for inspection. The United States believes that it is to the interest of all parties to the treaty to reduce to the greatest amount possible the number of unidentified events.

The place of detection stations in a test ban treaty does not have much meaning if they do not contribute to the verification process, namely, verifying that the obligation of ending nuclear tests is being observed. For what good would it do the parties if stations detected many thousands of events each year but there could be no determination of the precise origin of the events which were unidentified and, as a result, were deemed suspicious? The detection stations would then be like a train which took a passenger half-way along his journey but deposited him at a station in which he was not able to find any means of completing his trip. Without the inclusion of an obligation to facilitate a limited number of on-site inspections of unidentified events as a vital part of the verification system, the place of detection stations is not very meaningful.

To put this in simple terms, let us suppose that the authorities of a city — this beautiful city of Geneva, for example — passed a law providing that no citizen should keep a bull inside the city limits but was permitted to keep cows, and then passed another law appointing thousands of inspectors to see whether there were in fact any bulls there. Let us suppose, further, that, after voting the necessary budget and appointing those thousands of inspectors, they then said that the inspectors must not visit the house, the yard or the barn of any citizen of Geneva to see whether or not he had a bull, but must go outside the city, perhaps into France, and there set up "smell posts" from which to decide whether they could smell a bull or a cow, although no inspector would be allowed to go to see for himself, if only because he might be violating the privacy of a lady's boudoir. That would be approximately tantamount to the situation we face here. What the Soviet Union is saying is, "No. You must stay outside

and determine by the smell. If you can't tell whether it is a bull or a cow, you still can't come in."

The issue therefore resolves itself, as I said yesterday (ENDC/PV.69, p.20), to an issue of fact; but how do you prove that fact? Based on the best scientific information available to us — and there is no dispute among scientists, except the scientists of the Soviet Union, so far as I know — we believe that a superior, well operated detection system of distant stations for seismic events will every year detect numerous events in either the United States or the Soviet Union which it will not be able to identify — I repeat, it will not be able to identify. If that is so — and it has not been contradicted by any scientists willing to come to Geneva — and if the world is to have confidence that the treaty is being obeyed, then some on-site inspections under appropriately safeguarded conditions, which we have discussed in detail with our Soviet colleagues so as to prevent any possibility whatsoever of espionage, are necessarily required. We have said to our Soviet colleagues that they could furnish the plane, they could furnish the pilot, they could have observers and they could determine the route followed from the border to the place to be inspected, and they could observe the inspectors of the commission while they were on Soviet territory and could guide them back. We have never at any time heard anything from our Soviet colleagues to the effect that they were not satisfied with the conditions we have suggested to ensure there could not be any espionage.

What I have just set forth has been the opinion of scientists since the scientific experts of the eight nations, including the Soviet scientists, who met in Geneva in 1958, unanimously agreed that the system of control posts which they proposed would be unable to distinguish the signals from underground explosions from those of some earthquakes. Those scientists, including the Soviet scientists, also agreed that for those events which remain unidentified inspection of a relatively small area near the source of the event would be necessary. The Soviet scientists continued to believe that, so far as we know, and until the Soviet backward move of 28 November 1961 what I have just said had been a basis of the test ban negotiations agreed by all scientists, including the Soviet scientists; and it should still be an agreed basis, since the experts stated that conclusion on the basis of scientific facts which have not been refuted by anything that we have heard at this Conference, or anywhere else as far as I know.

The technical basis for this is well known. To start with there are large numbers of earthquakes each year in territory controlled by the present nuclear Powers. We have estimated, for example, that a system of seismic stations, incorporating arrays of seismographs and all the other latest means of detecting seismic waves, will detect perhaps 300 earthquakes each year from the Soviet Union and its coastal areas. It is known that about 10 per cent of those earthquakes may be determined to be deeper than 50-60 kilometres below the surface of the earth and, therefore, can be identified as earthquakes for that reason. Many of the shallow earthquakes will occur under coastal waters and can safely be assumed to be natural occurrences. This is particularly true around the Kamchatka Peninsula and the Kurile Islands. There would still remain, however, a large number of shallow continental events each year, probably well over 100, which must be identified by seismic means where possible and, where not possible, must be eligible for on-site inspection.

The experts noted that as the number of control posts increases the number of unidentified events of a given size suspected of being nuclear explosions decreases. On the other hand they noted also that for the identification of the increased number of unidentified events resulting from a smaller number of control posts it would be necessary to increase the number of on-site inspections (EXP/NUC/28, Annex VII, para.2). So that fact must be taken into account in considering the relationship between the smaller number of detection stations which the United States and the United Kingdom are now

proposing for consideration and the correlated fact of the necessity for on-site inspections.

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What is the truth of this? The West, in 1961, had made two proposals: the first that there should be nineteen detection posts in the Soviet Union with 380 foreigners operating them. In the light of the new data we have dropped that proposal and accepted the principle that detection posts should be operated by home country nationals. So the 380 foreigners disappear from the scene. That leaves us with foreigners who might come on inspections visits. The West had thought that a maximum of about 120 foreigners would be required in a year on the basis of twenty inspections a year. We then came down to a sliding scale of between twelve and twenty. Now we are able to say that, on the basis of the new data, we can discuss fewer than that. Therefore, these "hundreds of foreign controllers and inspectors" are imaginary. They only exist in Mr. Kuznetsov's vivid imagination. Let me reassure him. These hundreds of foreign controllers and inspectors have no place in the new Western proposals.

Mr. Kuznetsov put another question. He asked:

"But is such international control over the cessation of tests which could be used as a cover for intelligence work really necessary?" (*ibid.*, p.38)

My answer is: of course it is not necessary. Let me reassure him once again. We are not proposing anything of the sort. First, there could in any case be no inspection in the Soviet Union or anywhere else except in a small area indicated by scientific instruments and designated by the international scientific commission. Nobody could designate that area except the instruments and the commission. Neither the Pentagon nor the Kremlin could designate such an area; only the instruments and the commission. Secondly, if the area were in the Soviet Union, the six or fewer inspectors, so far as any Western desires are concerned, could be transported in Soviet aircraft with a Soviet pilot and surrounded with as many Soviet observers as the Soviet Union might want. They would have no freedom to roam about in the Soviet Union. Their only task would be to verify in a narrowly defined area, within which the commission and no else had located the epicentre of the event, where a nuclear explosion had taken place. After that they would go back home.

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"...the major deterrent to a series of tests" —

and may I parenthetically draw Mr. Dean's attention to the phrase "series of tests"; I think he will know I do this because he has argued at length that a series of tests would not be necessary —

"the major deterrent to a series of tests comes from the fact that a potential violator does not know which one might be certified by the commission as eligible for an on-site inspection." (*ENDC/PV.71*, p.22)

So that indeed is a point that the United States delegation has in mind, and we appreciate that point; it is a substantial point, an important point.

But is that same element of surprise in deterrence not present in the memorandum? Let us see. First, who would decide when an event was suspicious and significant? Would the parties to the treaty decide? No, the international commission would decide — none other than the international commission. Secondly, who would decide which of the suspicious events called for further clarification? Would any of the countries

concerned decide? No; again, the international commission would decide. Thirdly, who would virtually decide whether there should be consultations between the country concerned and the commission? Again, the international commission would decide. Fourthly, who would make it clear that in a particular case the nature of the event could not be clarified without a visit by the commission? Would the country concerned do that? No; again, the international commission would, and then the country would have to make its decision whether or not it would co-operate.

So the element of international determination plays a major role in the memorandum and it acts as a surprise each time to the country concerned — each time; not once, as has been suggested by Mr. Dean, but each time. There is a series of surprises — surprises not of any sinister character but arising out of the dispassionate, high-level, respected work of an international commission of scientists. I would submit that the scheme of the memorandum provides for plenty of deterrence, and of the kind of which we have heard. So although that point was not mentioned by Mr. Dean in his two basic differences I believe it too is covered by the memorandum.

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"It would have to take into account the fact that, if it did not invite the commission, then, as is stipulated in the memorandum of the non-aligned States, 'the international commission would inform the parties to the treaty of all the circumstances of the case'." (ENDC/PV.71, p.42)

I will stop the quotation there and, if I may say so, I think we can all agree that Mr. Kuznetsov put his finger precisely on the point — that all the circumstances of the case would, in that event, be stated by the international commission.

Mr. Kuznetsov went on:

"In other words, the nuclear Power concerned would know that highly qualified scientists, members of the international commission, would inform all States and the public of the whole world that the nuclear Power in whose territory had occurred some unexplained event, had refused to invite the commission to make clear the nature of the event." (ibid.)

That is the end of that quotation, but Mr. Kuznetsov went on to say a little later:

"...the nuclear Power concerned would have to weigh up what other States would think and how world public opinion would react to the specific case — whether the world at large would understand its refusal to invite the commission in that particular instance." (ibid.)

Mr. Kuznetsov then concluded:

"In the light of all these considerations, is it possible to come to the conclusion that the nuclear Powers will always refuse to invite the commission to visit their territory? Of course, it is impossible to come to such a conclusion." (ibid., p.43)

That is what Mr. Kuznetsov said — that we cannot conclude that a State would always adopt a negative attitude. And he went on to say: "it would be quite unjustified." Does that not mean that there would be on-site visits? It means nothing else; it means that there would be on-site visits, provided of course that the international commission put its case and said it could not clear an event unless there were an on-site visit. That is what it means.

So I submit that, on all the three factors contributing to the second basic difference, there is not really a basic difference at all between the two sides. Mr. Dean has put to us two basic differences. He said that just those two basic differences and no

others prevent the signature of an agreement. Now, members of the Committee have all heard this summary — it is nothing more, I am not being original — of the views of the two sides. Do those basic differences remain? One can only conclude, therefore as I was saying a little earlier, that there has been much more progress than just general progress towards our reaching a solution. If those basic differences do not remain, then I would submit to the United States representative that the reasons for not signing an agreement do not exist. That is the position, and I do not see how one can get around those facts. They are not inventions, they are facts on the record for all to see. Of course, one can say that the language used is different. That is true. Some of the thoughts used are also different. But in substance the two sides are now very close together. I submit that both sides, the United States representative, Mr. Dean, and the Soviet representative, Mr. Kuznetsov, have said here — I will not quote again in order to save time — that they wish to move this matter along, that they wish to negotiate and to find agreement. Mr. Dean has said that the United States position is not a fixed position, that it has movement in it. Mr. Kuznetsov has said that the Soviet Union wants to find agreement on any mutually acceptable basis. Surely, then, we are on the verge of agreement.

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I shall, of course, be delighted to confer at any time with my co-Chairman, and we shall discuss this matter at great length. I must say, however, if I may turn for a moment to philosophy, that I think that we shall have to study all these proposals in the light of their actual context; we shall have to study what they really do rather than what they say. We shall have to work this out on the basis that when the commission certifies something there will be the certainty that there are going to be a number of on-site inspections. The events are still labelled "unidentified", but there has to be certainty with regard to the on-site inspection. Otherwise the whole philosophical context of the plan changes, and we shall not have the concept of somebody who would be deterred from a possible attempt to violate the treaty by the fact that it was the commission which had the power to certify the unidentified event and the power to make the inspection, while the potential violator would never know which event the commission was going to certify or when the on-site inspection was going to take place.

If we change that whole concept from a certainty to a mere theoretical possibility which can be debated at some length by the country on whose territory the unidentified event occurs — it could debate whether the evidence was sufficient, whether the commission had acted properly, whether there was a proper exercise of authority, and so forth — then, I submit, the whole philosophical context changes and we shall not be able to solve the problem merely by semantic changes.

I do not think that this is a problem that can be solved by my Soviet colleague getting out Roget's Thesaurus and looking for a series of words, or by turning to the dictionary and looking for some means of expressing something which I still believe is a fundamental difference between us. But let me assure you, Mr. Chairman, that I will be delighted to study with the greatest attention what the representative of India has said, and I will always at any time be available to my co-Chairman to discuss this matter.

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I should now like to turn to the question of verification. The United States proposal for the reduction of major armaments during stage I was specifically intended, in so far

as verification is concerned, to avoid placing impossible or overburdensome verification requirements on the international disarmament organization at a point early in its existence. The following aspects of verification must be considered in carrying out the reduction of major armaments called for in the United States plan.

First, there must be a check to make sure that the weapons being reduced are actually destroyed or actually converted to peaceful uses in accordance with the terms of the treaty.

Second, there must be means of assuring that production has been either discontinued or limited to agreed armaments at declared facilities and that no production is taking place at clandestine facilities.

Third, there must be some means to assure that armaments do not exist in excess of agreed levels at each step of the disarmament process.

On 10 August, I set forth (ENDC/PV.68, pp.10 et seq.) some of the issues on this matter and made some suggestions for a joint exploration of the problems in this area. On that same day the Soviet delegation made a rather lengthy reply to my statement. (ibid. pp.20 et seq.) I have carefully studied the Soviet delegation's comments for two reasons. First of all, the issues dealt with in the United States statement of 10 August are basic to our efforts to reach some common ground, with regard not only to inspection but also to the feasibility of various stage I measures. Secondly, I had a feeling as I listened to the Soviet representative that the serious dialogue between delegations that I had suggested had in fact begun. It was not that the Soviet representative presented any new Soviet views concerning verification, but the tone and the business-like presentation of areas of agreement and disagreement, as he saw them, were most welcome. I hope that my colleagues will note that I have taken Mrs. Myrdal's suggestion and no longer refer to the Soviet delegation's "workman-like presentation", but now refer to their doing it in a "business-like manner" — although I personally prefer the word "workman-like".

I might say in passing that some sort of disarmament history was made by Mr. Zorin during the course of his statement and I would ask Mr. Kuznetsov to convey to Mr. Zorin my congratulations. I believe it is correct to say that, for the first time in the history of disarmament negotiations, mirabile dictu, the Soviet Union charged that the suggestions of the United States relating to verification were inadequate and insufficient. I would like to comment on the substance of this point in a moment, but I am tempted to observe that if we have reached the time when the Soviet Government is urging more rather than less verification, then I submit that there is no limit to the surprises we might expect in the future.

In a more concrete vein, Mr. Chairman, I would like to discuss the real substance of the Soviet statement. It would appear that there is general agreement on two of the three types of verification. The first of these is the nature of the verification arrangements to assure all parties that armaments are actually being destroyed or are actually being converted to peaceful uses. However, it is still not clear whether we agree on the function of this on-the-spot verification, namely, whether the function is merely to verify that some destruction of armaments is indeed taking place or whether, as the United States believes, there is not an even more important additional function. That is, to verify that the destruction which is taking place on the basis of each party's declaration about quantities of each type corresponds to numbers or percentages prescribed for destruction at the given time under the terms of the treaty. We would appreciate further clarification by the Soviet delegation on this latter point. There seems to be general agreement also regarding verification of declared production facilities.

Thus, while the specifics of the aforementioned types of verification remain to be worked out, and an important clarification of Soviet views on one of the types of verification is required, the United States delegation welcomes the confirmation that what we

thought were areas of general agreement are so in fact. Those areas of agreement, however, remain rather academic as long as the massive gap remains between our two positions with regard to verification measures directed at ensuring that the remaining armaments do not exceed agreed levels at each step in the disarmament process and that clandestine production facilities do not in fact exist.

However, some of the statements made by the Soviet representative lead me to believe that the Soviet Government has at last begun to recognize the need to assure that remaining arms do not in fact exceed given levels, at least at the zero level. That would be, if true, a most important acceptance of a principle which in the past has caused one of our main differences. The question between us, therefore, would no longer be one of principle but of the application of the principle in practice.

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The point is that if there is verification merely that some arms are being destroyed — by verification of destruction at agreed depots — but no verification that States are reducing by agreed amounts through verification of remainders, there will be no assurance of the security of States during and at the end of the disarmament process. It is too late to do that at the end of the road, for then all the bridges, on one side at least, will have been burned, and for that side there is no turning back.

I should mention one further matter which relates to the Soviet Union's assertions that its inspection arrangements are easier to apply. The Soviet statement of 10 August, as will be seen from page 22 of document ENDC/PV.68, agreed on the importance of prohibiting the production of new types of nuclear delivery vehicles. In both plans that is one of the obligations from the very beginning of the first stage. But how, under the Soviet system of verification, would there be any assurance that new types of vehicles were not being produced? The declaration of existing production plants — producing current types of delivery vehicles — would, of course, not preclude production at other plants, especially in nations with large-scale and well-dispersed industrial machines, such as the United States and the Soviet Union, and, indeed, might not prevent production in other countries under contract, which I understand was one of the ways in which the Treaty of Versailles was violated. How would one verify that new plants for new types were not being constructed during stage I?

Let me turn now to the second complaint of the Soviet delegation regarding zonal inspections, a complaint closely related to its assertion that the Soviet verification proposals are easier and simpler to apply. The Soviet representative said that zonal inspection would be difficult to carry out and would not give assurance of compliance, with, as he put it, 100 per cent elimination (ENDC/PV.68, pp.29-30). Now I must admit that the Soviet delegation, which had during the previous week given us some very good advice with regard to the new dance called the Twist, demonstrated its expertise in twisting on 10 August. I admire Mr. Zorin's dancing ability but I have certain minor reservations concerning the application of logic in this instance.

The point is that the Soviet representative applied our suggested first-stage zonal verification arrangements for the first-stage measures of the United States plan to the first-stage measures in the Soviet plan. Of course, they do not fit. The zonal verification suggestions which I presented for stage I would, however, fit the first-stage measures of the United States plan or the first third of the total reduction of delivery vehicles in the Soviet plan. Similarly, the complete zonal inspection suggestions in the United States plan would fit the total reduction process in either plan, though, as I have pointed out, the impractical time period of two years in the Soviet plan for complete elimination of nuclear delivery vehicles would not allow sufficient time for adequate

verification during the reduction process.

The essence of the United States suggestion — a suggestion put forth in an effort to accommodate the previously expressed antagonistic views of the Soviet Union with regard to verification of initially declared levels — is that, as arms are reduced, there should be sufficient verification to ensure a reasonable deterrence against violation of the agreement. We have sought, through an arrangement that would achieve less than total verification at the beginning, a degree of verification and, therefore, a degree of reassurance commensurate with the risks of each stage.

In this connexion I should like to say that there does seem to be some misunderstanding on the part of the Soviet Union of how zonal inspection would work. The Soviet representative said:

"With 70 per cent of the armaments remaining it would be almost impossible to prove this because we should then have to inspect the entire country from one end to the other" (ENDC/PV.68, p.27).

The Soviet representative said further:

"...if we wished to prove that any remainder was not part of the permitted 70 per cent but in excess of it ... one would have to count every type of armament" (ibid.).

That is not the way a zonal inspection arrangement would work. If verification of a particular zone selected for inspection showed that the amounts of various types of armaments and production facilities in that zone were the same as the amounts which had previously been declared for it, before the host government could have known that it would be selected for early inspection, that would constitute the required degree of assurance of compliance for that particular stage of disarmament. We would then say, on that set of facts, that the host government had been shown to be acting honourably and honestly. As the risks increased with the continuation of the disarmament process in later stages the degree of assurance would be increased through the verification of additional zones; but, in the absence of specific notice of violation, there would not be total verification before the end of stage III of the remaining arms and any non-declared production facilities in the zones which happened not to be selected for verification until near the completion of the disarmament process. I do hope that that clarifies for the Soviet delegation that aspect of our suggestions regarding zonal inspection.

Now let me turn to the third principal objection raised in the Soviet statement of 10 August (ibid., p.30) — an objection which I suspect may be the real basis for such lack of enthusiasm for zonal inspection as was exhibited by our Soviet colleagues on Friday last. That objection was that verification of one zone would result in the acquisition of information about the military establishment of the inspected country, which would be dangerous from the standpoint of, as the Soviet representative put it:

"any country that may expect a nuclear blow on the part of another state" (ibid., p.31).

First of all let me say that the question of which side fears a nuclear attack is a subjective question. The Soviet delegation should realize, and I am sure it does, that there is concern on both sides in this connexion. Let me assure the Soviet delegation again that we want wholesome and peaceful relations with the Soviet Union; the people of the United States and the Soviet people are basically friendly. The United States has no intention whatsoever of making a pre-emptive nuclear attack on the Soviet Union; I should like to assure my Soviet colleagues of that.

However, let us turn to the argument. In the past expressions of this concern by the Soviet Union have been focused primarily on the possibility of what is called the acquisition of target data, and it was partly to meet those concerns, whether or not they were justified, that the United States put forward the concept of zonal inspection as an example of a possible solution of a difficult problem. As I pointed out in my statement

of 10 August (*ibid.*, p.17), the geographical location of military installations within a zone would not be revealed until a zone had been selected for verification; there would be only a general declaration describing the military establishment in the zone, which could cover an area of many tens or even hundreds of thousands of square miles. Moreover, there would be no requirement to reveal geographical locations in any other zone until such subsequent periods when, as arms were further reduced, this or that zone was selected for verification.

ENDC/PV.74

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While we recognize that there are certain problems with respect to sovereignty which may concern any State in accepting the principle of obligatory on-site inspections in advance, we feel that if the will to reach agreement really exists we could make it clear to the world, jointly, that such a procedure does not involve any derogation of sovereignty and that, just as every international treaty is a commitment, so every such commitment undertaken by a State as an exercise of its sovereign power to pledge, in the first place, that it will not test any nuclear weapons, is an obligatory commitment. If it is not an obligatory commitment it means nothing. It seems to us, therefore, that it ought to be equally clear to the other side that if the commission certifies an unidentified event there should be an obligatory commitment to allow the commission to come in. We do not think this pledge in advance is any real derogation of sovereignty. We think that such a pledge rather makes a State a fuller and more responsible member of the international community of sovereign States, and we are exploring, and are quite willing to explore, with our Soviet colleagues how this can be set forth. But the one condition I do want to make clear is that the obligation to discontinue the tests and the obligation to facilitate inspections must be equally clear and unequivocal and, on the other side of the coin, the inspection must not be merely invitational or semi-invitational in its terms.

ENDC/PV.74

USSR/Kuznetsov

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The international inspectors will have the right of access to launching pads for rockets, to aerodromes, to stores of the means of delivery in various areas of the countries concerned, including the Soviet Union. Governments of the States parties to the treaty must afford all necessary facilities to the international inspectors to enable them to carry out, without difficulty, the responsible duties entrusted to them in exercising control over the elimination of all means of delivery of nuclear weapons.

At present, of course, the negotiations have not reached the stage where we could count exactly how many international controllers and inspectors there will be in the territory of the Soviet Union, the United States of America and all the other countries, for the purpose of exercising control over the elimination of means of delivery. But even at this stage, it is possible to say quite definitely that for this purpose there will be required not a few persons, nor even dozens of persons, but a far greater number.

Thus, gentlemen, you have concrete proposals before you which are intended to ensure real control over the elimination of the means of delivery of nuclear weapons. A State which has given its agreement to such far-reaching control cannot be suspected — if one is objective — of being against control or against a business-like approach to this question.

We envisage also other measures of control in the first stage : the establishment of control over the dismantling of foreign military bases in alien territories, over the with-

drawal of foreign troops from such territories, over the reduction of the levels of the armed forces of States, over the reduction of conventional armaments, of armaments production, and so on. We realize that in this case we are taking a certain risk. If, however, this will allow us to reach a solution to the problem of disarmament we are ready to accept such a risk.

Implementation of the first stage measures, and the actual elimination by the end of this stage of any possibility of unleashing a nuclear war, would considerably strengthen confidence between States, would bring about the assurance that their security rests on a firmer foundation. In these circumstances it would be possible to agree to a considerable extension of control in the second stage, and to place under international control the entire atomic industry of States, while at the same time carrying out the destruction of all nuclear weapons under strict international control. New teams of international inspectors would appear at all plants producing raw material for atomic weapons and also at those producing the weapons themselves. It would not be a question of one or two plants, nor of one or two regions. How is it possible to accuse a State which proposes such measures, of not co-operating in a business-like manner in the field of control?

By the beginning of the third stage confidence would be strengthened even more, the threat of war would become minimal and, during the course of the third stage, control would gradually become comprehensive.

That is our approach to the question of control. Those are our proposals.

The Western Powers refuse to accept our proposals on control and to discuss them in a business-like way. As in the past, they are still setting against these proposals their demand that States should from the very outset of disarmament open up the whole of their territory and disclose their entire system of defence. At various times this demand has been given different forms : now it is being put forward in the form of so-called selective zonal inspection.

No great perspicacity is needed in order to understand the significance of the demand for the opening up of the territories of States before disarmament. Control before disarmament is control over armaments, that is the complete disclosure of the entire defence system in the circumstances where not a single practical step towards disarmament has been taken, the arms race continues and the threat to the peace-loving States is being intensified. In these circumstances to disclose the whole defence picture and to indicate the location of vital centres would mean encouraging the advocates of the policy "from a position of strength" and incite them still more to make preparations for an attack on peace-loving countries. The advocates of control over armaments at one time tried to maintain that thorough knowledge of the entire defence system and military strength of the other side would help to avoid miscalculations and would even be a "restraining factor". Would it not be more correct to consider that such an approach incites the advocates of the use of force for settling disputes to have recourse to this method? There cannot be any doubt that such an approach would never lead to disarmament; it would be more likely to speed up the arms race.

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The proposed comprehensive treaty provides for the cessation of all nuclear tests in all environments. The parties to the treaty would undertake to prevent and prohibit the carrying out of such tests at any place under their jurisdiction or control. They would undertake also to refrain from causing, encouraging or in any way participating in the carrying out of such tests anywhere at any time. These obligations would be supervised by an international scientific commission assisted by an international staff and a verifi-

cation system. Each party would undertake also to co-operate with that commission in carrying out all measures of detection, location, identification and inspection, and in establishing elements of the system. The commission would have general responsibility for the collection of data on, and for the reporting of, all events which could be suspected of being nuclear weapon test explosions and for making positive identification of the nature and origin of such events as necessary.

The draft treaty provides that the commission should consist of fifteen members -- four from the West, four from the Soviet bloc and seven chosen from among parties jointly nominated by the United States, the United Kingdom and the Soviet Union. The United States, the United Kingdom and the Soviet Union would hold permanent membership on the commission.

The international staff would assist the commission by carrying out functions at the headquarters and by manning any international stations which might be set up by the commission in agreement with the parties concerned where that was considered desirable and was mutually acceptable. The staff would also participate in the international supervision, inspection and monitoring of the nationally manned detection stations.

The executive officer of the commission would be responsible for the staff under the direction of the commission. He would select the scientific and technical personnel for the international staff under criteria set forth in the treaty. The verification system would include nationally manned, internationally supervised and monitored detection stations to be constructed at sites which would be agreed upon by the parties to the treaty. The commission would establish the specifications and pay for maintaining, constructing, equipping and training personnel for these nationally manned stations.

In addition, in so far as appropriate, use would be made of a number of national stations already in existence. The parties would assume an obligation to ensure that the system would begin operation at least six months after the entry into force of the treaty. Obligatory on-site inspection of unidentified events would be provided for on the basis of carefully defined procedures laid down in the treaty. The executive officer, on behalf of the commission, would indicate which events had been located and remained unidentified after the application of criteria specified in the treaty.

The size of the area in any party's territory which might be inspected in connexion with any unidentified event also would be designated in the treaty. Inspection would take place under an annual quota arrangement for each country -- an agreed maximum per year -- but only if the events met the treaty requirements for eligibility for on-site inspection. Let me be clear: if there were no unidentified events certified by the commission in any year then there would be no on-site inspections.

As I stated at a meeting of the Sub-Committee on a Treaty for the Discontinuance of Nuclear Weapon Tests on 9 August 1962 (ENDC/SC.1/PV.23, pp.6-7), after certification of an unidentified event by the commission, the events to be inspected in the Soviet Union, for maximum deterrence, would be selected jointly by the United States and the United Kingdom; and, accordingly, events to be inspected in the United States and the United Kingdom would be selected by the Soviet Union. Unidentified events in other States would also follow a quota arrangement. The objective of on-site inspections would be carried out by teams organized by the commission so as to prevent nationals from any State inspecting events on its own territory. States would assume an obligation to facilitate and to co-operate in any on-site inspection undertaken under the treaty.

A party would have the right to withdraw from the treaty if it determined that the treaty had been violated, or that the obligation to facilitate an on-site inspection had not been fulfilled, or that a nuclear explosion had been conducted by a State not a party to the treaty and that explosion jeopardized the withdrawing States's security. Or if an explosion occurred and it was not possible to identify the State conducting the explosion but the explosion jeopardized the withdrawing party's national security, the

withdrawing party could request that a conference be called to include all other parties. Withdrawal would not take effect until the passing of a specified time.

The treaty would come into force on a specified date which would be subject to negotiation, thus incorporating the recommendation made by the representative of Mexico on 9 May 1962 (ENDC/PV.34, p.16). Other details are given in the text of the treaty which has now been distributed to the Committee. The details on these and other aspects of the treaty, such as what constitutes a nuclear explosion, must be negotiated.

As I have indicated before, the keynote of this comprehensive treaty is the provision for obligatory on-site inspections which provides that all States have an unconditional, unequivocal "Honest Injun" obligation to facilitate such an on-site inspection. I have presented to this Committee the scientific and technical reasons which underlie the significance of obligatory on-site inspections. According to United Kingdom and United States scientists — and as far as I know this is not disputed by any other scientists; I repeat, it is not disputed by any other scientists — there will be a substantial number of seismic events each year within the Soviet Union which will be detected by seismic stations but which cannot be identified by seismic means alone. The Soviet delegation does indeed appear to admit that some number of seismic events will remain unidentified after all the data have been reported by the detection stations. The United States-United Kingdom draft comprehensive treaty, I submit, provides a reasonable and effective means of dealing with those unidentified events.

The basic question is what type of verification arrangements are most likely to serve as an effective deterrent so that there never will be a violation of the treaty. A treaty containing debatable and arguable provisions is not one which provides effective deterrence. An effective treaty must have provisions for obligatory, objective on-site inspection by the commission in order to provide the necessary assurance that all parties honouring their obligations and that the treaty, once entered into, will last.

Therefore, in order to deter violations, to detect violations if they occur, to remove doubts about the nature of certain unidentified events, and to make the treaty last and not fall when the first number of unidentified events appear there must be, I submit, a clear-cut unequivocal obligation to accept and facilitate some number of objective on-site inspections per year by the commission. The number of those inspections would assure a State that its national security would not be jeopardized. Each side would choose unidentified events for inspection on the territory of the other side but only, as I have said, after such unidentified events had been certified as eligible by the commission according to scientific criteria to be stated in the treaty.

This acceptance of the obligation to facilitate and permit on-site inspection involves no derogation of sovereignty. It is a commitment to be undertaken by a sovereign State just as the obligation not to test is a commitment to be undertaken by a sovereign State.

The carrying out of on-site inspection can, and indeed could be accomplished by the strictly objective teams organized by the Commission without any danger or possibility whatsoever of espionage. We have made numerous suggestions to our Soviet colleagues on how espionage could be absolutely prevented. The United States is prepared to discuss with its Soviet colleagues any detail of inspection in order to avoid any problems that the Soviet Union believes might exist regarding this question of espionage.

ENDC/PV.75 UK/Godber

27.8.62

pp.21-23

The United States representative has already given an outline of the two new and alternative Western draft treaty offers. I have already said that the United Kingdom associates itself with these offers and that both are negotiable. Of the two forms of

agreement the United Kingdom prefers a comprehensive agreement. The present draft offer purposely leaves blank the figures for a quota of inspections and for numbers of detection posts. That is to emphasize that those matters are negotiable. We propose no hard and fast plan, no cut and dried figures. We have already said that on a quota of inspections we are prepared to discuss a figure that is less than the 12 to 20 previously proposed if the Soviet Government, for its part, would come up from the figure of zero. If the Soviet Union, or indeed, any other country, can show us how to make instruments which will identify all underground events, we are prepared here and now to say there need be no on-site inspection. We are prepared further to say that on the basis of additional international research we believe that even the small residue of unidentified underground events which science cannot yet identify without on-site inspection will be progressively reduced, we hope to vanishing point. In the intervening period before this happens it would, of course, be possible to propose that the international scientific commission should have the right of asking for an inspection of all of those unidentified events, and that if a signatory State were to refuse such a request that would constitute a breach of the treaty. We know that the Soviet Union does not like the idea of on-site inspections. We are perfectly prepared ourselves for any number of on-site inspections and, frankly, we still do not understand the Soviet objections. We put up no such barrier to an adequately verified comprehensive nuclear test ban treaty. But, to take account of Soviet views, we suggest that instead of every unidentified event being liable to inspection by an international commission, only a small number would be so liable. If, however, this is to be the answer, and there is to be only a quota of inspections, then if inspection is to maintain its purpose — which, after all, is of deterrent value, — the choice out of events detected and located by instruments and declared by the international commission as otherwise unidentifiable should, in our view, rest with the other side. After all, that is in fact what the Soviet Government proposed in 1959, a proposal which the West then accepted. It is a Soviet proposal which we accepted then and which we maintain now.

The other main points for a comprehensive treaty are, first, the character of the detection posts, and second, the relationship between detection posts and an international scientific commission. Sir Michael Wright dealt with the first point in his intervention at our seventy-second meeting. He underlined that under the Western proposals of April 1961 (ENDC/9) there would have been 19 detection posts in the Soviet Union manned two-thirds by foreigners — in other words, 380 foreign nationals operating detection posts in the Soviet Union. He went on to say that under the new Western proposals there would be no foreign nationals operating detection posts in the Soviet Union. That is reflected in our draft proposals submitted today and it is indeed a very large step forward.

On the question of the relationship between detection posts and an international scientific commission, I do not think that I can do better than to repeat what I said at the twenty-third meeting of the Sub-Committee on 9 August:

"On the precise relations between the international commission and national detection posts necessary to ensure the requisite high degree of accuracy and uniformity I think it should be possible to bring the positions of the two sides closer together. As far as the United Kingdom delegation is concerned we naturally want to look at that and to discuss the problem but our position is that the degree of supervision should be no more than is clearly shown to be necessary to ensure that results from a station play their part in providing an adequate world-wide coverage on which the international commission would feel fully able to rely. We want to explore this matter. We should like, with the assistance of our scientists and those of other delegations, to take into account in this context the

suggestions which were made by the representative of Sweden, Mrs. Myrdal, at the sixty-fourth plenary meeting held on 1 August." (ENDC/SC.I/PV.23, pp.16-17)

Our new position marks a big advance in principle. As I have said, we agree that detection posts can be operated by home country nationals. Next, there will be many fewer detection posts. It would be a matter for negotiation and agreement how many there would be altogether if we reckon in the help which existing university-type and other posts could give. Even counting those, a figure has been mentioned in the neighbourhood of eighty. But if the most up-to-date instruments — seismic, acoustic, electromagnetic and so on — could be grouped together at particular posts, there might perhaps be less than half that number of principal or core or key detection posts for the whole world. Only a handful of those key stations might have to be located in the United States or in the Soviet Union, operated, as I have said, by home country nationals. So the numbers are now small. But it would certainly be necessary that at least these principal or core or key posts should operate, with the most up-to-date scientific instruments, to common standards of efficiency and accuracy. The national security of signatory States would depend upon the reliance which they could place upon the effective operation of those posts. Whose responsibility would it be to see that those standards were maintained throughout the essential elements of the system? It could hardly be the responsibility of any single country since it is a matter of the efficiency of the system as a whole. The responsibility, I think, could only rest upon the international scientific commission; and that certainly was how I understood the eight-Power memorandum (ENDC/28) to envisage it. The security of all of us would rest upon the efficiency of the supervision of the international scientific commission, but it would be its supervision and not ours — not the supervision of the United Kingdom, not the supervision of the United States, not the supervision of the Soviet Union, but the supervision of the international commission. I cannot believe that this question is not negotiable without undue difficulty. My own Government has an open mind upon it and is willing to discuss any points of difficulty that may arise.

ENDC/PV.75 USSR/Kuznetsov

27.8.62

pp.48-49

With regard to control over the reduction of conventional armaments and their production, our proposals in this respect are based on the fundamental aim that the scope of control measures should correspond to the scope and nature of disarmament measures. Accordingly we propose to put under strict international control all measures for the reduction of conventional armaments and their production.

For this purpose States are to submit to the international disarmament organization information regarding the quantities of conventional armaments to be destroyed in the first stage, the places where they are to be destroyed and the location of the plants which are to be eliminated or to reduce their production of this type of armament and the munitions pertaining to it.

Inspectors of the international disarmament organization are to be present at the places where military equipment is to be delivered for destruction. Moreover, they will supervise the actual process of destroying armaments and also observe that what is being scrapped consists of weapons which are serviceable and in good condition and not rejects unsuitable for military use.

Control over the transfer to peaceful uses of means of transport and auxiliary equipment is to be equally thorough.

As regards reduction of the production of conventional armaments in the first stage, inspectors will be able to inspect factories earmarked for destruction, or workshops

which are being closed down as a result of the cessation of military production. The inspectors will supervise the dismantling of equipment used exclusively for the production of armaments which are to be reduced and also the transfer to peaceful uses of those workshops and equipment which can be turned over to peaceful production.

ENDC/PV.76 USA/Stelle

29.8.62

pp.12-13

I should like to turn now to the problem of verifying the reduction of all armaments, including conventional arms. As we have stated before, it is clear that there are three major areas of any disarmament agreement which will require appropriate verification.

First is the verification of arms destroyed. Apparently the Soviet Union, from what Mr. Kuznetsov stated at the seventy-fifth meeting, is in general agreement on the steps proposed by the United States to accomplish this.

To recapitulate briefly, the inventories of armaments of various types scheduled for reduction in stage I would be declared to the international disarmament organization at the beginning of the stage. Designated quantities of armaments corresponding to the agreed percentages to be destroyed would be placed in agreed international disarmament organization depots. The international disarmament organization would ensure that the equipment and armaments were in good working order. After sequestration the international disarmament organization would destroy or supervise the conversion to peaceful purposes of the armaments. We will have to work out criteria for conversion to peaceful purposes of armaments which would prevent a quick reconversion of non-military vehicles, facilities or pieces of equipment to a militarily useful condition.

The second area concerns the verification necessary to ensure that the provisions for limiting stage I production are adhered to. Here, I believe, there is a marked divergence between the Soviet and United States approaches which has never been adequately brought to light.

Under the United States plan, inspectors of the international disarmament organization would be stationed at all declared plants to ensure that production of existing types of armaments did not exceed agreed annual limitations, and that the production of each unit of an existing type was carefully recorded to make certain that, under the one-for-one replacement arrangement, a unit of a similar type was removed from the arsenal of the particular country. In addition, the inspectors would see to it that no production of new types of armaments was allowed to begin.

Under the Soviet plan, inspectors of the international disarmament organization would be permitted to survey only those plants or parts of plants which were designated for total liquidation during stage I. This is made clear by Mr. Kuznetsov's remarks on 27 August (*ibid.*, p.49). There would be no control whatsoever over factories which might or might not be declared, since the Soviet Union is unclear on this point, but which would be left untouched by Soviet stage I liquidation commitments. The glaring inadequacies of this scheme would make a mockery of control. There would be no way whatsoever of verifying either the quantity or the quality of the continuing production at remaining facilities. There would be no method for determining whether new types of armaments were being manufactured or whether the one-for-one replacement rule was being observed.

The problems of the third area of verification are equally great. The function of this area of verification is to assure that remaining quantities of arms do not exceed the agreed levels at each step and at each stage of the disarmament process. This involves several major factors.

First, States must be assured that the numbers of armaments destroyed constitute the specified percentages of their original inventories of arms. The United States has

illustrated how some assurance might be given through zonal inspection. Up to now the Soviet Union has given us no indication of how it would give such assurances.

Secondly, States must be assured that no new production facilities are constructed or that clandestine production is not taking place at undeclared facilities. As my delegation has spelled out, the United States illustrative proposals on progressive zonal inspection had been devised to provide an adequate degree of assurance that those prohibited types of activity were not carried out.

I hope that further clarification of Soviet proposals will be forthcoming from the Soviet delegation and that that will help us to enlarge the present areas of agreement in the field of conventional armaments. For our part, we are prepared to respond to any serious and straightforward questions which the Soviet delegation may wish to ask about our proposals.

ENDC/PV.78 Burma/Barrington 3.9.62 pp.8-9

We should like also to support the constructive idea which was put forward by the representative of Sweden, Ambassador Edberg, at our meeting of 31 August (ENDC/PV.77, p.32) to the effect that the international scientific commission proposed in the eight-nation memorandum (ENDC/28) should be established now, at least on an interim basis, with a view to assisting the two parties to reach agreement on a comprehensive treaty. We believe that proposal has much merit and we commend it to the nuclear Powers for their most earnest and, we trust, favourable consideration.

In the opening part of my statement I said that there was one provision in the United States-United Kingdom draft treaties to which I would be referring. That provision is contained in paragraph 6 of Article VIII of document ENDC/58, which reads:

"On-site inspection of areas designated by the Executive Officer pursuant to paragraph 5 of this Article shall be carried out pursuant to this Article:

- a. on territory under the jurisdiction or control of the United States of America or the United Kingdom of Great Britain and Northern Ireland, if requested by the Union of Soviet Socialist Republics;
- b. on territory under the jurisdiction or control of the Union of Soviet Socialist Republics, if requested by the United States of America or the United Kingdom of Great Britain and Northern Ireland;
- c. on territory under the jurisdiction or control of any other Party, if directed by the Commission." (ENDC/58, p.8)

Quite honestly my delegation is unable to understand why the co-sponsors of the draft feel that, in this matter, it is necessary to discriminate between the territories of the United States, the United Kingdom and Soviet Union on one side and the territories of the other parties on the other. Our view is that once an impartial high-level scientific commission is appointed it should be for that commission and that commission alone to decide if an on-site inspection is required in any concrete case; and if, by agreement between the parties, the number of on-site inspections is to be limited to an annual quota, then it should still be the commission which determines which unidentified events should be brought within the agreed quota. We submit that to do otherwise would be to cast doubt on the integrity, impartiality and objectiveness of the commission, making it more difficult to secure the services of those scientists most competent to discharge their onerous tasks. We would hope, therefore, that the co-sponsors of the treaty will be able to accept our view on this point. And while we are on this point, we should like also to make an appeal to the delegation of the Soviet Union. Mr. Kuznetsov has already told us that the Soviet Union does not preclude the possibility of on-site inspections by

the Commission in concrete cases. In other words, the position of the Soviet Union is not inflexible with regard to on-site inspections. They are not rejected on principle. We were indeed happy to receive that clarification. But if the co-sponsors of document ENDC/58 would be prepared to accept the suggestion just made by my delegation, it would be our fervent hope that the Soviet Union too would be prepared to take a further step which also would be in consonance with the integrity, impartiality and objectivity of the international scientific commission proposed in the eight-power memorandum which the Soviet Union has accepted as the basis for negotiations. We agree with all those who have said that the gap is narrow. We believe that it can be bridged on the basis of practical requirements and not of principles. We pray that these appeals will not go unheard.

ENDC/PV.70 USA/Dean

3.9.62

pp.19-25

Since that is the end of my remarks today on general and complete disarmament, I should now like to turn for a few moments to the subject of nuclear testing. In our discussions during the last few days a number of statements have been made about present and future scientific capabilities for detecting, locating and identifying underground nuclear explosions, though those statements have not been keyed to what we can do at any particular threshold — which is, of course, very important.

After careful examination I do not believe there is any significant difference of opinion among our scientists and those of other countries on those issues. It is, of course, always desirable to be hopeful and expectant about scientific research: in nuclear testing the wish is often father to the thought. So there does seem to have been some tendency to make remarks or write articles in the newspapers on technical capabilities to fit certain preconceptions or preconceived desires without regard to the actual state of certain scientific advances. For that reason I should like now to clarify these issues.

First, we do not now, nor will we ever, have a capability to detect all underground nuclear explosions with remote seismic stations; and why? Well, it is a physical impossibility unless we can at the same time eliminate the pounding waves on the beaches, wind in the mountains, industrial noises and movements of the earth's crust. Moreover, as we lower our threshold to detect we increase the difficulties of identification. In its recent series of underground tests in Nevada the United States has carried out tests measured in tons of yield as well as those in the kiloton or thousand ton range. The smaller ones cannot be detected let alone identified by remote seismic stations. If anyone would like to challenge me on this I should very much like to see his evidence. We would be more than willing to produce ours.

We are of course continuing our seismic research. We hope that our detection capabilities will improve with time, and that we will be able to detect smaller and smaller explosions with remote seismic instruments, but we will not be able to detect all interesting nuclear explosions. The United States and the United Kingdom have fully recognized this. We have been doing our level best to reach an agreement with the Soviet Union to ban all nuclear weapon tests in all environments and, in making our proposal for a comprehensive test ban treaty (ENDC/58), we do so with the full realization that a would-be violator would be able to conduct tests in the sub-kiloton range with little fear of detection — I repeat, in the sub-kiloton range with little fear of detection. In order to get an effective nuclear test ban treaty banning all nuclear weapon tests in all environments, the United States and the United Kingdom are willing to take that risk. That fact is overlooked, but it is an important fact — that, as a political decision of our two Governments, we decided to take that risk. We cannot go

beyond that and accept the risk of a violator conducting tests underground in a range measured in kilotons which for the reasons set forth in the Department of Defense release of 7 July 1962 — which is before the Conference as document ENDC/45, and which sets forth the results of our recent seismic research — we may not be able to identify; and for that reason we cannot accept an uninspected moratorium on underground testing.

In considering the questions of clandestine testing underground I should like to point out again — as I have pointed out in the past — that recent United States scientific experience shows that relatively small tests conducted underground can be important. I do not intend to minimize that risk and one can go no further than pointing out that truly useful scientific progress in weapon development can be and has been achieved. My statement of 17 August (ENDC/PV.71, p.20) gives more details of the possible developments involved here through underground tests. That type of progress has been achieved in the past through tests so small that, although they might have been detected by a seismic network, they could not be identified except in an objective on-site inspection. True, they represent only a small part of the arms race, as nuclear testing itself represents only a small part, albeit a significantly large part, of the total arms race. But underground tests represent such a part of the arms race that, I submit, States should not be called upon to assume an obligation not to conduct underground tests unless they can be satisfactorily assured that other nuclear Powers also are not in fact conducting these types of tests. There still seems to be considerable misunderstanding about how important undetected underground explosions may be from a military standpoint. The desire seems to be to shrug them off as not detectable and therefore as not very important.

With respect to the question of identification, we see no immediate prospect of identifying by seismic means alone all of the events we can now detect. In fact a very substantial fraction cannot now be identified by seismic means alone. It is for that reason that we are so insistent on obligatory on-site inspections, as a matter of right, by the commission, as against a statement of intention to issue an invitation when and if an unidentified event occurs and is certified as such by the commission.

Of course, no one can state absolutely and categorically that in a few years events of the size we can now detect but cannot identify will or will not be identified by seismic means alone. But that is for the indefinite future. We hope that our identification capabilities will greatly improve, and if they do then under our proposed comprehensive treaty to ban all nuclear tests in all environments (ENDC/58), as I pointed out in my remarks on 31 August (ENDC/PV.77), there will be fewer on-site inspections because the international commission will certify fewer events as unidentifiable. But I must say that our best judgment at this time is that there is virtually no hope of unequivocal identification by seismic means alone in the next few months of most unidentified seismic events.

I think almost all responsible scientists would agree that the problem will not disappear completely in a few months for explosions in the high-yield range, namely for explosions of 50 to 100 kilotons with so-called Rainier coupling conditions, and all scientists will probably agree that it will not disappear in a few months in relation to explosions in the range of 1 to 5 kilotons. If we talk in terms of years we are, of course, less certain; the course of scientific progress is too unpredictable. But we would be too optimistic if we were to say that we thought it probable, or even likely, that we would be able to identify by seismic means alone all those events that will really concern us from a military standpoint.

I should now like to turn to an additional point. In his very interesting statement this morning the representative of Burma asked a specific question (ENDC/PV.78, pp.8-9) with regard to the conduct of on-site inspection under the United Kingdom-United States

draft treaty. The question he asked centred around paragraph 6 of article VIII of that treaty (ENDC/58, p.8) and was directed to the means by which events might be chosen under a quota arrangement for on-site inspection in the United States-United Kingdom draft treaty. The representative of the United Kingdom dealt with this in part on 27 August (ENDC/PV.75, pp.21, 22 and 24). I should like at a later point to draw on some of the things which he said at that time in my response to the question that was asked by the representative of Burma this morning.

First, however, I would like to point out that it seems to my delegation that in any arrangement which provides for obligatory on-site inspections there can be at least two possible arrangements. Either one can inspect all of the unidentified events which occur and which cannot be discarded for one reason or another, or one can inspect some number less than all of them. In the United States-United Kingdom draft treaty (ENDC/58) inspection of all events would mean looking in the country's territory at all events certified as unidentified by the international commission on the basis that they had been located and not rendered ineligible because they met certain criteria which would allow them to be discarded as earthquakes. All certified events, if inspected, would mean the inspection of an admittedly very large number of such events in the Soviet Union every year.

On the other hand if -- to meet our Soviet colleagues's concern about espionage, as we try to do in our draft treaty -- we have a small quota of events to be inspected every year that means that only a certain number of the total of unidentified events will be selected every year for inspection. The Soviet Union, as I have said, has always indicated that it desired to have only a small number of inspections conducted on its territory each year, and, in view of the Soviet objection to numerous on-site inspections, the United States and the United Kingdom have proposed that only a certain number of those unidentified events should be looked at in each year under some quota arrangement.

The eight-nation memorandum (ENDC/28), however, implies that inspections would be conducted of every unidentified event. In that connexion I would like to quote from what the representative of the United Kingdom said on 27 August with regard to the number of inspections under the eight-nation memorandum:

"The memorandum speaks of no quota. It deals in paragraph 4 with any suspicious or significant event. But if it says 'any', then I presume that this must be 'every' such event and, if the parties to the treaty do not give full co-operation in regard to each of these, then the other parties would presumably be free to abrogate the treaty.

The facts, which have been made available to members of this Committee in private talks by United States and United Kingdom scientists, lead us to think that there will remain something more than fifty unidentified events a year in, for example, the Soviet Union. Those events will be significant. They will not have been identified. They will be events of the type which might be nuclear, and all of them, under the terms of the memorandum, will be eligible for inspection.

Therefore, in our new draft we are not calling for more inspection than the eight-nation memorandum, but for less. We do ask, however, that the obligation be clearly and unequivocally accepted by all the parties in advance, and that we consider to be essential if the treaty is to mean anything at all." (ENDC/PV.75, p.24)

For that reason, therefore, taking into consideration our Soviet colleague's desires -- that is, the fact that they did not want all unidentified events on their territory inspected -- the United States and the United Kingdom have proposed only a small number of on-site inspections, a proposal which involves a certain quota of events to be

inspected on the territory of the nuclear Powers each year.

As I have pointed out, the quota arrangement was used — in order to meet the views of our Soviet colleagues — so as to reduce the number of on-site inspections while at the same time providing a maximum degree of deterrence. Let me make it clear that for our part we have always been willing to accept automatic inspection by the commission of all unidentified events if the other side will show itself willing to accept the obligation to facilitate such inspection. We are willing, under such circumstances, to accept the "blank cheque" of an unlimited number of inspections by the commission on the territory of the Soviet Union, necessary for the identification of each and every unidentified event; but in such circumstances we are not willing to accept an arrangement under which that blank cheque would "bounce".

As regards the choice of which event might be selected for inspection under a quota system, my delegation has always believed that the selection of the certified events to be inspected should in fairness — since we are not going to have the right to inspect all unidentified events — be left to the other nuclear side. The other side in each case will of course by the party or parties primarily concerned, although we recognize that every party to the treaty will to some extent be concerned if the control system does not operate in the most effective and efficient manner. A second good reason for leaving this decision in the hands of the other nuclear side under a quota arrangement appears to my delegation to be the necessity of taking speedy action and of avoiding placing upon the commission the burden of taking the final, political decision to conduct an inspection. The commission would of course carry out the inspection as provided for in the United States-United Kingdom treaty.

Let me explain, however, for a moment how my delegation envisages the means by which inspections might be decided upon under a quota system, in order to point out the difficulties that we hope to avoid by leaving the decision to the other nuclear side.

First, the commission would receive the data relating to any particular event and through the executive officer chosen by the commission — and the Soviet side and the Western side would have equal representation on the commission — would decide on the basis of treaty criteria whether the event remained unidentified and, therefore, suspicious. Signals from a certain number of stations and of a certain type would have to be received to locate the event in accordance with the treaty. Certain other determinations would have to be made with respect to the event to see whether it would be discarded or certified; for example, its depth of focus would have to be determined to see whether it was below 60 kilometres. After that, each of a large number of certified events would be no more suspicious than the next. The commission, if called upon to make a decision to inspect, would have no more basis for making it than any other nuclear Power on the other side. Therefore it seems to us logical and more efficient to take from the commission's shoulders this very difficult decision and to invest it on the other side, which of course would have great interest in ensuring the most effective control possible.

Since that is not a scientific decision, and since it is one which involves the commission, while making it, in the consideration of certain very important political problems and questions, the idea in the United States-United Kingdom draft is not to cast doubt upon the ability of any scientist who might be a representative on the commission but merely to avoid the political problems before they arise. Allowing the other side to settle the question means that the commission would not be immersed in what could be an essentially political debate on the inspection of any one particular event.

In sum, my delegation believes that the proposal we have made together with the United Kingdom in our draft treaty for a comprehensive test ban represents the most effective use of a very small quota of on-site inspections in a manner which avoids

making the decision to use any of the quota of inspections a difficult and controversial political question.

If the Soviet Union is not interested in having a small quota of on-site inspections on its territory but would prefer to have the commission inspect all unidentified events, I hope it will say so, and then we could proceed, I believe, to very fruitful negotiations on this point. In the drafting of our treaty we were doing our level best to negotiate on what we thought was a very realistic basis, in order to meet the idea which the Soviet Union has expressed to us again and again that it did not want a large number of inspections on its territory. If for any reason our Soviet colleagues have changed their minds on that point I should be only too happy to hear it.

ENDC/PV.80 UK/Godber

5.9.62

pp.15, 18

....He seems to argue this on the grounds that they involve the possibility of a measure of international supervision over the control posts integrated into the system, from which the international scientific commission would derive its information. All I can say here is that if Mr. Kuznetsov or any other Soviet representative can describe to us how existing national detection posts — for instance, posts run, as many of them are, by universities and such, all of which have their own specific methods and objectives at the moment — could operate as the basis of, to quote the memorandum, "a system for continuous observation and effective control" (ENDC/28), then I should be glad if he would explain that to us. I should be glad if he would tell us how such a system could be — and again I quote the memorandum — "established by agreement", unless some form of international supervision were envisaged. I should be glad if he would tell us how new posts could be established by agreement unless they were new posts established according to international criteria of some kind. In that connexion, the suggestion put forward by our Swedish colleague, Mrs. Myrdal, when she was here, about drawing up a list of the present capabilities would have been very valuable to us at the present time. However, as that suggestion was not acted upon, in spite of the fact that some of us endorsed it, we have to take the position as it is.

All we have done in drafting article VII of our draft comprehensive treaty is to take the ideas contained in the eight-Power memorandum, to think them through and then to put our conclusions on paper in treaty language. If any member of this Committee has objections to the proposals contained in this or related articles, we are perfectly prepared once more to discuss these objections. As I have said so many times, we want to negotiate. So this is a second major area of the treaty where we are only too ready in fact to negotiate.

There is another point about the detection system we are proposing in our new draft treaty which apparently Mr. Kuznetsov wants to brush aside but which is surely of the first importance when we come to consider — or, as I hope, when he comes to consider with us — whether there could really be any danger of espionage under our proposals. Under our 1961 proposals (ENDC/9) two out of three persons operating detection posts in the Soviet Union would have been foreigners. Under our new proposals, to meet Soviet wishes, we are not proposing, unless the Soviet Government agrees, the presence of one single foreign national on Soviet territory as an operating member of a detection station. That indeed is very different from our proposals of April 1961.

Those were his words to us on Monday — "a widespread network". At that time, that is in 1961, the Western Proposals involved the presence of or visits by a maximum — not of each but of the two together — of 500 foreign nationals in the Soviet Union during any one year. We were asking, in fact, for 19 international control posts and 20

on-site inspections. That constituted what Mr. Kuznetsov described as a widespread spy network. But to be fair about this I must point out that at that same time the Soviet Union was prepared to accept 15 control posts and 3 on-site inspections a year on Soviet territory, which on the basis we were then discussing would have involved about 310 foreign nationals being on Soviet territory. The difference between the 310 that the Soviet Union was willing to contemplate with equanimity at that time and the 500 proposed by the West at that time really does not seem to me to be very sensational. So if Mr. Kuznetsov described the Western proposals of that time as a widespread spy network he would, I presume, describe the Soviet proposals of that time as giving the West a moderate spy network in the Soviet Union. I do not know why the Soviet Union was happy with that then, but that is the inexorable result if his argument is taken to its logical conclusion.

What are we now proposing? We are proposing visits by certainly less than 100 foreign nationals to Soviet territory in any one year — that is to say, we are proposing less than one-fifth of what we were proposing in 1961, and less than one-third of what the Soviet Union itself claimed it was ready to accept. I just do not understand how Mr. Kuznetsov can say that it is not a major move by the West. Nor do I understand how he can say that any real risk of espionage is involved at the present time when his Government put forward with apparent sincerity proposals accepting three times as many foreign nationals on its territory only a little over a year ago, and I think we are entitled to further thought by our Soviet colleague in that connexion.

ENDC/PV.80 USA/Dean

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In his very interesting statement on Monday the representative of Burma asked a specific question (ENDC/PV.78, pp.8-9) with respect to the conduct of on-site inspection as provided for in the United Kingdom-United States draft treaty (ENDC/58). The question he asked centered around paragraph 6 of article VIII of that treaty and was directed to the means by which events might be chosen under a quota arrangement for on-site inspection. The representative of the United Kingdom had dealt with that question in part at our meeting on 27 August as may be seen from pages 21-22 and 24 of the verbatim record (ENDC/PV.75).

First, however, I should like to point out that it seems to my delegation that in any treaty arrangements which provide for obligatory on-site inspections one could have at least two possible arrangements. One could inspect either all of the unidentified events which occurred and which could not be discarded for one reason or the other, or one could inspect some number less than all of them. Under the United Kingdom-United States draft (ENDC/56) inspection of all events would mean looking within a country's territory at all events certified as unidentified by the international commission. This would mean inspection of all events which had been located and not discarded as ineligible for inspection because they met certain criteria which would allow them to be classified as earthquakes. Now, the on-site inspection of all certified events would mean the inspection of an admittedly very large number of such events on the territory of the Soviet Union every year.

On the other hand, if we try to meet the concern of our Soviet colleagues about intelligence or espionage, as we have done our best to do in the draft treaty that we have submitted, if there is a small quota of events to be inspected every year, then it means that only a certain number of the total of unidentified events will be selected every year for inspection. The Soviet Union, as I have said, has always indicated that it desires to have only a small number of inspections conducted on its territory each year and, in view of the Soviet objection to numerous on-site inspections, the United Kingdom

and the United States have proposed in their draft treaty that only a certain number of those unidentified events be looked at in each year, under some quota arrangement. The eight-nation memorandum, however, implies that inspection would be conducted of every unidentified event. Let me repeat — inspection of every unidentified event.

Taking into consideration our Soviet colleagues' desire — namely, that they did not want all unidentified events on their territory inspected — the United States and the United Kingdom proposed only a small number of on-site inspections, a proposal which involves a certain quota of events to be inspected on the territory of the nuclear Powers each year. That was done, as I have pointed out, so as to reduce the number of on-site inspections while, at the same time, providing — to our way of thinking — a maximum degree of deterrence. But let me make it clear that the United Kingdom and the United States have always been willing to accept automatic inspection by the commission of all unidentified events if the other side will show itself willing to accept the obligation to facilitate such inspection.

We are quite willing, under such circumstances, to accept the blank cheque of an unlimited number of inspections by the commission on the territory of the Soviet Union necessary for the identification of each and every unidentified event. But in such circumstances we would like to have the arrangement such that the cheque would not "bounce".

As regards the choice of which event might be selected for inspection under a quota system, my delegation has always believed that the selection of certain events to be inspected under a quota system should in all fairness — since we are not going to have the right to inspect all unidentified events — be left to the other nuclear side. The other side in each case will, of course, be the party or parties primarily concerned, although we recognize that every party to the treaty will, to some extent, be concerned if the control system does not operate in the most effective and efficient manner, as the representative of Mexico so clearly pointed out.

The second good reason for leaving that decision in the hands of the other nuclear side under a quota arrangement appears to my delegation to be the necessity to take speedy action and to avoid placing upon the commission the burden of taking the final political decision to conduct an inspection. The commission would, of course, carry out the inspection as provided in the United States-United Kingdom treaty. That is another point on which we are quite open-minded.

The first area in which the United States and the United Kingdom have moved is on the question of detection stations, and on that I think I can rely on what my United Kingdom colleague said at yesterday's meeting of the Sub-Committee.

Another area in which substantial changes have occurred is that concerned with the question of on-site inspections. There our position has changed in two cardinal respects. First, we have agreed to discuss the reduction of the quota of on-site inspections in the Soviet Union provided that the Soviet Union agrees to accept the obligation to facilitate on-site inspections by the commission. Secondly, we have agreed to place the formation of the inspection teams in the hands of an executive officer under the supervision of the commission, the only stipulation being that nationals of States being inspected should not be involved in inspecting their own territory. This last change is particularly important. In the first place, there is now no absolute requirement that in the teams inspecting the territory of one of the nuclear Powers a fixed percentage of the team is to be made up of nationals of the other nuclear side. We would hope that the executive officer, in selecting such teams, would include such nationals if qualified for the job. But I would point out that there is no such requirement placed on the executive officer when he forms the team, nor would we have any means of influencing him, nor any desire to do so.

In the second place, the allies of nuclear Powers on the territories of which inspection teams may be conducting an on-site inspection are not prohibited from the inspection team. That represents, we believe, a very important step forward and one which, I am sure, all delegations realize involves a very careful weighing of the risks on the part of our two Governments.

I might say at this point that there should, under these circumstances, be no difficulty in working out the composition of an inspection team. I refer representatives to what I said in greater detail on that point at yesterday's meeting of the Sub-Committee. I said that it might facilitate the organizing of those inspection teams if the executive officer were to propose the names of eminent scientists who could be agreed upon in advance by the commission, and who could then be organized into panels of teams. I fully recognize that the most eminent of those scientists would probably not be able to drop important work at a moment's notice to go on an inspection expedition, but other scientists could probably arrange to find the time. Of course, it would be necessary to have the teams composed of scientists properly trained for on-site inspection tasks, but that again could probably be worked out. The main point is that those approved panels would then form the basic group from which any individual team could be formed by the executive of the commission. Those eminent scientists could also advise the commission on steps which it could take to reduce the possibility of espionage or intelligence work.

In sum, therefore, our corollary position to the unconditional obligation to give up nuclear weapon tests under a sound and workable treaty, which I think we all agree should be firm and unconditional, is that there must also be an unconditional obligation to facilitate the objective of on-site inspections, by the commission, of certain unidentified events. Therefore, in that respect our position does remain unchanged, but we think that that is logical and reasonable. We have come a very long way indeed on both the quota of inspections and the formation of inspection teams. Those are not small moves; they are major changes on issues of substance.

If I may go back a little on the question of the formation of the panel which I suggested yesterday in the meeting of the Sub-Committee, the primary object I had in mind in suggesting such a procedure was to assure the Soviet representative that we want on-site inspections by the commission to be conducted in as objective a manner as possible. Certainly the Soviet representative has told us that on-site inspection is merely a vehicle for gathering intelligence or espionage. We recognize that the Soviet Union has said that it might be willing to admit some on-site inspections which it would invite to its territory. But, for the life of me, I cannot see the difference -- as far as espionage is concerned -- between an inspection team coming in as a matter of right and an inspection team coming in as a matter of invitation. I have explained why the invitational procedure provides no deterrence, in our judgement, to a State which might wish to conduct secret tests.

Nevertheless, in an effort to reach agreement, the fact that the Soviet Union might invite some inspections has led me to conclude that the Soviet fear of espionage or intelligence gathering might be somewhat reduced if it were to invite the inspections, as perhaps it might have some say with regard to the places which might or might not be visited in such cases. So that my hope in proposing a panel of eminent scientists to advise the commission is to assure the Soviet Union that inspections would be carried out in as impartial a manner as possible.

There could, of course, be no Soviet veto on any particular inspection. The obligation to facilitate inspection as a matter of obligation would have to be clear-cut. But it was my thought in proposing a panel of eminent scientists to advise the commission that it might mitigate any fears of the Soviet Union about the lack of objectivity in on-site inspections. We thought that if we could set up those criteria for such inspections and if we could get those scientists to advise the commission, then perhaps we could go a

long way towards overcoming Soviet objections.

Make no mistake about it, the inspection teams of the commission will be able to look at all events certified as unidentified; but the scientists might consult with the party being inspected and with the commission in an effort to ensure that each inspection was being carried out in a manner best calculated to reduce the risks to the national security of any party.

ENDC/PV.81

USSR/Kuznetsov

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It goes without saying that the inspectors of the international disarmament organization will be fully entitled to carry out on-site verification to ensure that plants engaged in military production have been dismantled or converted to peaceful production, in accordance with the declarations submitted to the international disarmament organization by all Parties to the treaty at the beginning of the first stage. States will also submit to the international disarmament organization statements on the nature of production at plants converted to production for peaceful purposes, and the international disarmament organization will have to verify these statements on an agreed basis, to ensure that there is no resumption of military production. Those are our preliminary answers to Mr. Lall's questions.

Although the Soviet Union considers, as in the past, that there exist all the necessary conditions for the cessation of nuclear weapon tests in all environments with the use of national detection systems for the purposes of control, however, in order to move forward from the standstill, we are prepared to conclude an agreement which would provide for the prohibition of nuclear weapon tests in the atmosphere, in outer space and under water. At the same time we must realize that the peoples of the world are expecting the cessation of all tests of any kind and will fail to understand us if underground tests continue.

ENDC/PV.81

UAR/Fattah Hassan

5.9.62

p.46

And when my delegation speaks of laying down mechanical arrangements for inspection in concrete cases we have mainly in mind the possibilities of securing reliance on the impartial law of probability, or on a sort of an impartial "numbers game" which can be based on the system of reporting by the national observation posts and the evaluation thereof by the international commission according to agreed proceedings. That commission, on whose reliability, objectivity and impartiality the mechanics of inspection could be more easily negotiated, is empowered by the memorandum — on the basis of its wealth of information and according to agreed mechanical proceedings — with the right of determining what events could be termed as suspicious and significant and, therefore, as qualifying for the request by the commission for on-site inspection. This is the main thought around which the whole of the joint memorandum revolved, and on the basis of which was envisaged its "system for continuous observation and effective control on a purely scientific and non-political basis" (ENDC/28) — and I emphasize the word "non-political". As international relations stand nowadays, reliance could be more readily secured on the unimpeachable integrity, impartiality and objectiveness of an international commission, "consisting of a limited number of highly qualified scientists, possibly from non-aligned countries", (*ibid.*) as Mr. Barrington pointed out in his remarks on 3 September.

For those weighty considerations my delegation would consider that the system

envisaged by the memorandum would be impaired if the powers to request on-site inspection were removed from the international commission. My delegation therefore associates itself with Mr. Barrington's appeal both to the co-sponsors of the draft treaty (ENDC/58) and to the Soviet Union in this regard. A compromise formula can surely be found, representing a concession from both parties. It does not have to be identical in meaning or scope with either side's position of principle. Maybe our co-Chairmen can find in practical mechanical arrangements a common formula which they have not found so far in words and in narrow principles.

ENDC/PV.84 Sweden/Edberg

28.11.62

pp.14-15

A fourth element of significance is the technical development in the field of seismology which may have opened up certain new vistas.

Before adjourning at the beginning of September we were informed that Projects Vela and Orpheus had indicated that considerable progress had been made as regards long range detection. It seemed to imply that, however large a country may be, it is possible to detect, from outside its borders, nuclear explosions and earthquakes of a corresponding size by means of advance instrumentation. Certainly, detection is not equal to identification. But it was apparently concluded that deception had been rendered more difficult through the possibility of registering every phenomenon in many countries.

The Soviet Union and United States scientists who participated in the Pugwash Conference in London at the beginning of September, although proceeding along other lines, arrived at a similar conclusion, which was embodied in a common statement that attracted a great deal of attention. Both the Eastern and Western scientists had made the proposal of the eight non-aligned States their point of departure. On the basis of this proposal they examined the possibility of developing a system

"in such a way as to provide a minimal interference with the host country, and still obtain a maximum amount of completely objective seismic information for the International Control Commission so that it will substantially reduce the number of necessary on-site inspections" (ENDC/66, p.1).

In the operative part of their resolution these scientists — three from the United States and three from the Soviet Union — proposed that automatic recording stations, so-called "black boxes", should be used. These should be sealed in such a way that they could not be tampered with, and they would be self-contained. The instruments should be periodically returned to the international commission for inspection, replacement, repair, and so on. There should be a sufficient number of stations to permit of seismic events being recorded on many instruments. The sealed automatic seismographs to be placed in the Soviet Union could be manufactured in the United States, and vice versa.

The United States and Soviet Union scientists at the Pugwash Conference concluded their common document with the following words:

"We think a system developed along these lines may provide a large enough mass of objective seismic data so that the International Control Commission will need to request very few on-site inspections. If this is true, it may provide a new basis for negotiations in the Geneva discussions and ease the problem of resolving the on-site inspection issue." (ibid., p.2)

Similar ideas have been brought forward from other quarters, inter alia, by two prominent seismologists at Harvard University who, departing from the eight-Power plan and the Pugwash Conference, have developed a system for utilizing the "black boxes".

Although such automatic stations are not capable of one hundred per cent identification, they may reduce the number of events which cannot be identified with a certain degree of accuracy. These "black boxes" do not per se solve all problems. However, they may be a rather useful complementary device. For under water stations in the deep sea they seem to be the only possibility.

The question of inspection that up to now has been our stumbling block has not been removed from our agenda by the achievements made so far in the field of seismology.

ENDC/PV.84

Sweden/Edberg

28.11.62

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Such a panel would be of value by providing the Conference, and in the first place its nuclear Sub-Committee, with technical and scientific information and certain investigations. In view of what I have already said, it is, however, our opinion that its tasks should by no means be limited to such preparatory studies.

The panel should, under the auspices of the Conference and in co-operation with the Sub-Committee, be able to start building up the whole international machinery. It should be of essential importance in the technical elaboration of the detection system and the data exchange. It should be able to provide practical, valuable experience for the construction and detailed functioning of a more permanent commission. Here as in so many other fields of life there is certainly truth in the words of Mirabeau that a journey seems different to a man who makes it in reality from what it seems to one who undertakes his travels on a map.

In order that the panel should be able to act as an interim commission, it should be explicitly entrusted with certain basic functions which the eight-Power memorandum has envisaged for the permanent commission and on which there is agreement between both sides. Above all this is the case with the scientific and non-political evaluation of data from already existing — and to a great extent also co-operating — national observation posts.

In practice the functioning of such a system would mean that the measuring and detection of relevant geophysical phenomena would be carried out, just as now, by different national observation posts and that the data recorded, more or less processed, would be distributed to all interested research institutes throughout the world. Until the site for a permanent commission had been agreed upon, one of the existing research institutes — in this connexion I may refer to the data centres, for instance, in Kew and in Strasbourg — could serve an interim commission and be responsible for the necessary processing and interpretation of the material received.

It would be for the commission to judge the material from a test ban point of view and to consider the character of relevant data and the need for further information. Such a system would mean that only the small group of persons of which the interim commission would consist, together with a computation group, would be concerned with the test ban question itself. All the other personnel within the observation network and the research institutes would work for other purposes and would not have to think at all of the test ban as such.

To be able to fulfil its functions the interim commission must be furnished with modern electronic equipment for processing data and be able to rely upon speedy communications. The organization of the meteorological data exchange could serve as a model. In fact this is the first point where there would be any substantial costs for the provisional organization. Whether these should be carried by the parties concerned or through internationally available means might be a question for negotiation. In any case the expenses would be small compared to the costs of the nuclear tests.

It would certainly be of interest if the interim commission, for its comparative

studies, could be supplied with the geophysical records of the past two years, when a number of man-made underground explosions were carried out and recorded.

It should once more be emphasized that what I have tried to outline here refers only to an interim organization designed to fill a vacuum in connexion with a provisional and time-limited ban on underground tests. But at the same time it is evident that whatever road we choose, if we start our journey tomorrow or much later, we must start from certain provisional and temporary conditions.

Even if we could sign a final text tomorrow, that would not mean that we received the organization ready-made.Even under the Western proposal for a comprehensive agreement (ENDC/58) there would be a certain provisional stage before the system had been built up. According to the experts' proposal of 1958 (EXP/NUC/28) a building-up period of several years was envisaged. The Western draft of 27 August this year implies that the control machinery could not start functioning until at best six to twelve months after the entry into force of an agreement.

Under such circumstances it is difficult to see that any well-founded objections could be made against a time-limited moratorium during which a scientific panel acting as an interim commission would start building up the central control machinery. The advantages of such an arrangement seem obvious. Valuable experience could be gained while the elaboration of the agreement went on; a considerable amount of preparatory work would have been carried out once the agreement came into force; and no more time would be wasted. It would, at the same time, greatly reduce the risk which the Western nuclear Powers believe to be inherent in a so-called uncontrolled moratorium, because there would be the amount of control that it is possible to achieve step by step in the course of a building-up period.

I have not spoken about verification in loco under a provisional test ban. It is natural that if the great Powers undertake to refrain during a certain time from all underground tests without having built up a control system legally inscribed in an agreement such verifications can only take place in casu. The Swedish Foreign Minister, Mr. Torsten Nilsson, touched upon this in his statement in the First Committee of the United Nations General Assembly on 19 October last. After having recalled that there are different possibilities for bridging the remaining controversies in the control question, and after having pointed to the possibilities of a time limited moratorium while waiting for, inter alia, the further development of seismological instrumentation, he stated:

"It would also be possible to provide guarantees against the misuse of the obligation to subject oneself to a certain degree of inspection in such a way that a group of eminent scientists from politically independent countries could be entrusted with the task of deciding, on a purely scientific and technical basis, if an inspection was necessary in order to establish the nature of earth tremor". (A/C. 1/PV.1252, p.22)

It is clear that if possibilities were opened for a scientific panel to make observations on the spot by a team specially assigned for that task, in case of doubt as to the origin of a recorded seismic event, this would be of great value from many points of view. It seems to me that the interpretation of the often-quoted statement of Mr. Kuznetsov in this Conference on 17 August last (ENDC/PV.71) could well be that the Soviet side does not object to the opening up of such a possibility.

The establishment of a provisional commission of the kind I have tried to outline would mean the implementation of the recommendation of the General Assembly to the nuclear Powers about an interim agreement suspending all underground tests. It would comply with the demand that such an interim arrangement should include adequate assurances for effective detection and identification of seismic events by an international scientific commission. Consequently, it would also make it possible for the nuclear Powers — in accordance with the request of the General Assembly — to enter into an

immediate agreement prohibiting nuclear weapon tests in the atmosphere, in outer space and under water.

Finally, it should perhaps be emphasized that a provisional arrangement under a temporary ban on underground tests, as asked for in paragraph 6 of the thirty-seven Power resolution, would in no way prejudice the final shape of a test ban agreement.

A scientific panel acting as an interim commission could give valuable practical experience but would not forestall the final organization, the elaboration of which would remain the task of the Conference and in the first place of the nuclear Powers.

I have here — just as earlier when we have discussed a permanent agreement — been anxious to emphasize strongly the purely scientific and non-political character of an international monitoring machinery. For the Swedish delegation this is essential. Scientists have shown a remarkable ability to co-operate across all national and ideological frontiers and to find out the scientifically objective truth even in cases where the basic material has been incomplete or pre-arranged. We must count upon science working and analysing objectively as our foremost ally.

A scientific panel with the tasks I have outlined here could be very useful and valuable during the difficult interim stage when an international machinery is to be set up. As to planning in the longer run, we should be able to take advantage of the developments now taking place in the seismological field. In international seismological circles a proposal has recently been put forward that a world centre should be established at which data should be collected from fifteen regional centres together covering the whole globe. This proposal is very much in line with an Economic and Social Council resolution (912 (XXXIV)) which was considered by the General Assembly this autumn, aiming at more effective international co-operation in the field of seismological research. Its main purpose is to create a readiness against damages caused by earthquakes, and tsunamis — seismic sea waves.

But such an organization is also of extreme interest in connexion with possible man-made explosions. To us who, just like the other non-aligned delegations at this Conference, have maintained that instead of building up an expensive separate monitoring system one should basically rely on the normal exchange of data motivated by scientific fervour and free from political side-glances, such a proposal seems almost like the answer to a prayer.

The extension of international scientific co-operation in this field should be stimulated and accelerated. It will nevertheless be a somewhat time-consuming process. This also speaks in favour of a provisional arrangement.

ENDC/PV.85

Canada/Burns

28.11.62

pp.16-18

....Mr. Edberg made some further practical and useful suggestions on how the commission should be constituted and what its functions ought to be. The Canadian delegation feels that the essential point in setting up such a commission is that it should be so constituted that neutral scientists would have a decisive voice in determining whether or not an event recorded by seismic stations was of a character to require further investigation, including possibly on-site inspection. There are other points which require elaboration in connexion with the setting up of such a commission in order that it would be able to function effectively and speedily, but, as I have said, all these questions have been extensively considered by the nuclear Powers in the course of their past negotiations and should be readily solved if approached in the spirit called for by resolution 1762 A.

The representative of Sweden remarked:

"The question of inspection that up to now has been our stumbling block

has not been removed from our agenda by the achievements made so far in the field of assembly." (ENDC/PV.84, pp.15-16)

I wonder whether he meant that we can expect that it will be removed by inevitable scientific progress. On the other hand, we have heard a number of statements from the Socialist countries that the problem is really a political one and that the intervention of scientists in its solution would be unnecessary. Looked at rightly, the problem of whether on-site inspections are necessary in order to give assurance that no underground tests contrary to treaty obligations are being carried out requires both scientific advice and political decision. The question the scientists should answer is this: what is the probability of "x" underground nuclear explosions of "y" kilotons yield carried out over a period of "z" months not being detected and identified by the use of only external instrumentation? By "external instrumentation" I mean instruments and means of detection deployed outside the national territory of the country concerned. Now, if the answer is that the probability of those explosions not being detected and identified is negligible, governments can take a political decision to disregard this limited risk of evasion of the treaty. However, if the probability that they will not be detected is considerable, then other means of assurance must be provided: that is, on-site inspection. At this point another political decision enters. If a few on-site inspections are necessary to assure all parties that obligations not to test underground are being adhered to, is there a serious risk that the inspecting parties might acquire military information, in spite of the precautions against this which have been frequently explained and were explained again at the last meeting of the Sub-Committee by the representative of the United States? If so, does this risk that some military information might be acquired justify refusing all on-site inspections - that is, refusing a measure which can lead to agreement to sign a treaty to stop all nuclear testing everywhere and for ever?

Paragraph 6 of resolution 1762 A calls for an interim arrangement, and this implies that arrangements suspending underground nuclear tests should be of limited duration - perhaps a year, perhaps six months or perhaps longer. The Canadian delegation feels that, failing total agreement on a comprehensive treaty, such an interim arrangement could be and should be made between the nuclear Powers. We believe that it could be made in very short order if the Soviet Union were prepared to agree to procedures which would provide satisfactory assurance of effective detection and identification of seismic events.

The Canadian delegation also notes that the representative of the United States has made it clear that his delegation - and this applies also to the United Kingdom delegation - is willing to consider any scientific demonstration or evidence that all significant underground tests can be detected and identified with the use of only existing national systems. The international scientific commission, if set up, would be able also to evaluate such evidence and any demonstrations of how detection and identification would work. We were much interested in the statement by the representative of Sweden about how seismological information is now being centralized, which in his view should make it feasible to set up a system through which the proposed interim international scientific commission could work to determine whether any events which might be nuclear explosions had taken place.

The scientific information available to our delegation is that there are now between 125 and 140 stations in various parts of the world using instruments which incorporate improvements devised during the last five years - improvements originating largely as a result of United States research in this field. We further understand that the results from these and other stations are centrally and quickly processed by the United States Coast and Geodetic Survey. Of course, the United States Coast and Geodetic Survey is a national organization although it is working with records supplied by many other

nations. However, the section of the International Union of Geodesy and Geophysics, which is interested in seismology, is promoting the setting up of a truly international centre for central processing of earthquake records. The site of this centre has not yet been selected. We are also advised that a facility of this kind could be set up very quickly, perhaps in two months, in a country which possesses the right kind of computers, has good international communications and has competent seismologists.

ENDC/PV.85

India/Lall

28.11.62

pp.23-25

....At our last meeting Mr. Edberg, speaking on behalf of Sweden, made a very important contribution which has been referred to by many delegations. We would recommend that study be given to the suggestion made by Mr. Edberg as a possible basis for making progress in this matter and in assisting towards an agreed solution.

We would ourselves like to offer certain observations in regard to this matter. These observations of ours should not be regarded as suggestions or proposals but as thoughts which we offer in the hope that they might be useful, because we feel that at this juncture it is necessary for all relevant thoughts to be given expression so that a solution may be found to this matter within the deadline, and so that we may be able to tell the General Assembly that after 1 January 1963 there will be no testing because we have found a basis for stopping all tests. The observations which we will make might be looked at separately or in combination, and we hope they will serve a useful purpose.

First, I should like to draw attention in this connexion to certain views or hypotheses which have been put forward at this table. There is, for example, talk - both for and against - of a quota of inspections. Secondly, there is insistence on invitations as a basis for inspections; and, equally, there is strong unwillingness to accept such a process of invitations as a basis for inspections. In this connexion, though, I would remark that it is a well-known fact that, whatever the modalities used, inspection could indeed take place only with the consent and active co-operation of the country to be inspected. That is, of course, common ground. Thirdly, there is on the one hand insistence on obligatory - compulsory - inspection, and on the other hand reference to inspection without a pre-committed obligation. But there is reference to inspection even on that side of the house.

We have been thinking over the various approaches made by different delegations to this issue and we wonder whether it might not actually be found that there is a meeting point in these various approaches: assuming, of course, that all the positions stated are directed to the same purpose, namely, to securing adequate assurance for both the detection and the identification of events by the international commission which has been agreed upon. I believe that, again, is common ground - that there should be processes by which such identification could be made. In any case I should like to point out that this is an essential basis which has been stated in paragraph 6 of resolution 1762 A (XVII) of the General Assembly. It would follow from this common element in the various approaches that it is the will of all countries concerned, and of all parties directly concerned, to facilitate inspection in some way - to issue invitations for inspection. And all of them could anticipate that they would in fact issue if not a certain number of invitations then a number of invitations within a certain range each year: of course, only if asked to do so by the international commission. They would not issue invitations in the abstract, but if the processes which are contained in the eight-nation memorandum led to a situation in which an invitation seemed necessary then we believe it to be the case that on all sides of this house it would be agreed that invitations, in certain cases at least, to put it at its minimum, would be issued.

Could not all the States concerned agree to a certain quota of invitations per

annum? Of course that quota could only be fixed in the first instance for the first year, because instruments might improve and other factors might arise which would justify a revision of the stated quota of invitations. Could it not then be agreed that the occasions and the places for which invitations would be issued would be determined after consultation between the country concerned and the international commission and agreement on those matters between the two - that is to say, the country concerned and the international commission? They would determine the occasions and the places for which invitations would be issued for on-site inspections. Thus, in these terms, the country concerned would be bound to give its agreement to invitations within the preferred and agreed quota, and the commission, for its part, could undertake an inspection only when the country's agreement was forthcoming. In fact the agreement of both the commission and the country is, I would suggest, axiomatic whatever form is chosen for the modalities of verification. That must be borne in mind. The nexus of agreement between the country concerned and the commission is an essential one, no matter what system is adopted. We would ask whether these possibilities could not be considered within the terms of the eight-nation memorandum.

Secondly - and I come to another suggestion which we think could be fitted into the eight-nation memorandum - there is the issue of equity and responsibility which arises in the matter of breaches of the arrangements to stop underground testing, whether those arrangements are provisional or final. It will be recalled that the eight-Nation memorandum speaks of an obligation on all parties "to furnish the commission with the facts necessary to establish the nature of any suspicious and significant event" (ENDC/28, page 2). Furthermore, the memorandum refers to the freedom of all parties to determine their action on the basis of the reports of the commission.

Could it not be agreed that the general intention of the memorandum here is not to encourage any breach whatsoever of the provisional agreement or the final treaty on the cessation of tests, and that it follows that any country or countries guilty of breaches would by such breaches free the others from being tied any longer to the agreement? The fact of a breach, that is to say, of non-co-operation in supplying the commission with the evidence and in making available facilities of all kinds, would be a breach of the agreement and would result in the agreement's ceasing, because, after all, the eight-nation memorandum puts an obligation upon all countries to supply all that is required in order to establish the nature of an event. Therefore under the normal rules governing equity and responsibility a country which was in breach in this respect would in fact have broken the agreement, which would no longer subsist.

Taking into account the above two main observations, with their ramifications, could not the eight-nation memorandum be put into operation for an agreed and limited period? The period should not be so short that it would not give opportunity for the issue of invitation for inspection in sufficient number, and it should not be so long as to leave the whole matter in mid-air, as it were, without coming to a final settlement. And, of course, I would like to point out that the agreed and limited period could itself become shorter than the agreed period if any country, by breaches of the kind to which I have referred, were to put an end to the agreement by its actions.

ENDC/PV.85

Mexico/Padilla Nervo

28.11.62

pp.35-37

....I should like, however, to ask whether the Powers are prepared to enter into a provisional or interim arrangement suspending all underground tests as a supplement to an agreement to prohibit testing in the three environments in which international inspection is not necessary. What are the views of the Powers concerned on the adequate assurances which such a provisional agreement should contain regarding the effective

detection and identification of seismic events by an international scientific commission?

The General Assembly, in recommending such an interim arrangement made it clear that it wished this Committee to explore the possibility of reconciling at least provisionally, at least temporarily, the differences that have so far prevented a final agreement on underground tests, for which compulsory inspection is deemed essential by one party and rejected by the other. Obviously, if the nuclear Powers were able to reconcile their differences on the key question of inspection, a final and not merely an interim agreement would become possible.

It was thus the Assembly's wish that we should explore here the possibility of reaching an interim arrangement on underground testing, an agreement which would facilitate the immediate prohibition of nuclear weapon tests in the atmosphere, in outer space and under water. I therefore believe that we should examine this aspect with the greatest care, and the Swedish representative's suggestion seems to me a very valuable contribution to that end.

To my mind, an interim agreement should (a) make possible the immediate prohibition of all tests in the atmosphere, in outer space and under water, and (b) enable the nuclear Powers to satisfy themselves that none of them is carrying out secret underground explosions in violation of an undertaking to suspend them.

On-site inspection is not an end in itself but a means of dispelling doubts and suspicions of a violation whenever a seismic event is recorded which cannot be identified at a distance. Inspection cannot guarantee compliance - and I stress the word "compliance" - with undertakings. It can, however, dispel any suspicion that an unidentified seismic event may be the result of a secret underground explosion, a breach of undertakings committed behind the back of one of the parties. Compulsory inspection operates as a radar device, and at the same time constitutes a deterrent against possible fraudulent violations.

If both parties accepted compulsory inspection, there would be no need to consider the conclusion of the interim agreement referred to in operative paragraph 6 of General Assembly resolution 1762A (XVII), which recommends that:

"... if, against all hope, the parties concerned do not reach agreement on the cessation of all tests by 1 January 1963, they should enter into an immediate agreement prohibiting nuclear weapon tests in the atmosphere, in outer space and under water, accompanied by an interim arrangement suspending all underground tests". (ENDC/63, p.3)

What, in the opinion of the nuclear Powers, should be the main features of such an interim agreement which must "include adequate assurances for the effective detection and identification of seismic events by an international scientific commission"?

A provisional or experimental arrangement to pave the way for the final prohibition of all underground tests could, in my view, include the following elements:

- (a) The setting up of an international scientific group with the functions suggested by the representative of Sweden in his constructive statement last Wednesday, and with the powers assigned to the scientific commission in the memorandum submitted by the eight nations on 16 April 1962.
- (b) A clause to the effect that, if the international scientific group wishes to make an on-site inspection in order to identify a suspicious seismic event, and the party concerned refuses to invite the group, the other party shall thereby be released ipso facto from its obligations under the interim agreement.

Another question that might be explored is the possibility of prohibiting those underground explosions powerful enough to be unmistakably identified at a distance, such as explosions of a power in excess of 20 kilotons, or above such limit as scientists may determine in agreement with the parties concerned.

I do not think it can be maintained that, even if one of the parties refuses to co-operate with the international scientific group in investigating a suspicious occurrence — a refusal which naturally constitutes a presumption of violation — the other party should remain unilaterally bound by its undertakings.

Where on-site inspection is the only means of identifying a suspicious seismic event, refusal by one of the parties to invite scientific groups would have the same effect and the same consequences as the violation of a provision for compulsory inspection. The consequence in both cases would be to release the injured party from its legal and political obligations, to terminate the agreement and to cause a resumption of nuclear weapon tests.

I do not believe that any party would take vis-à-vis world public opinion the very grave responsibility of such a refusal.

An interim arrangement to suspend underground tests, containing such clauses as those I have mentioned, could be tried out as an experiment while the parties concerned negotiate a final agreement; it would also facilitate, in accordance with the General Assembly's wishes, the conclusion of an immediate agreement prohibiting nuclear weapon tests in the atmosphere, in outer space and under water.

ENDC/PV.86

USA/Dean

3.12.62

pp.16-19

....The results of Project Vela were first published by the United States Department of Defense on 7 July 1962, and they are before the Conference as document ENDC/45. The comprehensive draft treaty also included many of the suggestions made by the eight members of the Committee in their joint memorandum of 16 April 1962 (ENDC/28). All phases of the United States-United Kingdom comprehensive treaty draft were drawn up with the suggestions of the eight nations in mind. The treaty itself, as will be observed from study of it, reflects the primacy of the three important elements of the eight-nation memorandum — an international scientific commission, a detection system of observation posts throughout the world, and a number of necessary obligatory on-site inspections by the Commission of otherwise unidentified events. Our two Governments still favour the comprehensive test ban treaty; that is the treaty we would prefer to work out and to sign.

The partial test ban treaty was evolved by our two Governments as a result of statements made in this Committee by a number of delegations, including those of the eight nations, asking for a partial ban. This partial draft treaty provides for the cessation of all tests in the atmosphere, in outer space and under the oceans without the need for additional controls. The United States and the United Kingdom were ready on 27 August — as indeed we were when we submitted our earlier treaty (ENDC/9) in April 1961, and as we are ready now — to cease all tests in these three environments for ever. Admittedly, this partial treaty is not a complete solution of the problem of ending all nuclear tests, but at the same time it would secure the end of all tests which cause radioactive fallout, and would go far towards halting the proliferation of nuclear weapons to States which have not developed them so far. Indeed, it would be a good beginning toward a cessation of all tests.

The principal features of the three proposals made by my Government on 14 August 1962 (ENDC/PV.69, pp.9 et seq.) were incorporated in the comprehensive draft treaty (ENDC/58). These proposals were:

1. A willingness on the part of our two Governments to consider a reduction in the number of on-site inspections by the commission from the previous yearly quota of twelve to twenty such inspections proposed by the United States and the United Kingdom;

2. A willingness to consider a network of manned detection stations equipped with various types of modern instrumentation which:
 - (a) would involve a number of stations world-wide substantially smaller than the number previously proposed, including a smaller number on the territory of the Soviet Union, and
 - (b) would involve nationally-manned and operated, internationally co-ordinated and supervised observation posts instead of a network of internationally-manned and operated stations;
3. Acceptance of the obligatory nature of on-site inspections of otherwise unidentified events by the commission.

These basic proposals were incorporated into a draft treaty whose salient characteristic was an overall simplification of previous United States and United Kingdom draft treaties, including the draft treaty of 18 April 1961. Under the new comprehensive draft treaty proposal (ENDC/58), parties would undertake two primary obligations. First, they would agree to prohibit and prevent the carrying out of nuclear tests at any place under their jurisdiction or control. Secondly, they would agree to refrain from causing, encouraging, or in any way participating in the carrying out of such tests anywhere at any time. Parties would also undertake to co-operate with a commission in the carrying out of all measures of control and in establishing elements of the system. These obligations are made clear in articles I and II of document ENDC/58.

An international scientific commission, whose members, however, would not necessarily have to be scientists and whose functions are set forth in article III of document ENDC/58, would have general responsibility for the collection of data and for the reporting of all events which could be suspected of being nuclear weapon test explosions. In addition, it would be responsible for making positive identification of the nature of the origin of unidentified seismic events as necessary.

Under article IV of the treaty the international scientific commission would consist of fifteen members — four from the Soviet bloc, four from the West, and seven from among parties nominated jointly by the United Kingdom, the United States and the Soviet Union. These last three States would be permanent members of the commission. All States serving on the commission would be free to appoint their own representatives to the Commission who, in keeping with its scientific character, could of course be highly qualified scientific experts. The commission itself would be assisted by a small, highly qualified scientific staff.

The second element of control — the system of observation posts or detection stations — is set forth in article VII of document ENDC/58 and would be based upon existing national stations together with the addition of a number of high quality, newly constructed national stations. The quality of the instrumentation of these stations and their location are necessarily related to their number. They would be operated, as desired by the host government, by local nationals under international supervision. Internationally-manned and operated stations might be set up, if the commission deemed such stations desirable in agreement with the individual government concerned. Such stations might be useful if a particular State felt its own personnel to be inadequate to handle the scientific problems involved or if for any other reason the particular State desired international support for the stations on its territory. The new national stations would be established at sites agreed upon by the parties to the treaty and the commission. The commission itself would establish the specifications for and would pay for maintaining, building, equipping and training personnel for these new nationally-manned stations. In addition, use would be made, as necessary, of national stations already in existence. During the earliest period in the life of the treaty control system, but for a very brief and limited time only, complete reliance would be placed on existing systems until the necessary new stations were built. It is emphasized that this period would be short.

Obligatory on-site inspections by the commission -- the third basic element of the control system -- would be as provided for in article VIII of document ENDC/58. Inspections by the commission would be carried out on the basis of carefully laid down procedures as set forth in the treaty. Events which had been located geographically and which remained unidentified in accordance with the scientific criteria written into the treaty would be eligible for inspection by the commission.

From a purely scientific standpoint, there should be no limitation on the number of inspections. However, in order to reach agreement it is suggested that there should be a quota. Therefore, inspection would take place under a quota arrangement which would permit an agreed maximum number of such inspections each year. Of course, there might well be fewer unidentified events inspected than provided for under the quota, since the quota would represent only a maximum limit on the number of inspections. The area which could be inspected around the epicentre of the seismic event would also be limited, in accordance with the provisions of the treaty, to a few hundred square kilometres.

The staffing of the on-site inspection teams of the commission in an objective, impartial and scientific manner is also set forth in great detail in the draft treaty. Together with other provisions of the treaty, the staffing provisions would constitute a real safeguard against any possible charges of espionage and, as we have said many times, we are open-minded about these staffing provisions in so far as they would not interfere with the true scientific character of the commission and its on-site operations.

For maximum deterrence in advance to any State which might be led to violate the treaty, events to be inspected within the quota in the United States and the United Kingdom would be selected by the Soviet Union, while for events in the Soviet Union the opposite would be true. Although this means that not every unidentified event would be inspected by the commission, it is correct that any unidentified event would be eligible for inspection. Putting the choice of events to be inspected in the hands of the other side ensures that the party most hurt by violations, and therefore most interested in deterring violations of the treaty, has the opportunity to exercise its judgement in the case. If it were to be done on a truly scientific basis there ought to be no quota. These features of our system, we believe, ensure that there would be maximum deterrence in advance to violations.

The treaty also contains provisions -- in Article XIII of ENDC/58 -- for withdrawal from the treaty, in specific circumstances, if treaty obligations are not being fulfilled.

ENDC/PV.86

USSR/Tsarapkin

3.12.62

pp.30-31

To complete the picture of the new possibilities which have opened up before the Eighteen-Nation Committee since the resumption of its work, we should also like to recall that Soviet Union, United States and United Kingdom scientists three months ago put forward the idea of using for the purpose of control over underground nuclear explosions automatic seismic stations which do not require the presence of foreign inspectors. There is no doubt that this proposal makes it possible to eliminate the differences on the question of the organization of control over the cessation of nuclear weapon tests. The use of automatic seismic stations or, as some people prefer to call them, "black boxes", would still further extend the possibilities of observing and controlling nuclear tests. As is well known, the Soviet Union adopted a positive attitude to this idea, and we are prepared to accept these views of the scientists in regard to the use of automatic seismic stations for control purposes.

So, if we are to assess the present situation objectively, we can say with complete justification that we are starting negotiations in circumstances in which we have addi-

tional possibilities and favourable prospects have opened up before us. The task consists in taking the fullest possible advantage of these favourable circumstances and in reaching agreement without delay on a final ban on all nuclear weapon tests.

We are compelled to note, however, that the course of the discussions here on this question cannot but cause concern to those who sincerely wish to put an end to nuclear weapon tests immediately and for ever. In their resolution the States Members of the United Nations called on us to work in the spirit of constructive compromise. Nevertheless, in the statements of the representatives of the United States and the United Kingdom it is impossible to find even a trace or a grain of this spirit of constructive compromise. They demand rights of inspection, that is, they continue to stick to their old positions which in the past blocked any possibility of agreement.

If the Western Powers persist in their demands, then, of course, no agreement will be possible and the Committee will not fulfil the task assigned to it by the General Assembly of the United Nations.

ENDC/PV.86 UK/Godber

3.12.62

pp.46-47

The representative of the Soviet Union went on to discuss, amongst other things, the suggestion concerning the use of black boxes. He mentioned that that proposal originated at the Pugwash discussions this year. I understood him to say that it originated from Soviet Union, United States and United Kingdom scientists. In fact, it originated from Soviet Union and United States scientists.

However, the representative of the Soviet Union spoke of this suggestion and how it could lead to some solution. But he did not take the facts as set out by those six eminent scientists who produced the document. As I have a copy of the document here I should like to quote two very short excerpts from it. It reads:

"We have explored the possibility of developing this system in such a way as to provide a minimal interference with the host country and still obtain a maximum amount of completely objective seismic information for the international control commission, so that it will substantially reduce" — and I should like to emphasize the words "substantially reduce" — "the number of necessary on-site inspections." (ENDC/66, p.1)

It then goes on to give suggestions as to how the system could be built up. At the end of the document, which is quite a short one, it says:

"We think a system developed along these lines may provide a large enough mass of objective seismic data so that the international control commission will need to request very few" — and I stress the words "very few" — "on-site inspections." (ibid., p.2)

Those two quotations show quite clearly that it was not the intention of those scientists to suggest for one moment that adopting this proposal would obviate the need for on-site inspection.

The gentlemen who signed that document were: Academician Artsimovitch of the Soviet Union, Professor Riznichenko of the Soviet Union, Academician Tamm of the Soviet Union, Professor Inglis of the United States, Mr. Leghorn of the United States, and Professor Rich also of the United States.

Following on comments about that, one of those signatories, Professor Rich, sent a letter to the New York Times on 18 November. It is a fairly long letter and I will therefore read just one short extract from it. He said:

"In the original proposal it was suggested that the instruments would be installed by the host country and then periodically turned over to an international control commission for inspection and repair. If such a

system can be perfected and made 'tamper-proof', then it might decrease the number of necessary on-site inspections which the international control commission would request.

However, we did not suggest in our proposal that the use of these automatic stations would eliminate the necessity of on-site inspections, as has been implied by several recent newspaper articles." (*ibid.*, p.3)

In view of the seriousness of this matter, and the way in which this has been distorted, I would formally ask that both these documents be circulated as Conference documents. I have done this in order to clarify the position, because we must be clear about it.

I would say to the representative of the Soviet Union that we are willing to investigate with him this black box proposal. We have invited him before now to discuss it with us in the Sub-Committee. We are willing to investigate it with him precisely on the proposals as put forward by his own scientists. Does he agree with his own scientists or not? Does he agree with his own scientists that in fact there will be a need for some necessary on-site inspection, or does he not? If he does not, is this the reason why the Soviet Union has been so careful not to agree to the holdings of meetings of scientists from both sides? I think that this does require a clear answer from the representative of the Soviet Union.

ENDC/PV.87 UK/Wright

5.12.62

pp.7-8

Perhaps I may remind the Committee that the proposal for a small annual quota of on-site inspections so long as these are necessary — which is all the assurance of observance we are asking for — was put forward officially by Chairman Khrushchev himself. Members of the Committee who wish to refresh their memories might care to look again at Chairman Khrushchev's message to Mr. Macmillan of 23 April 1959, which Mr. Tsarapkin himself read into the record of the Conference on the Discontinuance of Nuclear Weapon Tests at its eighty-third meeting on 27 April 1959 (GEN/DNT/PV.83, pp.5-7). In that message Chairman Khrushchev formally proposed a small annual quota of on-site inspections to be chosen by the other side. To give expression to this proposal Mr. Tsarapkin, on behalf of the Soviet Government, introduced at the one hundred and eighth meeting of that Conference on 9 July 1959 a draft article expressing in treaty language Chairman Khrushchev's proposal. With the permission of my colleagues I will read the draft article, because I think that sometimes in our discussions we may err on the side of generalities and not always take account of the importance of actual, precise treaty formulation. In this case the treaty formulation was that of the Soviet Government itself. The draft article formulated by the Soviet Government and proposed by Mr. Tsarapkin read as follow. Mr. Tsarapkin said:

"...the Soviet delegation wishes to introduce the following draft article:

For the purpose of preventing possible violations by States of their obligations under this treaty, there shall, in addition to the network of control posts, be carried out on-site inspection of unidentified events suspected of being nuclear weapon explosions.

1. In order to carry out on-site inspection of such unidentified events on the basis of criteria set forth in Article _____, ... there may be made in each year on the territory of each of the original parties not more than _____ ... inspections at any place where, according to readings of instruments at control posts, an unidentified event suspected of being a nuclear weapon explosion has occurred.
2. Inspections under paragraph 1 of this article shall be carried out -

- (a) on territories under the jurisdiction or control of the United States or the United Kingdom, at the request of the Soviet Union;
- (b) on the territory of the Soviet Union, at the request of the United States or the United Kingdom.

Inspection groups within the specified quota shall be despatched by the commission without delay, and agreement between the original parties to the treaty shall not be required." (GEN/DNT/PV.108, pp.3 and 4)

The proposals made by Chairman Khrushchev in his letter of 23 April 1959 and the draft treaty article presented by Mr. Tsarapkin continued to be the declared policy of the Soviet Union until 28 November 1961, when it withdrew them. We were and we are negotiating, all of us, as free and independent Governments. We are of course, all of us, free to put forward proposals, and we are free to withdraw them. But what I am saying is that, if the Soviet Government were willing today to take the position that it took for two years until almost exactly a year ago, a comprehensive treaty could no doubt be signed by 1 January 1963. I am saying further that the idea of a small quota of inspections is not some unfriendly suggestion made by the West to the detriment of the Soviet Union but something which Mr. Khrushchev himself proposed as being fair and advantageous to both sides.

However, if the Soviet Government is unwilling today to make a binding and continuing commitment to accept what it was willing to accept a year ago, then I want to assure the Committee that, as a second best and as a step towards a comprehensive agreement, the United Kingdom is willing to sign a permanent agreement without international verification in the three fallout environments and to conclude in the underground environment a temporary agreement as recommended by the General Assembly in paragraph 6 of resolution 1762 A (XVII) of 6 November. At our last two meetings emphasis has been laid by a number of delegations — and in particular by the delegations of Sweden, Canada, India and Mexico — on the desirability of such an agreement being concluded between the nuclear Powers, as a second best to a comprehensive agreement, by 1 January 1963. On behalf of the United Kingdom I repeat that we agree. The United Kingdom voted for this in the United Nations. We are prepared for it now.

ENDC/PV.88 Brazil/Assumpcao de Araujo 7.12.62 pp.9-10

Sixthly, the Brazilian delegation is ready in this same realistic spirit to accept partial solutions, and since its first statement on 16 May 1962 it has been asking the nuclear Powers why they did not seriously examine the possibility of suspending tests in the atmosphere, in outer space and under water, where there no longer seems to be any insurmountable disagreement in regard to the effectiveness or ineffectiveness of control. Resolution 1762 A (XVII), paragraph 6, contains a provision to the same effect, although it links the proposed agreement to an interim arrangement suspending underground tests, on the basis of the eight-nation memorandum and taking into consideration other proposals submitted to the seventeenth session of the General Assembly.

Seventhly, so far as concerns underground tests, we hope that the difference between the two blocs will steadily diminish. The possibility of extending the field of agreement to a definite category of underground tests could be considered immediately, since it seems that the detection and identification of explosions above a certain power no longer raises an insurmountable problem. As technology progressed, the threshold could be gradually reduced until they were brought to the point where only very low power explosions of a practically negligible military value escaped identification. This point seems to us an extremely important one, since such a formula would enable us largely to eliminate the present differences which mainly concern the question of

control.

Eighthly, all this of course does not mean that Brazil is an advocate of an uncontrolled moratorium or of control established without previous agreement. What we have said both in the United Nations General Assembly and at this Conference, as well as our proposal for the creation of a technical committee for the scientific study of the problem (ENDC/PV.39, p.20) have, I hope, made our position perfectly clear. It is moreover, I repeat, in harmony with the eight-nation memorandum and the recent resolution 1762 (XVII).

In regard to these last questions, we have examined with much interest the suggestions made here by various delegations, particularly those of Sweden, India and Mexico. Mr. Padilla Nervo has offered us some interesting suggestions about the essential provisions which might be included in the interim or final agreement which is our target (ENDC/PV.85, pp.35 and 36). Mr. Edberg has mentioned in particular that it should be possible to set up a scientific commission without waiting for the final drafting and implementation of a complete agreement (ENDC/PV.84, pp.17 and 18). One of the advantages of such an interim international scientific commission would be to clear up the still very debatable question of the value of detection and identification by existing national systems. Such a system fits very well into the framework of the eight-nation memorandum, and Mr. Lall quite rightly insisted on the fresh importance acquired by this document (ENDC/PV.85, p.22), since it forms the only basis of negotiation recommended by the United Nations General Assembly, although other bases, which we should be careful not to reject, might also be found.

The Swedish formula deserves our full support and is moreover fully in harmony with the ideas expressed by Brazil at the sixteenth and seventeenth sessions of the United Nations General Assembly and at this Conference. Brazil, in fact, has always considered that control is both a political and technical process, and if this latter aspect is neglected, the political aspect will suffer. On 18 May 1962 Mr. de Mello-Franco said here:

"We think it would be advisable to set up, under the auspices of the Conference, a specialized technical body to study control problems and to submit suggestions on the subject in due course." (ENDC/PV.39, p.20)

This proposal was repeated on 12 June in the following terms:

"In our view, the political aspect of control merges with the actual negotiation of the disarmament treaty and is thus necessarily an essential issue at this Conference; but the technical aspect of control can, and to a certain extent even must, be the subject of scientific studies parallel to the work of this Conference, though they can, of course, be carried out under its auspices and supervision." (ENDC/PV.54, p.23)

At the opening of the general discussion at the General Assembly's seventeenth session on 20 September last, the head of the Brazilian delegation said:

"...we are more and more convinced that political negotiations on disarmament simply cannot continue to be carried out in a technical vacuum." (A/PV.1125, (provisional), p.12)

We therefore support the Swedish delegation's suggestion which might indeed be combined with other proposals. It seems to us an eminently practical one. We might, for example, envisage a system within the framework of resolution 1762 A (XVII), paragraph 6, whereby the nuclear Powers would agree to suspend their tests in the atmosphere, in outer space and under water and would adopt a limited moratorium - six months for example - in connexion with the underground tests. During this time the scientific commission would decide on the nature and degree of control really necessary for a permanent ban on this type of explosion.

ENDC/PV.88 Czechoslovakia/Kurka 7.12.62 p.14

An agreed opinion has also been reached regarding the possibility of accurately detecting and identifying tests conducted in the atmosphere, in outer space and under water, without establishing any international control system and without obligatory on-site inspection.

However, tests conducted underground still remain an open question since the delegations of the Western Powers continue to uphold their point of view that these tests cannot be distinguished with certainty from natural seismic events. This appears now to be the main obstacle standing in the way of a final solution of the questions.

In our view, in the present stage of scientific and technical development, the question of detecting and identifying underground tests cannot be regarded as insoluble. We believe that in this connexion a positive role could be played by the application of the idea of automatic seismic stations which have already been mentioned several times in our discussions. Consequently, there should be nothing to prevent a final cessation of underground tests as well, provided all parties show a willingness to reach agreement.

ENDC/PV.88 UAR/El-Zayyat 7.12.62 p.29

The eight-nation memorandum further mentions that measures of verification in loco should be the subject of consultation. We submit that the area of difference is now even narrower than when the memorandum was signed. We submit that if the necessary political decision is taken by both sides our diplomatic efforts will succeed. We also submit that without that political decision no diplomatic effort will succeed.

The representatives of the nuclear Powers have been gallantly defending their respective positions in our meetings during the last two weeks, and no doubt they could go on defending those positions and standing by them with the greatest tenacity and ability as long as it might seem necessary for them to do so. As long as they stick to their gallant stand, however, there will be no move towards agreement. There can be no success. On the other hand, when -- and only when -- the nuclear capitals take the necessary decision, the great abilities of their representatives here will move us quickly towards total and agreeable agreement.

We believe that it would not be useless to submit here for the consideration of the principal parties concerned our present thoughts. We believe that once the necessary political decisions have been taken the two parties will be able, first, to reach an agreement to cease immediately tests in all three above-ground environments provided that they make arrangements to stop underground tests for a mutually agreeable duration; and, secondly, to agree on the establishment by the United Nations, or any of its agencies, of a provisional international scientific commission, which would avail itself of the services of the existing nationally manned observation posts and of all new technical developments in this field, including the suggested automatic recording stations now known as "black boxes". The scientific commission should be given specific terms of reference and powers on which the nuclear parties must agree, including the right to request verification, on the spot, of the nature of any suspicious significant seismic event. Such requests should be seriously and promptly considered by the State concerned, which might give the commission convincing reasons for declining to issue the requested invitation. Should the State concerned fail to give such convincing reasons and to issue the requested invitation, the international scientific commission should communicate that fact, together with its assessment of the given event, to the second party and to the United Nations. Such a communication would free the State or States

concerned from the heavy moral obligations undertaken by all parties upon the conclusion and signing of such an agreement.

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Fourthly, in going forward to meet the Western Powers so as to make it easier to reach a final agreement on the cessation of all nuclear tests, the Soviet Union took a new and significant step immediately after the recess in the Committee's work. It proposed that for the purpose of control over underground nuclear explosions use should also be made of automatic seismic stations which would serve as a supplement to existing national detection systems. It can only be regretted that the Western Powers have not attached the importance it deserves to this significant new Soviet proposal which would ensure the possibility of solving the question of the cessation of nuclear tests.

Only one conclusion can be drawn from the position of the Western Powers. They reject, in fact, everything reasonable and mutually acceptable that would increase the efficiency of control. They are not interested in any other forms of control which can really ensure the observance of an agreement on the cessation of nuclear weapon tests, but only in compulsory inspection which opens up wide opportunities for espionage and intelligence. It was no mere chance, therefore, that, as soon as we put forward our proposal for the use of automatic seismic stations, the Western Powers hastened to scuttle this reasonable proposal by tacking on to it the heavy weight of unacceptable proposals for inspection and the establishment of international control posts.

What is happening here? This is what is happening: as soon as the Soviet Union takes a step to meet the Western Powers and proposes measures aimed at providing them with additional guarantees of effective control, they immediately start criticizing these proposals as inadequate, merely because they do not provide for compulsory inspection. By acting in this way the Western Powers slam the door to agreement.

We consider that the existing national systems of detection are fully adequate for control purposes. In our view there is no need for additional means of control.

It is only the Western Powers who express doubt about the effectiveness of national means of detection. Why is it, then, that when, in endeavouring to remove your fears, we go forward to meet you and propose the use of automatic seismic stations as an additional guarantee, you reject a businesslike examination of this proposal of ours and, in fact, as I have shown earlier, reject it by linking it to compulsory inspection?

The use for control purposes of the idea put forward at the Pugwash Conference (ENDC/66) opens up great possibilities for overcoming the remaining differences and concluding a final agreement on the cessation of all nuclear weapon tests.

This, however, is something that United States and United Kingdom political leaders do not wish to recognize, although it is widely recognized in scientific circles throughout the world.

In this connexion it is appropriate to refer to a recently published letter by the eminent British scientist and philosopher, Bertrand Russell. Bertrand Russell, of course, is not a seismologist, but it is well-known that he has extensive connexions with many scientists throughout the world, and is very much interested in the question of the cessation of nuclear weapon tests. In his letter published in the "New York Times" of 5 December Bertrand Russell wrote:

"It is important for Americans to realise that their scientists and Russian scientists have already agreed upon the viability of this arrangement. It is important to recognize that the seismographic station of Harvard University has vigorously declared its confidence in the Pugwash proposal.

....
 "No on-site inspection could give greater security, no on-site inspection is safe against paranoia. Without the urgent desire to end this threat to future generations, nothing can be done... It is essential that we understand that the pretext for failure to agree has been removed.

"The 'black box' will show beyond doubt any potential violation of a very small kind. Those larger can be detected without it."

The Soviet Government has made the utmost efforts to facilitate the reaching of an agreement that would end all nuclear weapon tests once and for all. We call upon our Western partners to think over the situation that has developed in regard to the cessation of nuclear weapon tests and to reconsider their negative position which is preventing agreement on the cessation of all nuclear weapon tests for all time.

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p.6

....However, the Soviet representative has refused to answer any of our questions, and merely continues to repeat the negative and unhelpful statement that we should blindly agree in principle to the Soviet proposal — whatever that may mean — and that at some time later all the details could be worked out.

However, after a careful review of the verbatim records, it appears that the Soviet representative is not proposing that we should merely set up a system of automatic seismic stations as a part of the overall control system. That is not the case at all: let us be clear about that. What the Soviet representative is saying is that the United States and the United Kingdom must agree in principle not only to accept some unclear, undefined system of automatic seismic stations to monitor underground weapon tests, without regard to where they might be located and without regard to the equipment in those stations or to how they would function, but also that the United States and the United Kingdom must accept at the same time, completely and unreservedly, the Soviet view that no on-site inspection would be necessary in any circumstances — perhaps even that no manned detection stations in the Soviet Union would be required. He is saying that the United States and the United Kingdom must abandon their carefully worked out comprehensive treaty — which they worked out only after the most careful consultation with their scientists.

Of course, our two governments cannot agree to any such blind arrangement. That would mean that they would be taking on an unknown quantity offered by the Soviet Union on a completely unclear basis and, at the same time, unequivocally giving up all that they and the scientists skilled in the field — and I repeat "scientists skilled in the field", because there are many scientists — know to be necessary for, adequate, effective and scientific control over the cessation of underground nuclear weapon tests.

In our view, the details of any particular agreement on the cessation of underground tests in the work of the commission are of supreme importance, for only through negotiation of the details can we really know that adequate scientific control will be assured.

ENDC/PV.90

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....Now, after many years of stubborn opposition, the United States and the United Kingdom have finally acknowledged that control in regard to the cessation of nuclear weapon tests in the atmosphere, under water and in outer space can be exercised by national means of detection and that there is no need for the establishment of an inter-

national control system and international inspection for such control. The differences which now separate us and prevent us from reaching agreement relate to questions of control only over underground nuclear weapon tests. It should be noted, however, that control in regard to underground nuclear tests can also be exercised through the use of national means of detection. But, the Western Powers remain adamant on this question, seeing in it a loophole which would enable them in the future to go on testing nuclear weapons. This is the only way in which we can interpret the persistent unwillingness of the United States and the United Kingdom to agree to the cessation of nuclear weapon tests in the underground environment on the basis of the use of national means of control over such an agreement. In order to prevent agreement on this question, the Western Powers continue to insist stubbornly on international control and compulsory international inspection in regard to underground nuclear explosions.

The position of the Soviet Union on this question is well known. We have repeatedly stated that there is no need for international inspection and international control in regard to underground nuclear explosions.

There can be no justification for the position of the Western Powers, which by their persistent demand for international control and compulsory inspection in regard to underground nuclear explosions are blocking agreement on the question of prohibiting all nuclear weapon tests. We believe that the existing differences can be overcome if we seek for a compromise on a mutually acceptable basis.

We have already pointed out that, in this respect, the conclusions reached by the Soviet, United States and United Kingdom scientists at the Pugwash Conference in London last September (ENDC/66) are of definite interest: they proposed the use of unmanned automatic seismic stations, in order to facilitate agreement on the question of control over underground explosions.

The Soviet delegation has already pointed out that we are prepared to agree that in a treaty on the prohibition of all nuclear weapon tests, including underground tests, provision should be made for the setting up of automatic seismic stations both on the territory of the nuclear Powers themselves and near the frontiers of the nuclear Powers, with the agreement, of course, of the States on whose territory it is proposed to locate such stations.

The Soviet Union is prepared to agree that two or three such stations should be set up on the territory of States possessing nuclear weapons, including the territory of the Soviet Union. These stations could be located in the zones that are most subject to earthquakes. There are three such zones in the Soviet Union - the Far Eastern zone, the Central Asian zone and the Altai zone. Soviet scientists consider that the most suitable sites for automatic seismic stations would be near the town of Yakutsk for the Far Eastern zone, near the town of Kokchetav for the Central Asian zone and near the town of Bodaibo for the Altai zone. Further, we base ourselves on the assumption that delivery of the appropriate sealed apparatus for periodic replacement in the automatic seismic stations in the USSR from the international centre and its return to the international centre should be carried out by Soviet personnel in Soviet aircraft.

The Soviet Union is sincerely striving to reach agreement on a mutually acceptable basis. If the participation of foreign personnel is required for the delivery of this apparatus to automatic seismic stations from the international centre and for its return from the stations to the international centre, the Soviet Union would be prepared to agree to this.

It is understood that, if necessary, we would take appropriate precautionary measures in connexion with such trips by foreign personnel.

Therefore, in this new position of the Soviet Union it is a question of control by means of automatic stations with certain elements of international control; this, in our view, would provide a good way out of the situation and make it possible to reach

agreement rapidly on the prohibition of all nuclear weapon tests for all time on a mutually acceptable basis. Agreement could, of course, be reached without delay even now, if the Western Powers would show goodwill and not try to avoid taking advantage of the opportunity afforded them by this Soviet proposal.

We believe that this proposal by the Soviet Union introduces a new element into the negotiations on the cessation of tests and that it will be duly appreciated by the neutral States and the Western Powers, and then we would be able to bestow upon mankind, upon all the peoples of the world, the present about which the representative of Nigeria has just spoken.

ENDC/PV.90

USA/Stelle

10.12.62

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I noted with interest Mr. Tsarapkin's statement today about "black boxes". That was not because what he had to say about them was new: Soviet statements about the number and location and the type of personnel that would be needed to introduce and remove the "black boxes" — which Mr. Tsarapkin may recall were made to us privately some time ago — have been discussed in the co-Chairman's meetings here in Geneva and have been alluded to in general terms in the test ban Sub Committee. Nevertheless I noted Mr. Tsarapkin's statement with interest because the fact that he has made it publicly — I say "publicly", and I assume that Mr. Tsarapkin would now like Mr. Roschin to give back to the Press what he withdrew from it on Friday — in a plenary meeting is an indication, I hope, that the Soviet delegation is now ready to negotiate further and in more precise terms about the number, location, specification and capabilities of the automatic unmanned seismic stations.

I sincerely hope that this public statement does not mean that the Soviet Government has now reached the end of what it is willing to discuss on "black boxes". I hope also that Mr. Tsarapkin's statement today means that the Soviet Union has now given up its completely inaccurate claim that the western Powers have rejected the idea of "black boxes". We never rejected the idea of "black boxes"; we have expressed interest in them and we have said that we want to discuss them and explore the idea. What we have rejected is the attempt of the Soviet Union to say that an acceptance in principle or an acceptance of the idea of "black boxes" by the western delegations means that the West will have given up any idea of manned stations with high-calibre equipment and of the necessity for on-site inspection.

Whenever we have said that we should be quite willing to explore how "black boxes" might be used as a supplement to a system of manned detection stations, and how they might be used possibly to reduce the number of on-site inspections required, Mr. Tsarapkin has claimed that because we would not give up the necessity for on-site inspection or the desirability of manned inspection stations, we were rejecting the idea of "black boxes". I now hope the Soviet delegation is ready to go ahead, publicly or privately, with further exploration of this idea in specific terms.

I hope also that the fact that the Soviet Union is now willing to accept the idea of having these automatic stations introduced, checked and removed by international personnel means that the safeguards which the Western Powers have suggested should be imposed on on-site inspection teams, such as their transport in Soviet aeroplanes, the covering of windows, the attendance of Soviet observers, and so on, will — since the Soviet Union now finds them acceptable in terms of its security in connexion with the "black boxes" — be acceptable to it also with regard to on-site inspection. I do hope this means that we may have, or hope for, a change from the opposition of the Soviet Union to on-site inspection by international personnel.

ENDC/PV.94 USA/Dean

19.12.62

pp.15-16

The United States and the United Kingdom have replied to the Soviet proposal by indicating that they know of no scientific capabilities of automatic stations which would make unnecessary the use of internationally co-ordinated and supervised nationally manned detection stations and the requirement for a certain number of obligatory on-site inspections by the international commission to assure adequate identification of seismic events. They have asked the Soviet Union for scientific clarification of its position, but the Soviet Union, so far at least, has refused to make clear the scientific basis on which it has proposed automatic stations or how it believes the information gathered by these stations might be most usefully employed, or how the collected data would be transmitted, or how often they would be transmitted.

The United Kingdom and the United States have said to our Soviet colleagues that an adequately built and properly located system of automatic stations might possibly be useful to increase the numbers of seismic events which would be detected by any effective and internationally co-ordinated control system. In addition, they have said that automatic stations, if properly built and located, might also, but to a lesser extent than in the case of the detection of seismic events, increase the numbers of certain types of earthquake which an effective detection system might identify. To achieve such results, both in the area of detection and of identification, the United Kingdom and the United States have said that they believe such a system of automatic stations would have to contain an adequate number of seismometers, or arrays of seismometers, operating in seismic areas and as an adjunct to an internationally supervised and co-ordinated nationally manned system of appropriately located and equipped detection posts.

Also, the United Kingdom and the United States believe that appropriate numbers of properly equipped and located automatic seismic stations might be usefully employed to check upon data provided by nationally manned, internationally co-ordinated seismic stations in the detection system. We noted yesterday that the Soviet Union appeared to agree that such a use of automatic stations would be feasible and helpful in any control system (ENDC/SC.1/PV.50, p.5).

However, the Soviet Union yesterday also charged the United Kingdom and the United States with having completely distorted the Soviet Union's proposal for automatic stations when they stated that automatic stations should be used only as an adjunct to a regular system of internationally supervised, nationally manned control posts and not in place of such a system or in place of a necessary number of obligatory on-site inspections of unidentified events by the international commission.

Now, in order to meet these charges by the Soviet Union, the United Kingdom and the United States have formally proposed the scientific and technical study by a group of qualified experts of the use of automatic seismic stations, to determine their usefulness in an effective and co-ordinated detection system and the exact capabilities both for detection and identification of a detection system into which such automatic stations might be integrated. I should like to emphasize at this point that my delegation and my government are open-minded on the results of any scientific discussion. If the Soviet Union does, indeed, have any scientific evidence — which it has consistently implied but refuses to divulge — that national systems, with or without automatic stations, can solve all the outstanding problems of detection, location and identification of nuclear tests, we are ready and anxious to examine such scientific evidence and to be guided by the results of such an objective examination.

It seems to my delegation that the Soviet Union has accepted, in connexion with the proposed visits by international personnel to automatic stations, three very important principles which are also pertinent to on-site inspection. Those three principles are as follows.

First, the Soviet Union has admitted that international personnel can be trusted to visit the Soviet Union on a task connected with control over nuclear weapon tests.

Second, the Soviet Union has admitted that such international visits to the Soviet Union will not be tantamount to espionage operations carried on in the Soviet Union.

Third, the Soviet Union has indicated that there are a number of safeguards, such as those we have suggested, which will ensure that the security of the Soviet Union is not endangered by inspection visits from personnel of the international scientific commission.

Heretofore the Soviet Union appears to have maintained entirely the opposite: it refused to trust international personnel; it made their visits tantamount to so-called espionage on Soviet territory; and it would not accept the fact that safeguards could be devised to insure against any possibility of danger to Soviet security. We see in this particular portion of the Soviet proposal on automatic stations an important and indeed potentially significant area of movement by the Soviet Union in the field of visitations. If the proposal for visits to automatic seismic stations were to be realistically applied to the question of obligatory on-site inspections by the international commission to identify otherwise unidentifiable seismic events, we might well be able to make real progress. So far the failure to make progress on this issue is due solely to intransigence on the part of the Soviet Union.

In this connexion, we hope the Soviet Union will recognize that, if applied to the question of on-site inspection, these principles which I have just enumerated would leave but a very few hurdles in the way of agreement to a small number of annual visits to determine the nature of seismic events. The arrangements for on-site visits and automatic station visits are in fact similar in a number of ways. They have the following similarities.

One: visits in both cases would be by international personnel.

Two: the Soviet Union would accept an obligation to receive international inspectors in the case of each of the two types of visit -- automatic station inspections and on-site inspection teams.

Three: the Soviet Union in both cases, we suppose, would not be prevented in the final analysis from barring each type of visit if it actually chose to break its solemn treaty obligation; but, practically speaking, in both cases there would be an obligation, and in both cases, if the visits were prevented in contradiction of the treaty obligation assumed, the consequences of treaty failure would be the same.

Four: both types of visits would be conducted under appropriate safeguards against any possibility of damage to any State's security.

Five: the Soviet Union would be forewarned on the timing of such visits in each case, although automatic station visits, to be scientifically workable, might possibly be made on a regular, agreed schedule.

Six: while the Soviet Union would not know at the time of signature of the treaty, in the case of an on-site inspection as opposed to an automatic station visit, precisely where the team was to go in the Soviet Union until the inspection procedure was begun, the arrangements for working out precise geographic areas are very accurately and specifically set forth in the treaty and the conditions of geographic location set forth in the treaty would have to be met before any on-site inspection could take place. The Soviet Union will of course know what the size of the area to be inspected will be,

and its location will be determined in advance of the inspection by the occurrence of a seismic event. Under those circumstances, every area to be inspected will be known a number of days in advance to the Soviet Union.

These striking similarities between what the Soviet Union has offered with regard to automatic stations and what is required to ensure a certain number of obligatory on-site inspections should make clear to all that, given good will and a realistic application of these principles by the Soviet Union, only a relatively small difference separates us on this inspection issue.

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The main issue that now divides the Soviet Union and the United States in regard to the cessation of nuclear weapon tests is inspection. The Western Powers continue to insist on compulsory inspection, while the Soviet Union, basing itself on the practical experience of States and on a strictly objective assessment of the scientific data, believes that inspection is not necessary in order to reach agreement on the banning of all types of nuclear weapon tests.

The Soviet Union stands firmly on that ground. It is precisely this difference on the question of inspection, and on the question of international control posts, that prevents us from reaching agreement on the prohibition of all nuclear weapon tests in all environments.

We put forward our compromise proposal for the use of automatic seismic stations (ENDC/PV.86, p.35) because we desired to provide the Western Powers with further guarantees in relation to control over the prohibition of nuclear tests.

We are trying thus to circumvent the serious obstacle to agreement constituted by the Western Powers' demand for on-site inspection and the establishment of an international control system.

Those are the aims we are pursuing in putting forward the proposal for automatic seismic stations.

We accepted the idea of using automatic seismic stations because it would enable the latest scientific achievements to be used for the purpose for which we are taking part in the present negotiations -- the purpose of banning all nuclear weapon tests for all time.

During the previous meetings of our Committee, and especially in the recent meetings of the Sub-Committee, we have been asked by the Western Powers what these automatic stations would be like and what their technical equipment would be. In other words, they have asked us for technical details. They considered that a great drawback to our proposal for the use of automatic seismic stations was that it did not reveal the technical details. However, any objective person would say that precisely the absence of technical regulations in our proposal that shows the desire on our part for joint -- and I emphasize "joint" -- elaboration of the technical aspects of the proposal for automatic seismic stations; and this should be bound to satisfy both sides.

The question of what is to be put into the automatic stations we wish to solve in collaboration with the Western Powers. By this proposal we offer the United States and the United Kingdom a wide field for collaboration, so that they also can contribute to the work. But these details can and should be agreed after we have reached agreement in principle with the United States on the use of automatic stations as an adjunct to national detection systems without the demand for inspection.

The Soviet Union and its allies have proposed that there should be an interim agreement suspending underground tests while negotiations continue, but that, for the application of such an interim agreement, no international supervision or control would be necessary.

The United States and the United Kingdom, with their allies, have proposed, on the other hand, that either the parties should be free to conduct underground tests if they so wish while the negotiations are in progress, or, if there should be an agreement to suspend underground tests, its application should be supervised and controlled by an international commission, including obligatory on-site inspection.

It is in connexion with that same problem that we have proposed a middle way, a compromise between the positions of the two sides. We have proposed that the interim agreement should not operate without international control, as the Soviet Union wishes; nor should its provisions include on-site inspection, as the United States and the United Kingdom wish. We have proposed that it should provide for international control with an interim international scientific commission as proposed by Sweden, with functions, obligations and rights as provided for in the eight-nation memorandum (ENDC/28), leaving the question of on-site inspection to be negotiated and ultimately agreed upon. The only raison d'etre for such continued negotiation would be to settle one way or the other the question of on-site inspection. To speak, on the hand, of an interim agreement with on-site inspection on the basis of voluntary invitation, as the Soviet Union wishes, or on the basis of obligation, as the United States and the United Kingdom wish, and on the other hand to speak of continued negotiation to reach agreement on the outstanding difference, namely, on-site inspection, does not seem to us to make sense, since, once the question of on-site inspection has been settled one way or another in the interim agreement, there would be nothing to be discussed in the proposed negotiations.

I think it would promote progress in these talks if we could all secure a more or less common understanding of the kind of verification which is now the subject of negotiations. Although not yet precisely defined, that verification system is substantially different from the kinds of systems this Committee was discussing before the recess. That is the central fact of the exchange of letters between President Kennedy and Chairman Khrushchev. It is a fact which has been obscured by a debate over numbers: it is a fact, none the less, which is far broader than the present much-publicized inspection quota controversy. Since both sides now seem to be talking about the same basic kind of verification system, I shall take a few minutes to describe its essential features.

First, the system now under discussion is premised on the use of nationally owned and operated detection networks. Those national stations would submit data regularly and in a uniform manner to an international data-collection centre. At the recent meetings in New York and Washington, the United States and the Soviet Union exchanged preliminary lists of seismograph stations from which the data-gathering arm of the verification system might be selected. Such selected stations in each other's territory would form the basic network, and the United States has given the Soviet Union a general description of the type of instruments used at each of the United States stations.

The second element of the new verification system involves the use of automatically recording seismograph stations. Such stations could supplement the data collected by national stations and could help to a degree in detecting, locating and identifying seismic events, thus improving the capabilities of the verification system.

At the private meetings which took place during the recess, the United States suggested ten sites in United States territory where automatic recorders might be located. The United States delegation furnished information on the average seismic noise levels at those sites. The Soviet Union accepted one of the United States sites, declined the other nine, and requested two others in their place. The United States said that it did not object to the two alternative sites, and gave the Soviet Union noise-level data for those two sites as well.

The United States specified ten general areas within the Soviet territory where automatic recorders might well be located. Those areas correspond to known areas of high seismicity in the Soviet Union. The United States asked the Soviet Union to designate specific sites for automatic stations within those ten areas, to be recommended by the Soviet Government on the basis of its knowledge of the noise level and other local factors. The areas specified by the United States include the areas of the three sites suggested by the Soviet Union, but the United States did not accept the Soviet contention that there need only be three such automatic stations.

Later on, in the private talks, the United States suggested that its requirements might be met with seven automatic stations if satisfactory assurances could be obtained concerning the characteristics of the Soviet national seismograph network. There was no reciprocal response by the Soviet Union, which continued to state that the three sites specified in Chairman Khrushchev's letter of 7 January would be sufficient and that no additional sites could be contemplated. Noise-level data for the three Soviet-suggested sites were produced by the Soviet Union at the last session of the private talks.

The third element of the new verification system involves on-site inspections. We are unable, however, to report the extent of areas of agreement on this subject. We have had no response from the Soviet Union to our specific suggestions about basic features of this element of the verification system. For the moment, therefore, this Committee will simply have to take note of the fact that the on-site inspection quota concept, first advanced officially by the Soviet Government in 1959 and then repudiated by it in 1961, has once again been accepted by the Soviet Government. At the private talks in New York and Washington, the United States explained its views on appropriate general conditions under which on-site inspections should take place. We inquired whether the Soviet Union foresaw any serious difficulties in negotiating an agreement along lines envisaged by the United States. We received no answer.

To summarize: the important thing is that we have a new premise for negotiations. We are now talking about a verification system based on national manned detection stations, automatic seismic stations and a quota of on-site inspections. In private talks, we progressed in some details beyond the points covered in the exchange of letters between President Kennedy and Chairman Khrushchev. Essentially, however, we did not succeed, in the private talks, in enlarging substantially the area of agreement achieved in the exchange of letters. This is the immediate task before us.

The fact that last month's conversations did not achieve their objective can be explained, it seems to us, by one basic reason. This is that the Soviet representatives were willing to talk about only a few of the matters still unresolved. Even on those few points they were not ready to consider President Kennedy's suggestions to Chairman Khrushchev that the far-reaching Western moves of the past four years be matched by some equivalent Soviet advance. In other words, the Soviet delegation wanted to speak only about its own number of unmanned seismic stations and about its own annual number of inspections, as set forth in Chairman Khrushchev's letters of 19 December and 7 January last. It insisted that the United Kingdom and the United States had no choice but to accept the Soviet Union's figures in each case, that is, three unmanned stations and two to three inspections.

The Western representatives, on the other hand, made known the flexibility of their

position in a number of ways. For example, at the outset of the talks we of the West said that, on the basis of our present information, we considered ten unmanned stations each, in the United States and the Soviet Union, to be necessary to supplement the national network of existing detection stations. During the recent meetings, however, as I have just pointed out, we did state that seven such unmanned stations might be sufficient if the Soviet Union would furnish us with satisfactory data about the capabilities of its national network and if it would reconfirm its offer of last summer to build new manned stations where necessary to augment the system.

Similarly, based on our best information, up to ten annual inspections seem to us to be technically essential. Nonetheless, we stated clearly that we would re-evaluate this conclusion if the Soviet delegation could give us the scientific information which it claims to have and which might, if correct, substantially reduce the residual number of unidentified seismic events in a normal year. We then outlined United States views on the general procedures under which the United States contemplated that on-site inspections would be carried out. We requested the Soviet Union's comments, but received no answer despite repeated requests. We were told only that the discussion of such details would be premature until the Western Powers accepted the Soviet position of three annual inspections and three unmanned stations.

The justification which has been offered to us by Soviet representatives for their demands has been that the Soviet Union is not now interested in bargaining. They say that they have just made a major move forward to meet the Western position by agreeing to on-site inspections, and that this demonstrates how much the Soviet Union desires a test ban treaty. They add, moreover, that, since haggling over details would prevent rapid conclusion of a treaty, the Soviet Union decided to put all of its cards on the table right away. Thus, the Soviet figures are not a first offer, subject to bargaining, but the final Soviet position.

We have expressed our concern at this Soviet negotiating approach. After all, President Kennedy's letter of 28 December 1962 made it clear that he regarded the Soviet offer of two to three inspections per year to be insufficient. In the face of this belief of the Head of our Government, we have not been able to understand why the Soviet Government decided to enter into private talks in January unless it was ready to exercise some negotiating flexibility. And, I may say, some flexibility is still essential in Geneva if an agreement is to be made possible. After all, in line with technical advances, we have reduced our proposal of February 1960 from twenty inspections per year, first to a sliding scale in May 1961 of between twelve and twenty inspections per year, and now to eight to ten inspections annually, provided, of course, there are appropriate arrangements. In spite of Soviet acceptance in 1960, and repudiation in 1961, of fifteen international control posts on Soviet territory, we have agreed now to reply on national seismic stations, supplemented by seven to ten automatic seismic stations.

The United States and United Kingdom delegations have thus shown that they can be flexible within the rock-bottom limits imposed by the present state of scientific knowledge in seismology. However, we must know the parameters of the problem with which we are grappling. We must see in clear detail how many seismic events the proposed world-wide system will be likely to detect and identify so that we will have some idea of how many residual unidentified events will be eligible for inspection. We cannot accept any number of inspections in the annual quota which does not allow the inspection of a reasonable proportion to such events. We must also ask about the general outline of provisions to be adopted to determine how on-site inspections will work in practice before we can commit ourselves to any fixed number of automatic recording stations and on-site inspections.

The Soviet Union has implied that the United Kingdom and the United States wish to put off the conclusion of a test ban through a discussion of technical detail. We agree

that much of the technical detail of a test ban agreement can be left to the treaty drafters. But there are a number of important features of an inspection arrangement which are not mere details at all, but which are essential to ensure the effectiveness of inspections as a deterrent and as a contribution to the confidence of both sides. It would be of little use to agree upon a number of inspections, however acceptable to both sides, if the arrangements for them were so unclear that any party being inspected were given the means to keep those inspections from being carried out in an efficient and meaningful manner. We are convinced that agreement on a quota number cannot be reached on a sensible and technically justified basis unless we, at the same time, know the major characteristics of the inspection process, such as: first, the nationality of inspection teams; second, the criteria which would make an event eligible for inspection; third, the extent of the area to be inspected; and, fourth, the arrangements by which events would be chosen for inspection.

The answers to those questions can be crucial in determining whether ten inspections, for example, will be necessary or, indeed, whether any number, however large, would have any significance. All of our general proposals on these issues are now on the table or have been made clear to the Soviet delegation. Thus far the Soviet delegation has refused to comment on them.

ENDC/PV.99

USA/Foster

18.2.63

pp.20-21, 23

Our confidence in that assumption was strengthened when the Soviet Union accepted our suggestion of private talks. The Soviet Union accepted the suggestion contained in President Kennedy's letter of 23 December 1962 (ENDC/74), which itself referred to the United States position that 8 to 10 on-site inspections were required. That same communication expressed the President's hope that the Soviet Union would match our movement, which had brought our requirement down from the 12 to 20 sliding scale, with an equivalent movement upward from the figure of two or three inspections which the Soviet Union had accepted until 28 November 1961.

It was therefore a very real surprise when, in the first meeting of the recess talks, we were told literally that the Soviet Union would not negotiate on the question of numbers of on-site inspections above two or three. Presumably the whole intent of the private talks, in the Soviet view, was solely to record agreement on the particular Soviet proposals put forward. Understandably, that has shaken our belief that the Soviet Union really desires agreement. Nevertheless we still continue to act on the assumption that an appropriate quota number can be agreed upon within the framework of a treaty, the major features of which must necessarily be satisfactory to all parties concerned.

For the United States, the ability to carry out effectively an annual quota of on-site inspections has been a key element in the verification system. We see no way other than by effective inspection to allay the uncertainties, suspicions and ill-will which would otherwise arise over the months and years. Our scientists advise us that seismograph records alone simply will not do this for a considerable number of earth tremors each year. We therefore believe we need, first, an inspection quota that allows inspection of some reasonable proportion of these unidentified events; and, secondly, a set of principles governing on-site inspections which will ensure that each on-site inspection can be meaningful.

There have been many advances in the science of seismology, but our scientists tell us that there are still a good many earth tremors each year in the Soviet Union about the origin of which they have no evidence. The seismographs give no indication whether those tremors are due to earthquakes or to explosions. Only an on-site inspection could tell. We do not ask that all of those earth tremors be inspected. All we ask is that

there should be inspection of a reasonable proportion of them. We believe that eight to ten is a reasonable if small proportion. Three would not only be far too small a proportion: it would be patently inadequate even if the unidentified earth tremors were many fewer than our scientists say.

Under any quota, one and perhaps two inspections would have to be saved until the end of the year to provide a deterrent against tests all the year long. That means that a quota of three might well provide only one usable inspection for most of the year. How can it be said that one usable inspection each year could allay suspicions and promote the confidence we all recognize is needed, particularly when there would be a sizable number of earth tremors to which the quota would be applied?

The Soviet Government professes to think that the United States only requires inspections as a political gratuity to satisfy certain "internal" interests within the United States. For that purpose the Soviet Government implies that it estimates the quota number of three to be sufficient. That is a miscalculation from beginning to end. The reason that on-site inspections are a political necessity is that they are, first and foremost, based on a technical requirement. We have asked the Soviet Government to respect our judgement on this. We have explained the numerous reasons which impel us to this view. We cannot insist that the Soviet Government publicly adopt those reasons, but we can in good faith ask it to understand them and to realize that we must continue to be guided by them. In this connexion I appreciate the recognition by the representative of Brazil that technical problems are important here, and his renewed suggestion that technical studies by an ad hoc group of experts might run concurrently with our political discussions. (ENDC/PV.98, p.17)

....Until 28 November 1961 the Soviet Union proposed that inspection teams on its territory be made up one-half of Soviet nationals, one of whom would lead the team. We have made it clear repeatedly that this proposal, since it constituted self-inspection, was not acceptable. What is the present Soviet position on the matter?

Fifth: How would the inspection be carried out? We have proposed that an inspection team be promptly dispatched and that it search for radioactive debris and other evidence by means of low-level aerial inspection and intensive ground inspection, which might include drilling. The Soviet Union, before 28 November 1961, apparently agreed to such procedures in principle. Does it now?

Transit to the site of the inspection would be subject to safeguards to ensure that the teams proceeded speedily and promptly to the site of the event with an absolute minimum of interference to the normal activities of the host country. Special arrangements of the kind we have frequently discussed might be agreed upon to ensure the host country's national security during transit of the inspection team. Operations at the site could be monitored by host-country observers, and the United States would be pleased to discuss arrangements with regard to areas particularly sensitive from the standpoint of national security. All of those procedures have been explained to the Soviet Union, but we have thus far received no reply concerning their suitability and acceptability to the Soviet Government.

ENDC/PV.100 Sweden/Myrdal

20.2.63

pp.26-27

....It seems to me, however, that to ensure more effective data gathering a number of stations in other countries ought also to be added to the overall system.

The selection of suitable locations is a difficult and time consuming process, but a cursory survey shows promising regions in many places outside the territories of the nuclear Powers. From a survey of such geologically specially promising locations for

seismic stations I should like to mention, from among the countries represented round this table, Brazil, Canada, Ethiopia, India, Nigeria, Sweden and the United Arab Republic; but others are available in even closer vicinity to the nuclear Powers. Thus it would seem expedient to start now selection of the sites of co-operating stations outside the territories of the nuclear Powers. For that purpose one would have to contact the international scientific unions and, of course, the governments concerned.

The suggestions just made refer most directly to stations in seismically-quiet areas. For the monitoring of the multitudinous earthquakes in seismic areas local networks are required. For these tasks we do have a rather unique opportunity opened up by resolution 912 (XXXIV) of the Economic and Social Council meeting last summer on "International Co-operation in the Field of Seismological Research," which was unanimously endorsed by all Member States of the United Nations by a decision at the last session of the General Assembly. The resolution aimed at expanding and re-equipping existing stations in seismic regions and at the establishment of an earthquake-warning system. An inter-governmental conference on this matter is planned to take place in 1964, and preparations for this conference are now being made. This presents us with a timely opportunity to join forces in order to improve the observation system whether for earthquakes or for man-made explosions, a rare opportunity which I submit should not be missed.

The addition of extraneous detection posts will facilitate control of the test ban. This favourable result will be the more accentuated if free co-operation between geophysical institutions is ensured. It would help to save the control system from the petrification that might otherwise be a consequence of its political origin and purpose. In our opinion the ideal would be to make the data flowing from the control system completely accessible to all experts in the field. In fact, one should turn the whole approach round and, rather as a primary goal, seek to further develop the seismic data-gathering system which is to be extended for ordinary scientific purposes, and then just tap it for control purposes at certain convenient places. In this way one could secure the continued co-operation of all the scientists concerned and confine the scientific confrontation with political decisions to a specially-established pipeline from the general scientific data flow. In view of the current plans for a world seismic data centre, the ideas being discussed for associated regional centres as well as the incipient general assembly of the International Union of Geodesy and Geophysics, I dare suggest that an ad hoc committee should be set up to investigate the combined approach just outlined.

So much for detection, but the evaluation of the seismic recordings would also benefit from this — if I may use the expression — civilian approach, because an open system would ensure the mutual criticism of all scientists in the field and would thus also provide a constant check on the methods employed and the conclusions drawn at the centre.

My colleagues will recognize that the Swedish delegation has on several occasions intervened to suggest that the scientific co-operation which will necessarily accompany a test ban should be initiated as early as possible. The other non-aligned delegations have voiced the same request. On this ground I venture to reiterate the suggestion I made earlier that certain steps, such as the setting up of the international scientific commission on an interim basis, be taken immediately. As practical experience shows how difficult it is to recruit prominent scientists on an international basis at short notice, I hope it will not be considered unduly pressing to suggest that plans for the recruitment of a nucleus of a scientific commission be initiated at once. As the commission is envisaged as an impartial and not a bilateral one, the non-aligned countries perforce taken an active interest in its creation.

I have dealt at some length with a few scientific aspects of a test-ban control. In matters such as these we think it highly advisable to co-plan and co-operate with the

international scientific unions concerned. The Swedish delegation has approached the International Council of Scientific Unions (ICSU) on this matter, and we understand that ICSU is ready to consider such co-operation if that be the unanimous desire of our Committee.

ENDC/PV.101 USSR/Kuznetsov

22.2.63 ... pp.24-26, 29-30

The number of on-site inspections and automatic seismic stations is not a subject for bargaining.

The Western Powers are trying to justify the delay in concluding an agreement by alleging that it is due to lack of agreement on an international control system. Here in the Committee the representatives of the United States and the United Kingdom have expressed the view that the main element of a system of control over the cessation of tests is on-site inspection. Inspection is represented as a panacea for all imaginable and unimaginable ills, and at the same time the significance of national means of control is deliberately minimized.

Since it is quite evident that no special international control is needed in order to conclude an agreement, we naturally cannot help thinking that hidden behind the demands for international on-site inspection are attempts to achieve some other purpose having nothing to do with the task of keeping watch on the cessation of tests. Another legitimate question which arises is whether these demands are not being made for the purpose of frustrating an agreement. After all, the United States has in the past put forward the question of control as a convenient means of closing the door to an agreement. It has expended considerable efforts and vast sums on finding a "scientific" justification of the need for on-site inspections in all cases. The United States has placed on this conference-table a number of reports which claim to be highly scientific. In this connexion we might mention the "new seismic data" (GEN/DNT/TWG.2/9; GEN/DNT/25), the Berkner report, (GEN/DNT/65), and the "Vela" project (ENDC/45). These reports have different titles and different prefaces, but the trend and intentions are the same: to select, or rather to arrange, such data and conclusions as confirm the official political line concerning the need for on-site inspection. Everything else, whether the views of United States scientists or the conclusions of scientists of other countries, which have run counter to this line, have been ignored or simply cast aside. If the facts militated against this thesis, then according to the advocates of on-site inspection it was just so much the worst for the facts.

I repeat, it is perfectly clear to us what the motives are behind this stubbornness of the Western Powers in regard to on-site inspection and other international elements of control. Nevertheless, the Soviet Union, with the sole object of speeding up the achievement of agreement on the prohibition of all nuclear weapon tests, decided to meet the Western Powers and to make an important political concession. The Soviet Government agreed that control over the implementation of an agreement on the prohibition of nuclear weapon tests, based on the national means of States, should include the following three important international elements:

1. Two to three on-site inspections a year on the territory of each nuclear Power.
2. The installation of three automatic seismic stations on the territory of each nuclear Power. The stations may also be situated on the territories of non-nuclear States, naturally with the consent of their governments (ENDC/73).
3. The establishment of an international commission of scientists, as proposed by the eight non-aligned States members of the Eighteen-Nation Committee.

In agreeing to the quota of two to three inspections a year and to the installation of three automatic seismic stations on the territory of each nuclear Power, the Soviet

Government was not making a routine concession in the process of bargaining, as some representatives have tried, and are still trying, to make out in this Committee. No; in actual fact we agreed to something which, in view of the efficiency of national systems for detecting nuclear explosions, is superfluous and unnecessary for control over a treaty. But a compromise is a compromise, and it is not always the most rational solution when one of the sides in the negotiations is deliberately trying to pile up obstacles.

The figure of two to three inspections a year on the territory of each nuclear Power which we have proposed, like the figures named by the Western Powers, is of course the result of a political solution. It should be borne in mind that the principle of an inspection quota was put forward by the Western Powers themselves as a way of settling differences. This proposal was first made by Mr. Macmillan, the Prime Minister of the United Kingdom, when he visited Moscow in February 1959. Moreover, the United Kingdom has regarded this approach as a purely political one from the outset.

As for the actual figure of two to three inspections a year, it is not a chance one. Before the Soviet Government decided to put it forward, the representatives of the Western Powers had given us to understand that that figure would suit them completely. During the present debate the representative of Bulgaria, Mr. Tarabanov, and the representative of the United Arab Republic, Mr. Hassam, recalled statements by the United Kingdom delegation to the effect that if the Soviet Union were to return to its proposal for an inspection quota -- and everyone knows that we proposed three inspections a year -- then agreement could be reached immediately. Furthermore, in private talks the United States representatives mentioned to us the figure of two to four inspections a year, which would fully satisfy the United States. Having weighed up all these statements by the representatives of the Western Powers -- statements which, I would stress, were made through different channels -- the Soviet Government decided to put forward its new proposals.

These proposals were set forth in the letter from Mr. Khrushchev, Chairman of the Council of Ministers of the USSR, to the President of the United States, dated 19 December 1962 (ENDC/73).

After that concession on our part it might have been expected that the preparation of a final agreement would be a matter of days, if the other side sincerely wished to settle the question. With that in mind, the Soviet Government accepted the proposal of the United States of America to hold negotiations in New York and in this connexion to postpone the resumption of the work of the Eighteen-Nation Committee. During the negotiations in New York and Washington we did everything in our power to achieve positive results. Considering that, as a result of the steps taken by the Soviet Union, agreement had in fact been reached on the basic question of the inspection quota, the Soviet Government agreed to an exchange of views on a number of questions relating to the practical aspects of the organization of control.

In order to mislead the members of the Committee and the world, the United States and United Kingdom representatives are asserting that their position on control over the cessation of nuclear tests, and particularly on the number of inspections and the number of automatic seismic stations, is based on scientific reasons. These assertions by the United States and United Kingdom representatives in no way correspond to the facts. As we have said before, the position of the Western Powers is dictated by reasons which are very far removed from science.

To what I have already said on this subject, I can add the following. The representatives of the United States speak of an equal inspection quota and an equal number of automatic seismic stations for their own territory and for the territory of the Soviet Union. It is well known, however, that the territory of the United States is many times more seismic than the territory of the Soviet Union. Every year considerably more

seismic phenomena occur in the United States which, according to the position of the United States delegation, would call for on-site inspection. This was pointed out, for example, by the United States scientist, Dr. Latter, who is in the service of the United States Atomic Energy Commission, in his report to Congress on 19 April 1960. It can easily be seen that, if we were to follow the position taken by the United States representatives and make the number of inspections depend on the number of unidentified events, a greater number of inspections would have to be carried out in the United States than in the Soviet Union. But the United States does not propose that. As you see, in regard to the quota it refers to science, but acts according to what is to the advantage of the United States. It acts on the basis of purely political positions.

At the meeting on 18 February 1963, Mr. Foster in fact confirmed that the United States demands in regard to an inspection quota are in no way determined by scientific reasons, although he referred to a scientific approach. Just look at what - save the mark! - scientific arguments were put forward to justify the United States position in this matter:

"Three would not only be far too small a proportion: it would be patently inadequate even if the unidentified earth tremors were many fewer than our scientists say." (ENDC/PV.99, p.21)

In other words, whatever the conclusions of the scientists may be, however small the number of unidentified and suspicious events may be, the figure of three inspections a year does not suit the United States. That is the gist of the matter; that is where the dog lies buried, as the saying goes, and not in science.

The demand for as great a number of on-site inspections as possible, for as great a number of automatic seismic stations as possible, and for the consequent large number of visits by foreign personnel to the territories of the parties to the treaty, cannot fail to arouse concern. This concern will be particularly intelligible if one considers that the military staffs of the Western countries are trying by all possible means to obtain intelligence information for the preparation of plans to deal blows at the vital centres of the Soviet Union and other socialist countries.

ENDC/PV.101 USA/Stelle

22.2.63

p.44

"We have noted that on 30 October 1962, in discussions held in New York with Mr. V.V. Kuznetsov, the First Deputy Minister for Foreign Affairs of the USSR, your representative, Ambassador Dean, said that in the opinion of the United States Government 2-4 on-site inspections a year in the territory of the Soviet Union would be sufficient." (ENDC/73, p.4)

In direct response to that statement President Kennedy, in a letter of 28 December to Chairman Khrushchev, said:

"With respect to the number of on-site inspections there appears to have been some misunderstanding. Your impression seems to be that Ambassador Dean told Deputy Minister Kuznetsov that the United States might be prepared to accept an annual number of on-site inspections between two and four. Ambassador Dean advises me that the only number which he mentioned in his discussions with Deputy Minister Kuznetsov was a number between eight and ten. This represented a substantial decrease in the request of the United States as we had previously been insisting upon a number between twelve and twenty. I had hoped that the Soviet Union would match this motion on the part of the United States by an equivalent motion in the figure of two or three on-site inspections which it had some time ago indicated it might allow." (ENDC/74, p.2)

After the receipt of this letter and the further exchange of correspondence, the Soviet representatives came to New York and Washington for private discussions. At that time we regretted the misunderstanding which had arisen but which should have been clearly removed by the letter from the President of the United States to Chairman Khrushchev. We made it clear that, to our knowledge, no representative of the United States had ever said that two to four on-site inspections would be adequate for our purposes; and we made it abundantly clear that the United States official position had always been that two to three inspections were not acceptable. There are no grounds at all for Mr. Kuznetsov to claim that that figure of two to three on-site inspections is an agreed figure between the Soviet Union and the United States: it is not. The number of two to three on-site inspections has never been acceptable, and is not acceptable, to the United States.

ENDC/PV.103 Italy/Cavalletti

27.2.63

pp.6-7

I have re-read with great care all the speeches made by the various delegations at recent meetings, and I have taken the liberty of extracting a series of questions which have been raised by one or another of these delegations. These are questions which the delegations have indicated as worthy of study in depth, independently of the solution of the two main controversial issues - the number of inspections and the number of "black boxes".

I should like to submit this list to the consideration of the Committee, emphasizing at the same time the two following points. First, the formulation of the problems contained in my list is purely indicative. If this list were to be adopted for consideration, it would need further elaboration, with the assistance in particular of the delegations which first raised the various problems, so that it could be made more precise and detailed. Secondly, it makes no claims to finality or completeness. I know that there are certainly other problems which deserve to be added.

Here, then, with your permission, Mr. Chairman, is the list:

A. National control posts

- (1) National stations which should be made available for purposes of verification;
- (2) Siting of these stations, and possible setting up of other stations, in the territory of parties to the treaty or in other countries;
- (3) Equipment of each control station;
- (4) System for the transmission to the international commission of data obtained by the stations;
- (5) Possible standardization of methods and structures on the pattern, if necessary, of model stations;
- (6) System to be adopted to ensure that the staffs of these stations receive standardized and identical training.

B. Automatic stations

- (1) Instruments which should be contained in each automatic station;
- (2) Siting of stations so as to ensure the most efficient control;
- (3) Practical methods to be employed for installing a station;
- (4) Measures to be adopted for the periodical collection of the data recorded by each station;
- (5) Co-ordination between automatic and other stations;
- (6) Range of each automatic station.

C. Inspections

- (1) Definition of the size of the zone to be inspected;
- (2) Composition of the inspection team, specially with regard to the nationality

and scientific training of the inspectors;

- (3) Operations which the inspectors could and should carry out;
- (4) System of ensuring immediate inspection of a suspicious event;
- (5) Rules of travel for inspectors so as to provide the inspected country with full guarantees against espionage and undue interference with its national life.

D. Central Control Commission

- (1) Possible interim tasks of the Eighteen-Nation Committee, and its appropriate composition;
- (2) Eventual composition of the control commission so as to give the necessary guarantees to the governments concerned;
- (3) Seat of the commission;
- (4) Functions of the commission: analysis and evaluation of data received from the stations, standardized training for station and inspection staff;
- (5) Relations with UN and Member countries;
- (6) Financial contributions.

I do not think that the questions contained in this list require any explanation from me at this stage, since they have been extracted from the clear and detailed statements of my colleagues as recorded in the verbatim reports of previous meetings. I have tried to reflect my colleagues' views as faithfully as possible.

ENDC/PV.103 USSR/Tsarapkin

27.2.63

p.24

At the same time Mr. Stelle said:

"Most recently we have agreed to place our reliance on national systems checked by various kinds of instrumentation, and without international supervision. So there is no issue on this ..." (*ibid.*)

But if the United States places its reliance on national control systems, as Mr. Stelle stated quite clearly and definitely at the one hundred and first meeting, then we, for our part, should like to note with satisfaction this move forward by the United States, a move in the right direction. This understanding and evaluation of the role of national systems coincides with ours. Consequently we could put on record the general understanding that the United States agrees that national means of detection should be the basis of control over an agreement on the prohibition of underground nuclear tests. Moreover, we understand that the United States agrees that automatic seismic stations would be a means of verifying the proper functioning of national seismic stations.

Those were precisely the considerations which guided the Soviet Government when it suggested using the idea of installing automatic seismic stations which was put forward at the Pugwash Conference of scientists. We should like to stress very clearly that automatic seismic stations placed at three points - which apparently have already been agreed upon - in the territory of the Soviet Union and in the territory of the United States, in conjunction with other seismic stations in the territories of States bordering on the seismic zones of the Soviet Union and the United States, would constitute adequate means for dispelling any possible doubts felt by the other side concerning the proper functioning of national networks of seismic stations. On the basis of the statements of Mr. Stelle which I have quoted, it may be concluded that we can now agree without difficulty on the question of the number of automatic seismic stations, since after Mr. Stelle's statements the United States demand to increase the number of seismic stations above three falls away and becomes pointless.

ENDC/PV.104 USA/Foster

1.3.63

p.20

They met next on 7 November at Mr. Kuznetsov's initiative, at the Soviet Mission in New York. Again Mr. Dean was accompanied by Mr. Akalovsky. Reading from a prepared text and stating that he was acting on instructions, Mr. Kuznetsov reviewed the Soviet position on the test ban — a position which still excluded any on-site inspection on Soviet territory.

Mr. Dean re-emphasized the United States position that on-site inspections were necessary and that their number was related to the number of unidentified seismic events. He also said that, because of the progress achieved under the Vela Research Programme, the United States might be prepared to accept something like eight to ten on-site inspections, and eight to ten nationally-manned control posts under international supervision. He observed that ninety per cent of the territory of the Soviet Union was aseismic, and suggested the possibility of subdividing Soviet territory into seismic and aseismic areas. He remarked that United States scientists believed that, if two control posts were located in the aseismic portion of the heartland of the Soviet Union and eight in the seismic areas, only very few inspections might be required in the aseismic areas.

Afterwards Mr. Timerbaev, a member of the Soviet mission who also had attended the meeting, approached Mr. Akalovsky to check Mr. Dean's remarks about the number of nationally-manned stations and of on-site inspections. Mr. Akalovsky referred Mr. Timerbaev to what Mr. Dean had said, with Mr. Timerbaev repeating the number of eight to ten on-site inspections and Mr. Akalovsky confirming the accuracy of his account.

Consequently, there are no grounds for doubt about the numbers mentioned by Mr. Dean; and that makes subsequent claims by Soviet representatives, that on 30 October Mr. Dean had in fact mentioned the two to four figure, quite surprising. Both United States participants in those meetings confirm the facts which I have just given to this Conference. Nevertheless, it is possible that there might have been some misunderstanding. If that is the case, we deeply regret it. But from the text of President Kennedy's letter to Chairman Khrushchev on 28 December 1962 (ENDC/74), there could have been no misunderstanding that eight to ten on-site inspections was the United States position.

I apologize for taking up so much time in the Conference with this historical record of United States-Soviet bilateral conversations, but I do hope there will be no further allegations that the United States proposed something which it never did propose.

ENDC/PV.105 USA/Stelle

6.3.63

pp.23-25

A related problem concerns the human agency designated to make the decisions about whether, in the case of a particular seismic event, the agreed criteria for detection, location and identification have or have not been met. In 1961 the Soviet delegation appeared, most of the time, to be contending that that determination should be in the hands of a group of three officials, representing respectively the West, the Soviet Union and neutral States, which had to come to a unanimous decision in each case. That was, of course, the so-called troika scheme which was advocated in Geneva as well as in New York. Quite naturally we in the West are very much interested to learn the current Soviet position on that question, which can have the most direct bearing on whether inspections will be at all useful as a control measure.

In fact the entire Soviet position on the problem of vetoes over control operations is still unclarified. In the early days of the test-ban Conference, the Soviet Union submitted a list (GEN/DNT/29) of major topics on which it was to have veto rights. One

of them was the right to veto any request by the other nuclear side to conduct an on-site inspection on Soviet territory. The idea of an annual quota of inspections was invented to get around that very demand by the Soviet Union for a veto, and so it seemed to do until the troika plan of 1961 was put forward.

Moreover, quite apart from that veto, and even if the Soviet Union has, as we must hope, dropped its troika demand here, we are still uninformed about the Soviet position on other major aspects of inspection. For example, in 1961 the Soviet Union seemed to be saying that, although one nuclear side could call for the conducting of an inspection of an eligible seismic event on the territory of the other, the actual decision in each case had to be taken by the international commission. As the Committee knows, the West has always insisted that the actual decision should be left to the other nuclear side, since only a small fraction of all eligible seismic events are actually going to be made the objects of on-site inspection. In other words, a truly safeguarded adversary, or reciprocal, procedure would guarantee the most satisfactory application of whatever inspections are available as an effective deterrent. In addition there would be some simplification in the size and some reduction of the expense of the control system. Here again we ask where the Soviet Union now stands.

Similarly, there is a long history of disagreement about the area that should be subject to inspection. It can easily be seen that the efficacy of on-site inspection is directly tied to the area open to search by the inspection team. The size of the area is linked closely to whether a larger or smaller number of inspections will be necessary to provide an effective deterrent to violations; for much depends on whether we have scientific assurance that, for example, there is a 90 per cent probability that the selected epicentre will actually fall into the inspection area or whether, if the area is smaller, there might be only a 20 per cent probability of the epicentre's falling into the selected area. The size of the area to be inspected will certainly affect the probability that the epicentre of a particular event will actually be inside the inspection area. That probability will, in turn, have much to do with the number of on-site inspections which will constitute an effective deterrent against violation. Nevertheless, on that score also, we have at this time no information whatsoever about the Soviet position.

The same can be said of the Soviet position on the composition by nationality of inspection teams. In the past the Soviet Union has never deviated from the requirement that the head of the team and at least one-half of all the technical specialists on the team should be nationals of the country on whose territory the inspection is to take place. For our part, we have never ceased to call that approach unacceptable, since it would involve the employment of citizens to investigate their own country, which might possibly have been guilty of violating a solemn international obligation. That would amount to self-inspection and could destroy international confidence in the entire inspection process and the deterrent effect of a small number of on-site inspections. Yet the Soviet delegation refuses to enlighten us on that vital question of inspection as well as on all the others, except the single matter of the annual number of inspections.

The United States delegation, of course, has no desire to avoid the question of the number of inspections, and we have not avoided it. As system capabilities have improved in the detection and identification of seismic events, we have steadily lowered the number of inspections requested from almost all unidentified events to 20 of a yield above a scale of seismic magnitude of 4.75, next to from 12 to 20 of the same kind of events, then from 12 to 20 without a threshold, and more recently to from 8 to 10, and finally to 7, conditional on agreement to certain inspection arrangements. The Soviet Union, for its part, has never deviated from 3, except of course by going to zero.

However, we cannot view this one item in complete isolation from all the other factors relevant to on-site inspection, for those factors will tell us whether the number we agree upon with the Soviet Union is going to be valuable or worthless as a vital

element in the system of verifying the observance of a test-ban treaty. And, as we explained at the meeting on 25 February (ENDC/PV.102), that is why my delegation has made clear that the United States believes that, if we could get agreement on satisfactory arrangements and procedures on those other essential matters, agreement would be easier on the annual quota number of inspections.

ENDC/PV.107 USA/Stelle

11.3.63

pp.7-8

"So let us proceed from the number of seventy-five unidentified seismic events" -- I repeat "seventy-five unidentified seismic events" -- "on the territory of the Soviet Union. In the past, when the starting point was 700 seismic events" -- I repeat, "700 seismic events" -- "a year on the territory of the USSR, the United States delegation asked for twelve to twenty annual inspections. What would be the corresponding number of inspections were we to start from the figure of seventy-five?" (ENDC/PV 105, p.16)

He went on to state that it was just a question of plain arithmetic.

But of course he is asking us to compare the total number of seismic events and the former Western proposal on inspection in the one case as against the present estimated number of doubtful or unidentified events and the present Western proposal for inspections in the second case. Our figures on on-site inspection have in the past been related to the number of doubtful events rather than to the total number of seismic events. For example, our inspection proposal of from twelve to twenty on-site inspections was based on our estimate that there would be in the Soviet Union -- above the 4.75 seismic magnitude treaty threshold, which we were then proposing, and using an international system of detection stations, which we were then proposing -- about 100 doubtful or unidentified events annually. With a national system with increased capabilities for long-range detection, and with corrected figures for the number of earthquakes above a particular seismic magnitude equivalent to a given yield underground test, we now believe there might be some seventy-five unidentified seismic events in the Soviet Union above a detection threshold of approximately 4.0 seismic magnitude. And so we proposed an inspection quota of some eight to ten inspections.

So much for the remarks of the representative of Romania. I should now like to reply to the statement made by the representative of Poland on 6 March (ENDC/PV.105). First, I should like to deal with a quotation which he repeated from a statement which Mr. Foster made on 1 March. In this case I feel the Polish representative may have been a victim of the problem of translation between languages. The quotation to which he referred was somewhat different in the French interpretation, which we presume he used, from what it was when stated originally in English by Mr. Foster. Mr. Foster said:

"It is, of course, obvious that the Soviet Union is able" -- and here is where the trouble comes, and I continue to quote -- "to know whether seismic events on its own soil are earthquakes, but, quite frankly, we are not." (ENDC/PV.104, p.17)

Unfortunately, the French verbatim record of the meeting uses the words "to identify" in place of the English words "to know". The difference is obvious. For here Mr. Foster was speaking of the Soviet Union knowing what goes on on its own territory by being perfectly cognizant of where, when and how it conducts its own nuclear tests, and by being able freely to look at the site of any questionable event. On the other hand, the French word "identify" may have misled the Polish representative into concluding we were referring only to seismic instrumental means of knowing what was going on in the Soviet Union. We, of course, were not.

Second, and more important, is the argument which the Polish representative developed to try to show that the Western position on on-site inspection has no scientific basis because the West agreed two weeks ago to seven on-site inspections annually conditional upon Soviet acceptance of certain arrangements for on-site inspection. The Polish representative said:

"I can understand at a pinch that over a period of time the number could be reduced gradually from between 12 and 20 to between 8 and 10 taking as a basis the results of experiments carried out between the Rainier experiment and the Vela project, but how is it possible in a period of no more than four weeks to reduce the number from between 8 and 10 to 7 on the basis of new scientific data?" (ENDC/PV.105, p.30)

To reply: it is of course a matter of record in this Conference that the United States offered eight to ten inspections four months ago, on 7 November 1962, in a conversation between Mr. Dean and Mr. Kuznetsov, and not four weeks ago. However, the question of time is not really material. Rather, it is a question of the way in which the offer of seven inspections was made to the Soviet Union. We have carefully indicated to our Soviet colleagues and to this Conference that the offer of seven inspections was made contingent upon Soviet willingness to negotiate and to agree upon effective inspection arrangements — arrangements which we have described to Soviet representatives.

ENDC/PV.108 USA/Stelle

13.3.63

pp.6-9

Recently the United States made known to this Conference that it had proposed the number of seven for the on-site inspection quota in a private meeting with the then Soviet representative. That number was proposed as a forward move to meet the Soviet position on on-site inspection, and as a token of our genuine interest in a nuclear test ban. It was put forward in connexion with certain inspection arrangements which I should like to describe to the Committee today. As I explained to the representative of Poland at our last meeting (ENDC/PV.107, p.8), they are the arrangements upon which our suggestion of the number seven was predicated. The arrangements which I will describe are only for the inspection of events in the Soviet Union, in the United States and in the United Kingdom.

The Soviet Union has been informed, both here in Geneva and in Moscow, that we are making our position known on these issues in the Conference today. The Soviet Union has been asked in our private conversations to state its position on them. Thus far there has been no reply. The stating of our position today should not — I repeat, should not — be construed to mean in any way that we have given up hope that the Soviet Union will make its position clear. On the contrary, we believe that, by making our position clear to all the members of the Conference, we may stimulate a discussion on these questions — a discussion in which we devoutly hope the Soviet Union will play an active role befitting its status as a major nuclear Power interested in banning nuclear weapon tests.

We believe that the system for inspection can be considerably simplified if seismic events are designated for inspection through a procedure involving "other-side choice". That would mean that seismic events in the United States and in the United Kingdom would be designated for inspection by the Soviet Union, and in the Soviet Union by the United States and by the United Kingdom. Under that procedure the designating party would submit seismic data from at least four seismic stations to establish the location of an event which it might later wish to inspect. Such a submission would be accompanied by a statement that the event could not be identified as natural in origin under agreed

treaty criteria. The data locating the epicentre of the event in question would also have to be submitted and would have to meet agreed treaty criteria.

With respect to the location criteria the United States proposes that we use criteria which have been, in part, already agreed between the United States, the United Kingdom and the Soviet Union, and which are contained in article VIII of the draft comprehensive treaty dated 27 August 1962 (ENDC/58). Similarly, the criteria previously agreed between the United States, the United Kingdom and the Soviet Union for the identification of certain events as natural in origin could also be a part of the treaty. Those latter criteria would eliminate from consideration events which occurred deeper than 60 kilometres, certain large events in the deep ocean, and foreshocks and aftershocks of large earthquakes identified in the first two categories.

Should a State designating an event, after receiving clarification and data concerning the event from the host country, wish to carry out an inspection, it should have the right to select, within the agreed quota, the particular designated event for inspection.

During our private meetings with the representatives of the Soviet Union in New York and Washington we indicated that, in view of our shift from asking for an international system of control posts spaced on a grid pattern to agreement on a system of national networks of control posts, the ability to locate epicentres accurately might have been somewhat degraded. As a result, we mentioned at that time to the Soviet representatives in our private talks in New York and Washington that the inspection zone -- that is, the area open for inspection -- might need to be 700 to 800 square kilometres in area. However, a careful review of the scientific problems concerned in determining the location of an epicentre, and an evaluation of the shift we have proposed to the use of the principle of the reciprocal location of epicentres, indicate that an area somewhat reduced in size from what had previously been thought to be necessary would probably be adequate. The United States now proposes that the on-site inspection be limited to an ellipse of 500 square kilometres in area with a semi-major axis of a maximum of 15 kilometres.

We believe that on-site inspection teams will perform a crucial task. We believe that, in order to ensure the highest order of technical efficiency, nationals of the nuclear sides should fill certain important technical positions in the inspection teams. We consider, after careful analysis, that there would probably be about fourteen such technical positions for an inspection of a nuclear State's territory. Therefore the United States believes that the teams inspecting a seismic event in the United States should be composed of about fourteen Soviet technical experts plus an additional number of experts from States not members of either NATO or the Warsaw Pact. Teams which inspected events in the Soviet Union would be similarly composed of fourteen United States-United Kingdom technical experts, with the remainder of the team composed of nations who were experts from States not members of NATO or the Warsaw Pact.

If teams were composed of twenty-eight inspectors, there would of course be an equal number of technicians from "the other nuclear side" and from States not members of the military pacts. However, if teams were to be smaller in number -- and perhaps as few as twenty inspectors might be sufficient for some on-site inspections -- we believe that the principle of reciprocal or adversary inspection should be maintained with respect to technical experts. In the case of twenty inspectors, therefore, there would be fourteen nationals from one of the nuclear sides and six from the States not members of the military pacts in an inspection group in the territory of a nuclear Power.

The chief of the inspection team in the territory of a nuclear State should be a national of the other nuclear side. If the host country desired, the team could be accompanied by a number of host-country observers equal to the total number of team members.

With respect to the tasks and duties of an inspection team, a team should have

guaranteed freedom of movement in the inspection zone and be able to conduct low-level aerial, ground and sub-surface inspection of the area concerned. It should provide all of its own inspection equipment and instruments, except for heavy transportation equipment such as helicopters and trucks, which should be provided by the host country.

On the use of automatic seismic stations, the United States has proposed that the Soviet Union, the United States and the United Kingdom supply sealed recorders and certain sealed instruments for automatically-recording seismic stations. Those stations would be built according to agreed specifications by the United Kingdom, the United States and the Soviet Union. The host country would have certain responsibilities for the maintenance of those automatic recording stations. Data from the sealed recording stations would be picked up and the sealed instruments would be maintained and checked by personnel from the other side and from the international commission a maximum of eight times each year. Those data could be extremely useful in clarifying the nature of a particular seismic event early in the inspection process.

We are suggesting too that the data from each automatic seismic station should also be registered outside the station on a recording device identical to the one within. The data obtained outside the automatic seismic station would be picked up and transmitted at regular intervals, perhaps once a week, by host country personnel. The data would be forwarded to the international commission for its own use and for transmission to the other side. The United States has proposed, as delegations know, that there be seven such automatic recording stations located in the Soviet Union.

As a part of the inspection arrangements we should be willing to agree that the host country could exclude a sensitive defence installation from the area to be inspected. The host country would provide the country requesting the inspection, and the commission, with a report explaining that a particular installation was to be excluded because it was a sensitive defence installation. The requesting State should have the right to continue the inspection in such circumstances, excluding the defence installation, or to cancel the inspection if it wished, without loss of an inspection quota number. In addition, abuse of the exclusion provision could be considered grounds on which withdrawal from the treaty could take place.

Finally, if it were considered necessary to undertake drilling, the leader of the inspection team would have to give notice of that fact within a time period of five weeks from the start of the inspection. If drilling operations were undertaken, the host country would agree to permit additional persons to enter the inspection area, as well as the necessary heavy equipment.

I have just given the Committee the broad outline of a number of those inspection arrangements which we consider will be necessary to ensure that each inspection will be most meaningful, both in terms of being an effective deterrent and as a builder of confidence between the parties to the treaty. I have also indicated our position with regard to data from automatic seismic stations which may be a useful supplement to information from national stations during the early part of the inspection process.

ENDC/PV.110 USA/Stelle

18.3.63

pp.23-26

As I pointed out on 13 March, the arrangements which my delegation set forth at that meeting relate solely to inspection on the territories of the Soviet Union, the United Kingdom, and the United States (ENDC/PV.108, p.6). We believe generally that there should be an agreed sequence and orderly procedure for the carrying out of on-site inspection. Only in that way will all States have assurance that the complete inspection process will take place in an orderly manner, thereby maximizing both the

deterrent and the confidence-building effect of each on-site inspection.

The process will be based on the collection of seismic data. National seismic stations around the world will detect events on the territory of the three nuclear Powers now negotiating here. Those data will be analysed and discussed by officials in the national seismic systems. They will also be transmitted from the stations in the national seismic networks, which will be listed in the treaty, to the international commission and to the other nuclear side. If, for example, an event were detected in a well-known aseismic -- I repeat, aseismic -- area of one of the nuclear States, the other side might well wish to designate that event as subject to on-site inspection.

In our opinion, a State should have sixty days from the time a seismic event took place to designate that event as subject to on-site inspection. Under the designation process the other nuclear side would send a statement to the commission and, through it, to the country in which the event occurred. The statement would indicate the location of the event and the time of its occurrence. It would forward the data from at least four seismic stations by which the event was located. Those data would have to meet certain location criteria listed in the treaty. In addition, the statement would have to indicate that the event could not be identified as an earthquake from data available to the designating State. The criteria against which the designating State would test its data to determine whether the event was an earthquake would also be listed in the treaty.

We believe location criteria along the lines contained in article VIII of the draft comprehensive test ban treaty of 27 August 1962 (ENDC/58) would be adequate. Those criteria provide that an event should be considered located when seismic signals whose frequencies, amplitudes, durations and velocities are consistent with those of waves from earthquakes or explosions are recorded at a sufficient number of stations to establish the approximate time and position of the event. We have agreed with the Soviet Union in the past that location requires records from at least four stations. The records from those four stations must show clearly-measurable arrival times of identifiable phases which are mutually consistent to within plus or minus three seconds. In addition, we have agreed with the Soviet Union in the past that the four mutually-consistent arrival times must include P-wave arrival times at three different detection stations. P-waves are those which pass through the area below the crust of the earth. We wish to know now whether the Soviet Union still agrees with those criteria or whether it has other criteria to propose.

In addition, in our view the designating country must declare, on the basis of the criteria, that the event designated is not identified as an earthquake. The following criteria would, as we have agreed in the past with the Soviet Union, identify an event as an earthquake.

First: if the depth of focus of the event is established as below 60 kilometres. That means that the origin of the event would be located more than 60 kilometres deep within the earth.

Second: if the event is located under the deep ocean and is not recorded on hydro-acoustical apparatus.

Third: if the event is clearly established as the fore-shock or after-shock of an earthquake of at least magnitude six which has been clearly identified as an earthquake by one of the previous criteria. Also, a fore-shock should occur as part of a sequence of earthquakes less than forty-eight hours before the main shock, and an after-shock as part of a sequence less than a week following the main shock, with the epicentre of the fore-shock or after-shock located within a given agreed distance of the main shock. We should now also like to know if the Soviet Union still agrees to the use of that criterion.

The State on whose territory the event took place should, in our opinion, have a

week to provide all supplementary information which it had and which it might wish to make available concerning the event. Such data would be given to the commission and, through it, to the designating State. It might include data not previously available from national seismic systems, as well as any other information which would bear on the nature of the event.

During that one-week period we believe the designating State should also have the opportunity to examine the data collected by the sealed recording instruments in the automatic seismic stations in the host country territory. Such visits to retrieve data should, of course, as we have said previously, be made only eight times each year. The retrieval should be accomplished by personnel from the designating side and from the international commission. The data collected might well indicate that the event in question was not one which should be inspected. We believe that the designating State should then be given an additional week to digest and analyse the information which might be provided both from the automatic seismic stations and from the State on whose territory the event had taken place. If before the lapse of that one-week period the designating State wished to select the event for on-site inspection, it would have to submit a further statement. If the period passed without a selection for inspection, the event would no longer be eligible for inspection.

A State selecting an event for on-site inspection would, in our view, have to provide in its further statement information on the location and boundaries of the area selected for inspection. The area would, of course, have to conform to agreed treaty criteria. We have proposed that an inspection area should surround the epicentre and should contain no more than 500 square kilometres. In addition, we have stated that the area should be elliptical in shape and that the semi-major axis should be no more than fifteen kilometres in length. In somewhat clearer English, that means that the maximum permitted longest dimension of the ellipse should be thirty kilometres.

In addition, the statement selecting an event for inspection should include information on the proposed time and place of arrival of the inspection team at the borders of the receiving State. The receiving State would then have a period of five days to indicate the arrangements it would make for the reception of the inspection team and for the transport of the team to the inspection area. It is at that point that the receiving State would also be permitted to file a report indicating the presence of a sensitive defence installation in the inspection area. The designating State would then have to exercise its option of either continuing the inspection, with the exclusion of the sensitive defence installation, or of cancelling the inspection and preserving the quota number for future use.

ENDC/PV.113 USA/Stelle

25.3.63

p.9

Equipment for all operations undertaken by the inspection team would be supplied by the team, except heavy transportation vehicles such as trucks and helicopters, which would be supplied by the host country. As we have said, personnel of the inspection team could be accompanied by observers and other representatives designated by the host country to assure the proper functioning of the team in its territory and to ensure that no team member engaged in activity incompatible with the purpose of on-site inspection.

We believe that inspection teams should have a maximum — a maximum — of six weeks to complete their examination of the inspection area. That examination process would, in our view, include low-level helicopter flights throughout the inspection area to examine the area both visually and photographically for any evidence of a nuclear weapon test. In addition, members of the team would have access throughout the area

for the purpose of surface inspection, and would be permitted entrance to any sub-surface cavities, such as mines, to look for evidence of a test. If a longer period of time were necessary for completion of the inspection process, we believe it could be extended by mutual agreement — I repeat, by mutual agreement.

If the leader of the team decided that drilling was necessary, under our proposals he would have to notify the host country within five weeks from the start of inspection. That notification would indicate what additional persons and equipment would be required, their length of stay and their anticipated time of arrival. The host country would agree to facilitate the arrival of such equipment and personnel. Not later than thirty days after a team had completed its inspection the team leader, in our view, should be responsible for submitting a report on the findings of the team.

For the moment that concludes my delegation's preliminary discussion of the arrangements for the conduct of an on-site inspection. We sincerely hope that the Soviet representative, or representatives of allies of the Soviet Union in this Committee, will soon be prepared to offer comments on the broad issues of on-site inspection. It is our hope that what we have presented today will better enable them to do that.

ENDC/PV.114 USSR/Tsarapkin

27.3.63

p.40

As the representatives of the Western Powers have stated on many occasions, they attach great importance to the question of control. When considering the Soviet Government's proposal of December 1962, the representatives of the United States and the United Kingdom persistently emphasized that their Governments' attitude towards this proposal would be determined to a great extent by whether the Soviet Union envisaged effective control over the remaining missiles. Thus, for instance, at the meeting of 10 December 1962, Mr. Stelle, when asking us what the control measures would be, stated:

"...an indication of the Soviet Union's attitudes on that question would contribute importantly to an assessment of the potential and implications of its new proposal." (ENDC/PV.90, p.33)

At a previous meeting the representatives of the United States and the United Kingdom again asked us what control we envisage over the missiles which, under the Soviet proposal, would remain temporarily in the Soviet Union and the United States. We are ready to make that quite clear so that no one should have any doubts about it.

In the interests of reaching agreement the Soviet Union is ready to take a considerable step to meet the position of the Western Powers on this issue as well. The Soviet Union is willing to agree to the establishment of control over the remaining missiles directly at the launching pads. It considers that such launching pads should not be more numerous than the remaining missiles. Of course, the launching pads should be eliminated at the end of the second stage together with the missiles themselves.

The Soviet delegation has given clear and direct answers to the questions put to us by the Western Powers. Now there can be no further reference to a lack of clarity in our proposal or to a lack of clarity in regard to the conditions of control.

ENDC/PV.116 USSR/Tsarapkin

1.4.63

p.17

As regards underground explosions, this problem could have been resolved in exactly the same way, but because of the demand for inspection in regard to significant suspicious seismic events put forward by the United States, the negotiations reached a deadlock. In order to break this deadlock the Soviet Government decided to make a big political concession to the Government of the United States and agreed to a quota of two

to three inspections a year on the territory of the nuclear Powers.

Thus, in this decisive question also, thanks to this concession by the Soviet Union, the positions of the sides have come closer together, and the main obstacle in the way of an agreement has now been removed. This can be said with all the more justification since the Soviet Union has accepted the number of inspections which had, in fact, been proposed to the Soviet Union by the representatives of the United States and the United Kingdom both informally and officially.

Everyone expected that this concession on the part of the Soviet Union would be duly appreciated by the United States and that an agreement would be speedily concluded. As a result of the goodwill displayed by the Soviet Union and its striving for an agreement on a compromise, mutually acceptable basis, we now have the following picture in regard to control over underground explosions. If an agreement were concluded, control over underground nuclear explosions would be carried out in the following manner — I shall now list the components of such a control system:

1. The national observation networks of nuclear Powers;
2. The national observation networks of other non-nuclear Powers, that is socialist countries and countries forming part of Western military blocs;
3. The national networks of the non-aligned countries;
4. The network of United States seismic stations scattered over foreign countries, mainly around the boundaries of the Soviet Union;
5. The installation of three seismic stations each on the territory of the Soviet Union and the territory of the United States;
6. The installation of seismic stations on the territory of countries adjacent to the Soviet Union and the United States;
7. An international centre for collecting and processing data received from national observation systems and automatic seismic stations;
8. An agreement on two to three on-site inspections a year on the territory of the nuclear Powers.

ENDC/PV.122 USA/Stelle

19.4.63

pp.9-10

Let me therefore recapitulate our suggestion briefly, and offer some additional thoughts. We believe it would be desirable, in the first instance, for the exchange of missions to take place between the Governments of the Soviet Union and the United States. Such an arrangement would not, of course, preclude subsequent similar arrangements between other States and those two Governments. The arrangement should be such that its continuation would be dependent upon the continuing belief of both parties that it was serving a useful purpose.

The main function of the special missions would be verification of the state of affairs that the host country would like to have reported authentically to the other country, in circumstances where assertions by the host country might not by themselves be completely convincing. Thus the purpose would be to avoid exaggerated impressions of the imminence of war or of preparation to initiate war, and perhaps to facilitate some secure relaxation of military preparations on both sides in time of crisis. Hence it might be said that the normal role of a mission would be that of a stand-by team, available to be called on to witness activity or the absence of activity when it was in the interest — I repeat, when it was in the interest — of the host country to provide such evidence and when satisfactory evidence could not be provided except through skilled, trustworthy and authentically identified officials of the government receiving the evidence.

It is completely true that the utility of the mission would be dependent upon the

attitude of the host government. For its part, the United States believes it would be of value to us to have present a Soviet mission to which we could convey accurately the true meaning of our aims and actions and, where appropriate, provide verification of those aims and actions.

We believe it is most important that the Soviet Government should understand the distinction we are making between two types of verification. One is where a verification arrangement seeks to get at the truth in spite of a government's possible efforts to conceal it. The other is a verification arrangement that helps a government to display the facts of a situation when that government believes that it is in its own interest that the facts be known.

It is, of course, true that a mission could not on its own take the absence of suspicious activities as a basis for reporting "All is well". Its role would be that of a trained and reasonably sceptical witness, to which the host country could provide positive evidence or reasonable opportunity to satisfy itself.

Since what would be desired would be information which the host government wished to give to the mission for purposes of reassurance, there would be no objection to -- and indeed there would be no value in -- having host government personnel accompany mission members on such occasions as the host government might wish to use the mission.

As a further consideration, I believe it is obvious that the military missions could contribute substantially to the value of a direct communications link. While the United States has made it clear that it is prepared and eager to establish a direct communications link as a separate measure, there is in principle an inherent relation between the two proposals since the motive for observation in a particular instance might well arise from an exchange of messages between governments. If the direct communications link were in fact used as a means of clarifying ambiguous evidence, explaining certain steps that had been taken, or proposing actions that might reduce misapprehension, the special missions could participate in the communications process. If, for example, certain military dispositions were to be explained, having one's own military experts available at the other end of the line might greatly facilitate the communication.

We believe it is important that the Soviet delegation and its Government should understand that we are suggesting the exchange of special military missions rather than merely augmentation of embassy attachés, as a means of emphasizing the special function we envisage for the missions, that of clarification and reassurance, and availability to serve the host country. Thus the missions themselves would have every incentive to think imaginatively about the special tasks that they might be called upon to perform. Likewise, establishment of the special missions would help to keep host governments alive to their main purpose and to a host government's responsibility to make the best possible use of them. In addition, we believe, the potential value of such exchanges in improving relations and mutual understanding between the two governments should not be underestimated.

Surely, if the nature of the exchange we propose is fully understood, there can be no concern about espionage. It would be an arrangement where the value of the mission would depend upon its rapport with the host government, and where the continuation of the arrangement would be contingent upon its continuing acceptability to both governments. Under those conditions any attempt to use the arrangement for espionage would be ineffective, counter-productive and in fact absurd.

cessation of nuclear tests and it agreed to the carrying out of two to three inspections a year on the territory of each of the nuclear Powers.

The United States persistently tried to persuade us to agree to three inspections a year. This persuasion went on through official and unofficial channels. Unofficially, during private meetings we were asked about this by Mr. Arthur Dean at a time when he was still official United States representative at the negotiations on the prohibition of nuclear weapon tests and on disarmament. We were also asked the same thing by Prof. Wiesner, Adviser to the President of the United States, during his two unofficial conversations with Academician Fedorov. Officially, we heard this persuasion of the Soviet Union to agree to three inspections a year in a statement by the United States representative to the United Nations, Mr. Adlai Stevenson, when he spoke officially in the First Committee of the seventeenth session of the United Nations General Assembly (A/C.1/PV.1246, pp.38-40). We were asked about the same thing in the official statements made in the Eighteen-Nation Committee by the United Kingdom representative, Mr. Godber, who is present here today, and by Sir Michael Wright, who is no longer with us. We have no doubt whatever that at the time when the Soviet Union was firmly opposed altogether to inspection, the United States was ready to agree to three inspections. This is not a groundless assumption but a fact. I should like to remind the members of the Committee that the figure of three inspections a year also appeared in the United States draft treaty prepared before the Soviet Union agreed to two or three inspections a year.

Perhaps not everyone knows that the Arms Control and Disarmament Agency headed by Mr. Foster prepared and submitted to the United States Congress and the United States President a report on its activities during 1962. This report included a United States draft treaty on the prohibition of nuclear weapon tests. Paragraph 8 of article VIII of this draft was worded as follows:

"The maximum number of inspections which can be carried out on the territory under the jurisdiction or the control of a permanent member of the Commission" -- this is a reference to the International Scientific Commission, of course -- "is three per year."

I draw your attention to the phrase "three per year". The same wording of this same paragraph of article VIII appeared also in an illustrated pamphlet printed by the United States Publications Office in February last. Later, of course, officials of the State Department and the Agency bethought themselves and they changed paragraph 8 of article VIII leaving a blank space in place of the figure 3, but it was obvious to anyone who had read the document at the time that, until the Soviet Union agreed to three inspections a year and even for some time afterwards, the figure of three inspections a year appeared in the United States draft treaty on the prohibition of nuclear weapon tests. However, no sooner did the Soviet Union, in the interests of achieving agreement, accept two to three inspections a year than the United States, considering that three inspections a year was already for them a captured position, started to reject the quota of three inspections and put forward fresh demands regarding the number of inspections. The United States representatives in the Committee are now trying to repudiate everyone and everything. They repudiate Arthur Dean, they repudiate Professor Wiesner, they repudiate Adlai Stevenson, they repudiate the Deputy Minister of Foreign Affairs of the Soviet Union, Mr. Kuznetsov, they even repudiate the fact that the figure of three inspections was laid down in the previous version of their draft treaty on the prohibition of tests. Now they say that it was a misprint, that three lines had been omitted. But who will believe that?

The British, not daring to let themselves get out of step with the United States representatives, were compelled to deny their own statements. That is what Mr. Godber did regarding his own statement in November last year (ENDC/SC.I/PV.44, p.11), and at

the same time he also denied what was stated by Sir Michael Wright on this subject at the beginning of December last year (ENDC/PV.87, p.8).

Of course, these were not bona fide denials but simply a withdrawal of their own words which, of course, have not ceased to exist, Mr. Godber, because they appear in the verbatim records of the relevant meetings of the Committee.

ENDC/PV.123 USSR/Tsarapkin

22.4.63

pp.37-38

Concern has been expressed here about the difficulties of trying to find a compromise solution. But at present it is not at all a question of trying to find some new compromise. A compromise proposal already exists. It has been put forward by the Soviet Union. The gist of the compromise proposal is as follows: national detection systems as the basis of an agreement, two or three inspections a year, and three automatic seismic stations on the territory of each of the nuclear Powers.

The Soviet Union insists on solving without delay the question of the inspection quota and the question of the number of automatic seismic stations, these being the basic questions standing in the way of an agreement. There is no justification for the United States continuing to avoid a solution to these questions. The representative of the United States, Mr. Stelle, has again today tried to involve the Committee in technical discussions of the question of inspection without agreement on the quota of inspections proposed by the Soviet Union. This statement of his shows that the United States is continuing its policy of preparing for war, and that the obstruction on the part of the Western Powers in the question of the cessation of nuclear weapon tests is only one of the points which eloquently confirm what I have been saying.

ENDC/PV.123 USA/Stelle

22.4.63

pp.39-40

The statement which the Soviet representative has just made was replete with inaccuracies, but in order not to trespass on the courtesy of the delegations which are inscribed I shall deal with only one. Mr. Tsarapkin has frequently tried to make the case that the United States, officially or unofficially, had given the Soviet Union indications that the number of three on-site inspections a year would be acceptable to the United States. Those statements of the Soviet Union have been refuted, on the record, and I need not refute them again now.

Today, however, the Soviet representative went to extravagant lengths — or rather perhaps, sank to absurd depths — in trying to say that in the official text of the draft treaty which was presented by the United States and the United Kingdom the United States has specified the number of three on-site inspections a year, and that it only later changed that to a blank when the Soviet Union re-accepted on-site inspections and put forward a suggested quota of three a year. The facts are known to the Soviet representative but, since he has attempted to mislead the Committee, let me present them.

On 27 August 1962 the United Kingdom and the United States of America introduced into this Committee a draft treaty banning nuclear weapon tests in all environments. That draft treaty is before the Committee as document ENDC/58. Paragraph 8 of article VIII of the English text of that draft treaty reads as follows:

"The maximum number of inspections which may be requested in territory under the jurisdiction or control of a permanent member of the Commission shall be _____ in each annual period. The maximum number of inspections which may be directed in territory under the jurisdiction or control

of a Party not a permanent member of the Commission shall be three in each annual period, or such higher number as the Commission, after consultation with the Party, may determine by a two-thirds majority of those present and voting." (ENDC/58, p.9).

The draft, which is available to all representatives as a Conference document, left blank the number of on-site inspections which might be requested in territory under the jurisdiction or control of a permanent member of the commission. That was dated 27 August 1962. On 28 January 1963 Mr. Foster reported to the President of the United States and submitted a second annual report concerning the activities of the United States Arms Control and Disarmament Agency. That report was printed and was submitted to Congress on 4 February 1963 by President Kennedy in a document, to which Mr. Tsarapkin referred this morning. In that report there was a typographical error. On page 91 of that report, which was printed in February 1963, article VIII reads, as Mr. Tsarapkin quoted it this morning (supra, p.30):

"The maximum number of inspections which may be requested in territory under the jurisdiction or control of a permanent member of the Commission shall be ..." --

then, through the typographical error two lines were omitted, so that it read -- "shall be three in each annual period..."

The documents are available to the members of the Committee. I would not take the time of the Committee to lay the facts before it, but it seems to me that the Soviet representative, in using this as a serious argument and in trying to use as proof a typographical error printed some months after a formal document had been presented here, is indulging in a kind of balderdash which wastes the time of the Committee. Further, it seems to me that this type of argument reflects on the general merit of the argumentation used to establish a case which is untenable.

ENDC/PV.129 Poland/Blusztajn

8.5.63

pp.23-24

Mr. Godber's reply to my third question, concerning control (ENDC/PV.124, pp.23, 24), is for me the best proof that the Western delegations are avoiding taking a clear-cut position on the proposal put to them. My question was nevertheless quite precise and offered us the chance to start working out a control system acceptable to all. But instead of giving me a concrete answer the United Kingdom representative raised several preliminary problems. I must say it is not the first time that we have met with such tactics. They have been used by the West several times in the past. The purpose is to try and dissociate the control problem from concrete disarmament measures and to consider it in the abstract. Need I say that such tactics will lead nowhere?

I should, however, like to deal with a question which keeps coming up in the arguments of our Western colleagues when we talk about control and in particular about the problem of clandestine weapons. They would give anything to convince us that this problem arises only in connexion with the Soviet disarmament plan and would not exist if the Western proposals (ENDC/30) were adopted. I think we have here another case of a false conclusion reached from an arbitrary working hypothesis. At all events, I think we can assert that, if the Western delegations believe the problem of clandestine weapons does not arise in connexion with their proposals, it is because, as they themselves admit, the disarmament measures which they propose for the first and second stages are devoid of concrete significance. Otherwise the danger of clandestine weapons would be no less than the danger they think they can detect in the implementation of the proposals submitted by the Soviet Union.

But I think it might be worthwhile for the Committee to recall at this point the

position adopted by the United Kingdom delegation on this problem in the document it submitted on 1 August 1962. This document, you will remember, was entitled "Preliminary study of problems connected with the elimination of rockets as nuclear delivery vehicles". (ENDC/53) One part of this study, entitled "Verification of destruction and chances of evasion", deals with the problem of clandestine weapons. It stresses that it would be easy effectively to control the destruction of nuclear weapon vehicles as well as their production. At the same time it notes that it would be difficult to detect stockpiles of missiles which had been concealed before the start of the disarmament process. But the authors of this study do not despair. They assert that the problem could be solved by establishing on-site control to verify the destruction of missile launching sites. Of sites which might be concealed, they say that:

"...very considerable effort would have been expended in carrying out such an operation; the existence of the sites would be known to many of the local population, and extreme security precautions would have to be taken to prevent compromising any such evasion plan." (*ibid.*, p.4)

As you know, the Soviet delegation has agreed to the establishment of on-site control at points where missile launching sites exist (ENDC/PV.114, p.40). I think that in the very light of the views expressed in the United Kingdom document submitted to the Committee on 1 August 1962 such control, linked with control of the destruction of nuclear weapon vehicles and of the ban on their production, practically eliminates the dangers arising from the problem of clandestine weapons.

Let me ask Mr. Godber one more question. The Western plan for a percentage reduction in nuclear weapon vehicles (ENDC/30, pp. 4 *et seq.*) would still leave States at the end of the first stage of disarmament with 70 per cent of their potential in such vehicles, and compliance with this undertaking would be checked by zones — that is to say, by the sampling method (*ibid.*, p.14). Which disarmament plan therefore constitutes the greater risk: the Western plan, under which States will retain enough resources to carry out a surprise attack and many launching sites will be subject to no control; or the Soviet plan, which would only leave a minimal quantity of missiles in the hands of the two great nuclear Powers and would place all launching sites under strict on-site control?

ENDC/PV.132 USSR/Tsarapkin

15.5.63

pp.7-8

For the sake of achieving agreement, the Soviet Union took a great step towards meeting the position of the Western Powers. It agreed (ENDC/PV.114, p.40) to accept the establishment of control over the remaining missiles directly at the launching sites. At the same time we pointed out that the number of launching sites must not be greater than the number of missiles retained, and that these sites must be liquidated by the end of the second stage simultaneously with the liquidation of the remaining missiles.

Of course, this proposal of the Soviet Union cannot be set in opposition to its general position on the question of control over disarmament, as the representatives of the Western Powers in the Committee try to make it appear. The fundamental position of the Soviet Union on this question, as is well known, is that the scope of the control measures must correspond strictly to the scope and nature of the disarmament measures to be undertaken. The Soviet proposal provides for the liquidation of all means of delivery of nuclear weapons. To this measure the control measures also correspond. The inspectors of the international disarmament organization will verify on the spot the destruction of missiles, military aircraft, surface vessels and submarines and artillery systems capable of serving as means of delivery of nuclear weapons. They will be able to verify the transfer to peaceful production of all plants previously engaged in the

production of missiles, bombers, submarines and other means of delivery of nuclear weapons. International inspectors will also be present at the sites where missiles are launched for exclusively peaceful purposes. They will be present at the launchings and thoroughly inspect every missile and every satellite before it is sent to explore outer space.

It is clearly stated in the Soviet proposals that all States parties to the agreement must provide the international inspectors with all the necessary facilities to enable them to carry out their duties without difficulty in supervising the liquidation of all means of delivery of nuclear weapons. Our draft treaty also provides in the first stage of our proposed disarmament programme for a number of other control measures the implementation of which will preclude any possibility of secret preparation for war. The implementation of the Soviet plan of measures for the first stage of disarmament, in conjunction with effective control measures, would give all States the firm assurance that the danger of war no longer exists and that their security is at the right level.

In stage II of disarmament the Soviet Union envisages a considerable broadening of international control. It proposes to place the whole atomic industry under control and to destroy all stockpiles of nuclear weapons under the supervision of international inspectors. The implementation of these measures would mean that new teams of international inspectors would appear in all plants producing fissionable materials and in all factories, installations and laboratories specially designed for the production of nuclear weapons or their components. This means that under the Soviet plan a widely-ramified branch of modern industry now existing in the United States, in the Soviet Union and in a number of other countries would be placed under international control.

As you see, the Soviet Union proposes such extensive control over nuclear disarmament measures that any attempt on the part of any party to violate the treaty would be quickly exposed. The Soviet Union is unsparing of control measures for the purpose of verifying the fulfilment of the disarmament measures by the parties. But I repeat again: for the purpose of verifying disarmament measures and not for the purpose of control over remaining armaments. In the first case it would really be control over the fulfilment of the provisions of a treaty on general and complete disarmament; in the second case it would be a matter of military intelligence under the label of control over remaining weapons.

ENDC/PV.132 USA/Stelle

15.5.63

pp.33-35

We might note, however, that the United States proposals, as we have just said, are not intended to prevent the production and the use of fissionable materials for peaceful purposes to whatever extent States may wish to engage in such activities. However, efforts to ensure adequate control over those materials would require that production be regulated at some agreed level and that all such materials be carefully accounted for. This point is, of course, very important, because fissionable materials are easily converted for use in weapons, and States should therefore have an obligation under the terms of any agreement to limit their production to levels which would satisfy their peaceful requirements and to provide assurances to the rest of the world that such materials were not diverted to weapons purposes. In this connexion, the United States proposals provide also for the use of safeguards for international transfers of nuclear materials.

As to the actual verification of the implementation of the cut-off of the production of fissionable materials, the United States has proposed that, in accordance with agreed arrangements, the international disarmament organization would verify the implementation of this measure at declared facilities and also provide assurances that activities

subject to agreed limitations were not conducted at undeclared facilities.

The first portion of the verification problem with regard to the cut-off -- verification that declared facilities were producing only what they were supposed to produce -- could be handled in a number of ways. Each of the arrangements would require further study; but my delegation believes the Committee might consider any one of them from the point of view of its adequacy to ensure that declared plant production was not exceeding the agreed level.

As an illustrative example, it might be possible to verify a plant's activities without entering the confines of the plant itself. That might be done, for example, by looking at a plant's electrical consumption and water usage, and by external monitoring of stack gases and of the input and output of materials processed by the plant. On the other hand, it may, after study, prove to be necessary, to prevent diversions within agreed tolerances, to enter all or a portion of certain plants.

The first type of verification arrangements might well be suitable to ensure that plants which had been completely shut down were indeed not operating; but more stringent measures might be required for operating plants. My delegation does not favour any one system over another, nor are we proposing a particular system of inspection; we are merely setting forth these two examples as illustrations of some of the possibilities for adequate verification of a cut-off.

With regard to the second portion of the control process -- arrangements to ensure that prohibited activities were not conducted at undeclared or clandestine facilities -- the United States is prepared to explore such arrangements as would provide the necessary assurances while safeguarding the security of the States concerned.

The second major measure of the United States proposal provides for the transfer of significant, agreed quantities of weapons-grade fissionable material to purposes other than use in nuclear weapons. Let there be no mistake about the effect of a transfer of a significant quantity of U.235 of weapons-grade quality to non-weapons uses. Coupled with the cut-off of production of such material, any transfer of such material, regardless of whether the material came from weapons themselves or from the pipeline, would affect directly the size of nuclear stockpiles and would consequently represent an important measure of nuclear disarmament.

As our United Kingdom colleague pointed out in his very excellent statement on this subject on 7 September 1962 (ENDC/PV.82, p.37), what makes a nuclear weapon a device of mass destruction is not its size or shape, or its electronic or mechanical components, but the simple fact that it contains fissionable materials. Once transferred to non-weapons purposes and reprocessed as might be necessary, under effective safeguards, such material would no longer be available for use in nuclear weapons.

My delegation has affirmed in the past, and reaffirms once again, its belief that significant transfer of nuclear material, in connexion with a cut-off of production, would be the best means of getting the large nuclear stockpiles now in the hands of certain States reduced at the earliest possible time. My delegation believes also that States should have discretion concerning whether the materials to be transferred would come from weapons already produced or from material stockpiled for eventual production of weapons. We believe that such a flexible arrangement would clearly facilitate the implementation and verification of this measure; whereas, on the other hand, specific provision that material should come from weapons already existing would greatly complicate the matter by raising, among other things, the very difficult problem of revealing, at the very beginning of the disarmament process, weapons design.

Thus the United States proposal avoids arrangements which would necessitate revelation at the very outset of the disarmament process of matters which are closely-guarded State secrets and which vitally concern national security. Of course, the United States proposal would involve verification of the amount and of the quality of the

material transferred; but such verification should not in any way involve disclosure of any particularly sensitive information.

ENDC/PV.135 USSR/Tsarapkin

22.5.63

p.41

The third question (ibid., p.8) concerned the problem of verification. On this question we gave a reply which at first surprised the Western representatives and was received by them with obvious satisfaction. We said we agreed that control over the remaining missiles should be established directly at the launching pads (ENDC/PV.114, p.40). Everyone realizes that this is the most sensitive and effective form of verification. However, after a short while the appetites of the Western representatives began to grow catastrophically, and they began to demand control over all remaining armaments in general. In other words, they reverted to their demand for control over all remaining armaments.

This means that the Western Powers have gone back again to demands aimed at securing favourable conditions for the collection of intelligence information on the defence system and on individual defence installations of the Soviet Union. The Soviet Union has already repeatedly and categorically rejected these demands. We have already repeatedly objected to these unwarranted claims of the United States. Our objections still stand. In view of the feverish military preparations of the Western Powers, the Soviet Union cannot accept any so-called control over the remaining armaments — that is, control without disarmament or, in other words, intelligence activities.

ENDC/PV.138 USSR/Tsarapkin

29.5.63

pp.24-25

In refusing to set about doing away with nuclear missile war through the speediest elimination of the means of nuclear delivery weapons, the Western Powers have used as a cover the argument that the implementation of the Soviet proposals on this question provides no guarantee that some State will not conceal a certain number of missiles or other means of delivery and use them to obtain substantial military advantages.

Thus, on 10 August 1962, the United Kingdom representative, Mr. Godber, referred to this as the main difficulty preventing the Western Powers from accepting the Soviet proposal for the elimination of all means of delivery of nuclear weapons (ENDC/PV.68, p.44 et seq.). But these fears of the Western Powers are clearly unfounded; they are purely artificial. It would not be at all difficult to detect intercontinental missiles and, even less, to detect the factories producing them; it is not like looking for a needle in a haystack. We have already pointed out the technical characteristics of missiles, their great size, their complicated control systems, and so on. Their production requires a highly specialized and widely developed up-to-date industry. Under the Soviet proposal, it would be much easier for the inspectors of the international organization to verify fulfilment of the obligations of States to eliminate their means of delivery than it would be for States to conceal missiles or the factories producing them. The control we propose covers practically everything: factories, aerodromes, ports and launching sites, without which none of the presently known means of delivery of nuclear weapons can exist. The groundlessness of the arguments of the Western Powers regarding the possibility of concealing means of delivery is obvious; nevertheless they still cling to their position, thereby blocking all progress in the negotiations on this question.

ENDC/PV.140 USSR/Tsarapkin

5.6.63

p.27

Now a few words on the question of control. The real disarmament in the nuclear field proposed by the Soviet Union would be carried out under strict international control. Article 22 of our draft treaty defines the measures of control over the elimination of nuclear weapons to be carried out by the international disarmament organization. Inspectors from this organization are to verify the elimination of nuclear weapons from the armed forces and their destruction, as well as the liquidation of depots and premises intended for the storing of nuclear weapons. The inspectors of the international disarmament organization are to exercise control over the implementation of measures for the cessation of the production of nuclear weapons and of fissionable materials for such weapons. The inspectors are to see to it that the nuclear fuel contained in nuclear weapons is transferred to production for peaceful purposes. They are to have the right to inspect plants extracting atomic raw material, producing or utilizing atomic materials or atomic power. Moreover, the States parties to the treaty will furnish the international disarmament organization with documentary information on the extraction of nuclear raw material, its processing and use for military and peaceful purposes.

ENDC/PV.142 Nigeria/Mbu

10.6.63

pp.8-9

"6. It may very well be that science may, in the future, show beyond doubt that on-site inspections may no longer be needed to identify suspicious seismic events or to adequately control a test-ban treaty. For the time being, however, the three African Delegations recognize that three, four or so, yearly truly effective inspections — or an adequately proportionate figure spread over more years — may be needed to dispel mutual suspicions, to help build up confidence between the nuclear Powers, and, no less importantly, to facilitate their reaching a practical political settlement.

7. After having maintained that there was no need for any obligatory inspections, Mr. Khrushchev's offer last December of three on-site inspections must therefore be taken as a sign of moral courage and good faith. In a like manner, the current British-American démarches at Moscow, and their offer of the possibility of further compromise, should be encouraged and taken as a sign of political courage and goodwill.

8. The three African Delegations are convinced that they speak not only for their own people and all the African peoples, but for the whole world, when they urgently appeal to the nuclear Powers to give more proof of a much-needed sense of practicality and of a necessary spirit of constructive compromise and goodwill. The world will hail and appreciate any show of compromise as evidence of great moral courage, political acumen and love for peace. On the other hand, the world cannot but consider their failure to compromise over the last few remaining differences as unwillingness on their part to end nuclear testing and the nuclear armaments race, essential conditions for any constructive and realistic discussion of general and complete disarmament.

9. Since there is general agreement, however, that the number of on-site inspections is less relevant than the terms of the modalities or conditions for the adequate and effective conduct of such on-site inspections, the three Delegations therefore exhort the nuclear Powers to rise above quarrelling on an insignificant difference of one or two inspections, and to accept a reasonable compromise-quota of inspections contingent upon adequate and effective modalities on inspection.

10. Agreement on the latter should be sought, inter alia, in these illustrative areas:

- (a) The location of the epicentre of the seismic event;
- (b) Criteria for the eligibility of the seismic event for inspection;
- (c) Composition of the International Scientific Committee and its role in the establishment of the criteria and the supervising of their proper application;
- (d) Agreement on the initiation of inspections according to agreed criteria and to the data submitted to the International Committee;
- (e) The composition of the inspection teams in such a way as to obviate self-inspection and to ensure the effectiveness and the adequacy of the visit;
- (f) Agreement on the criteria and relevant details of the actual conducting of the inspection;
- (g) Agreement on the shape and size of the inspection area;
- (h) Safeguards against abuse and against the utilization of such facilities and inspection personnel in any manner that might be extraneous to the purpose of identifying the event concerned or that might endanger the security of the receiving State."

ENDC/PV.145 Romania/Macovescu

17.6.63

pp.13-14

I do not intend at this juncture to go once more into the details of the issue. I should like only to stress that today nobody can deny that what is practically needed for the conclusion and implementation of a test ban treaty is -- besides the real interest of all parties concerned to halt such tests once and for all -- first, to ensure such a verification system as would prevent any government that might contemplate evading the test ban from carrying out a series of significant tests without risking detection; second, that the existing network of national seismological stations -- which can be developed still further with relative ease -- not at the disposal of the Western side, to which are to be added three automatic seismological stations situated on the territory of the Soviet Union and three others situated in the immediate vicinity of the Soviet Union along its frontiers, are of such a nature as to give such assurance; and, finally, that the alternative -- the continuance of the now obtaining situation of a nuclear arms race in full blast -- is incomparably more menacing to the welfare of mankind and to international peace and security than the possible risk to guard against which on-site inspections are being asked for.

Those are thoughts which, we are glad to note, are gaining ground even among leading authorities in the United States, although we are aware, much to our regret, that they have not yet inspired the Western delegations here to any degree. Therefore it is with interest that I read in the statement made as recently as 10 June by the President of the United States, Mr. Kennedy, the following words which I beg permission to quote in concluding my intervention:

"No treaty, however much it may be to the advantage of all, however tightly it may be worded, can provide absolute security against the risks of deception and evasion. But it can -- if it is sufficiently effective in its enforcement and if it is sufficiently in the interests of its signers -- offer far more security and far fewer risks than an unabated, uncontrolled,

unpredictable arms race." (ENDC/95, p.7)

Let me express the hope that the Moscow negotiations will proceed in a realistic spirit and take inspiration from the firm desire to reach — on the basis of realities — a test ban agreement, an agreement so ardently desired by the peoples the world over, including the Romanian people.

ENDC/PV.152 USA/Stelle

16.8.63

pp.6-7

The United States working paper (ENDC/70) contained what we believe to be some interesting considerations concerning the related topic of reducing the danger of surprise attack. As the Soviet Government has recently indicated, renewed interest in the possibility of the establishment of observation posts in certain locations as a means of reducing the danger of surprise attack, we believe we might well explore the possibilities of agreement on that measure.

The members of the Committee will recall that the United States delegation has suggested that the observation posts

"could receive such information relative to military activities in their vicinity as the host State might wish to provide and could, under agreed arrangements, observe the flow of military traffic and the general level of military activity on a local basis ..." (ENDC/70, p.6)

We have suggested also that

"It would be sufficient to place posts at such locations as certain principal ports, major railroad stations, intersections of key highways, and possibly at certain significant airfields." (ibid., p.7)

Those, of course, are matters which need to be discussed in greater detail and, we would emphasize, always with a view to providing increased confidence and reassurance to all parties concerned.

It would seem to us, however, that the most useful contribution to further exploration of this topic at this time would be elaboration by the Soviet delegation of its views on the manner of operation of such a system.

In this connexion it will be recalled also that the United States suggested in its working paper that the usefulness of any system of ground observation posts would be increased if it were undertaken together with a system of advance notification of major military movements, and if the ground observations posts were combined with additional observation techniques such as aerial observation, mobile ground observation teams, and overlapping radars. (ibid., p.8)

My delegation wishes to emphasize, however, Mr. Chairman, that the United States does not insist that these additional desirable measures must be included with any system of observation posts. For our part we are prepared to accept an arrangement limited solely to a system of ground observation posts.

I mention this because it would be helpful to our further efforts to reach agreement on this matter if we had a clearer idea of the present views of the Soviet Union concerning the relationship of a system of observation posts to other measures which the Soviet Union, for its part, has in the past suggested should be undertaken. It will be recalled that in the past the Soviet Union has tied the establishment of a system of observation posts to troop reductions in certain areas and also to a specific denuclearized zone. At an appropriate time it would be helpful if the Soviet delegation could clarify the present position of its Government on this point.

What does this require first of all? As the Chairman of the Council of Ministers of the USSR, Mr. Khrushchev, said in his speech of 19 July:

"...we consider it appropriate to establish in certain areas of the Soviet Union and of other countries, ground control posts at airports, railway junctions, main roads and in major ports. Of course, all this must be done on a reciprocal basis". (ENDC/113, p.2)

In our opinion, the establishment of such control posts might be one of the most important means of reducing the danger of surprise attack. It can hardly be denied that even with the existence of nuclear missile weapons, preparations for a modern large-scale war are inevitably linked with the need to concentrate large detachments of troops and a large quantity of armaments and military equipment in certain areas. In the event of war, only the irruption of substantial land forces can ensure control of the enemy's territory. That is why we propose the establishment of ground control posts to keep watch on the lines of the movement of troops, so that there should be no dangerous concentration of the large masses of troops without which surprise attack is impossible. Everyone understands that, in order to carry out a military invasion, it is necessary to assemble armed forces with effectives, armaments, military equipment and material and technical means and to group them appropriately along the lines of attack. It is obvious that such preparations, which require large scale movements of troops and military equipment by railway, road and air and through large ports, practically do not lend themselves to concealment, and the establishment of control posts at these points would make it possible to detect any such preparations in good time.

Of course, the establishment of control posts cannot in itself guarantee the maintenance of peace; it would nevertheless be a definite measure aimed at preventing surprise attack, provided, of course, that it was combined with certain partial disarmament measures.

As I have just pointed out, that is precisely the way in which the question is stated in the Soviet proposals of 28 November 1958 for the prevention of surprise attack. Such a combination of measures is certainly necessary if we wish ground control posts to play the part of an effective measure for reducing the danger of surprise attack and relaxing tension. What would be the use of control posts if they were not combined with the implementation of other measures aimed at reducing the danger of the concentration of troops and armaments confronting one another? That would simply be control without disarmament, but such an approach to the solution of the problems before us would yield no positive results; it has been entirely discredited, and I do not think that anyone will insist on it today.

We must combine such a measure as the establishment of control posts with certain partial disarmament measures. Specific considerations in this regard are contained in the Soviet proposals of 28 November 1958. Life, however, does not stand still and we are prepared to introduce the appropriate changes required by life itself into the series of measures listed in the aforesaid Soviet proposals. In particular, we agree to the establishment of control posts also at airfields, a measure to which the Soviet Union previously objected. On the other hand, the question of aerial photography, which was included in the Soviet proposals of 1958, no longer arises today. Certain other reasonable modifications could also be made in these proposals. But there are some measures which have not lost their urgency. The question of ensuring the security of the peoples of Europe, and, consequently, universal peace, is particularly acute at the present time. The proposal of the Soviet Union for the reduction of foreign troops located both on the territory of the German Democratic Republic and on the territory of Western Germany (ENDC/113) is aimed at creating conditions that would facilitate the achievement of this

aim. It is well known that the Soviet Government is in favour of carrying out this measure as a first step towards the withdrawal of all foreign troops from Europe and considers that, at the present time, in view of the definite improvement in the international situation, favourable conditions have been created for reaching specific agreement on this question.

ENDC/PV.154 Sweden/Baron von Platen 22.8.63 p.17

I should like to revert to some of the questions previously raised by the United Kingdom delegation and admirably dealt with in detail in document ENDC/60 of 31 August last year, regarding the technical possibility of international control of fissile material production. This paper has been under study by our technical and scientific experts and we have found it a most useful ground-work and "overture" to joint studies here in Geneva. Indeed, after pondering and penetrating this analysis, we see good reason to set up a small group entrusted with the task of further studies regarding the problems and possibilities inherent in such international control. We would be prepared to collaborate in this. Awaiting the more comprehensive approach possible in such a group, my remarks will be of a preliminary and non-scientific nature.

I should perhaps say at this point that the reason I raise this subject today is that we envisage the possibility of having it either within the framework of general and complete disarmament or as a collateral measure. We find it a very encouraging conclusion that control over the production of plutonium and U.235 can be achieved with a margin of error of 1 to 2 per cent. It would also seem to be a good result if we could check on existing stocks with a 20 per cent margin of error. The reasoning behind these figures is not developed in full in the United Kingdom paper, but the facts given seem to support them.

It must be stressed, however, that these figures, good as they are, presuppose an elaborate control demanding a rather comprehensive and expensive, some may say even wasteful, co-operation of a great many highly-skilled technicians and scientists. For future consideration we would therefore like to pose the question if the control measures could not be reduced with maintained efficiency not by adapting control to the present industrial pattern and modus operandi, but rather by trying to achieve such production, storage and transport arrangements which would facilitate control.

ENDC/PV.156 Sweden/Myrdal 29.8.63 pp.23-24

The present world tension and the armaments race, which is in itself both a cause for and a result of increasing tension, constitute a polarized problem. In so far as this problem can be eased by bilateral negotiations and bilateral solutions between the two main centrifugal forces on either side, the United States and the USSR, no nation need or should try to intervene. Our common aim here is surely to facilitate a détente and disarmament. But sooner or later questions of the degree of bilateral control or internationalization of control arrangements will have to be faced.

There seem to me to be three particular cases which might call for a multilateral approach. Firstly, in some instances a purely bilateral, or as it is sometimes called "adversary", control may prove insufficient. Here the Swedish view is a purely pragmatic one; wherever the control issue is not solved on a bilateral basis we should try to find the answer by either regional or international control arrangements.

Secondly: many of the disarmament measures are international by their very scope and nature. Further study might show that quite a few collateral measures are also. If

so, international control would certainly be appropriate from the outset.

Thirdly: I would venture to state that it would be an international interest, properly to be voiced by a non-aligned country, that as soon as it is practically and politically feasible each disarmament measure should be open to some kind of international review, in order to provide knowledge as to what is going on in each sphere of disarmament.

Whenever, for any of these reasons, a higher degree of multilateralization of control is warranted, nations outside the Power blocs might be drawn upon to fulfil certain functions. The Swedish Foreign Minister, Mr. Nilsson, has in a recent speech, on 18 August, made a concrete suggestion in this direction. He indicated that outside personnel might be introduced already if control posts at traffic thoroughfares are to be established. While reciprocal or "adversary" control is limited and gives only two countries or groups of countries experience in the art of controlling, it might be useful to extend the practice field towards multilateral participation. But we are not, of course, seeking employment; we are only offering our services if and when they may be required.

A development towards more and more internationalized control does not, however, necessarily call for such direct participation. Rather, it has for a long time been the view of my Government that particular merit should be attached to control measures which are of an indirect, built-in, automatic or semi-automatic nature. My colleagues will recall having heard us many a time on this subject, particularly with reference to the scientific monitoring of seismic events, but also on the general value of checking methods of a more abstract, objectified and passive character. I could give chapter and verse from speeches by Messrs. Edberg and von Platen and by me of this preference of ours for "control" by indirect, non-military, non-political methods, simply by monitoring and following developments without any authority to interfere with them and without any possibility of arousing the suspicion that they are encroaching upon the security interests of sovereign States. As an example, besides the one of seismological observations, we would want to stress in the future work of the Committee the possibility of gaining insight into the trend of the armaments race -- is it going upwards or downwards? -- by comparative budget studies.

Preparatory studies in this field have as a matter of fact been recommended by the Swedish delegation every time a proposal has been made with reference to military expenditures. Our Foreign Minister at the time, Mr. Undén, said in the General Assembly in 1958, when a draft resolution was presented by the Soviet delegation, that we had insufficient information as to how the military budgets, obviously of very different structure in different countries, should be compared. He recommended a technical study in order to facilitate a future political decision on this important matter.

Well aware of the highly technical complexity of proposals relating to military expenditure -- whether such proposals aim directly at disarmament through budget reductions or at indirect checking by budget comparisons of developments with regard to armaments -- the Swedish delegation has attempted to scrutinise the problems somewhat more in detail and might be ready, at some appropriate time during our forthcoming work session, to submit a working paper.

ENDC/PV.162 USA/Foster

31.1.64

pp.18-19

The best place to begin is with strategic nuclear vehicles. We have singled them out for three reasons. We believe first attention should be directed to the long-range weapons of greatest destructiveness. We believe a freeze on these weapons can be achieved with effective inspection requirements which would be less than those required for a general and complete disarmament programme limiting all major armaments across

the board. Finally, we believe we should focus on these weapons because they are among the most expensive to develop and produce.

The Soviet Union has long urged that we begin disarming with nuclear delivery vehicles. Moreover, in several statements Premier Khrushchev has made the point that long-range rockets with nuclear tips are the most destructive weapons. He did so, for example, in speeches on 14 January 1960 to the Supreme Soviet; to a Moscow election rally on 16 March 1962; and to the Moscow Congress for General Disarmament and Peace on 10 July 1962. There have been claims by both sides to superiority in strategic nuclear forces. Regardless of which side is ahead, these are the weapons which appear most threatening to all countries.

We suggest that the specifics of the freeze be explored by allies on both sides before detailed negotiations are undertaken. For our part, of course, we would give weight to the general reaction which delegations may wish to express here in the near future. To assist in their consideration, we suggest that the following be explored:

First, the freeze should, we believe, include strategic missiles and aircraft. The categories of weapons affected should be defined along lines of range and weight. For this measure, the categories suggested in stage I of the United States outline of 18 April 1962 (ENDC/30, pp. 4, 5), should be adjusted, we think, for several reasons. For instance, there have been changes in technology since those earlier categories were proposed. Moreover, the freeze would include only strategic categories; and it could be implemented before agreement on general and complete disarmament.

Secondly, the United States believes the freeze should also include anti-ballistic missile systems. A freeze on strategic delivery systems without a freeze on anti-missile systems would be destabilizing and therefore unacceptable.

Thirdly, the immediate objective of the freeze on numbers should be to maintain the quantities of strategic nuclear vehicles held by the East and the West at constant levels. As we see it, the agreement should provide for a suitable number of missile tests without warheads to ensure that missile systems continue to be reliable over a period of time. For this and related purposes, it should also provide for production of replacements on a one-for-one basis: one missile produced for one destroyed. This should not, of course, permit any increase by either side in the constant level which it is the purpose of the agreement to maintain.

Fourthly, the objective of the freeze on characteristics should be, the United States believes, to prevent the development and deployment of strategic vehicles of a significantly new type. Like the freeze on numbers, this should apply to defensive as well as offensive vehicles. The significance of this provision might well be greater than that of the freeze on numbers. It would halt the race to produce better strategic vehicles to carry bigger warheads. It would mean an end to the qualitative as well as to the quantitative strategic arms race.

Fifthly, as I have already indicated, we have singled out strategic vehicles partly because we believe that the verification requirements would be less onerous than for a production freeze on the entire range of major armaments included within our general and complete disarmament plan. One possible means of verifying the freeze would be to monitor significant existing production and testing facilities which each side would declare, and to provide for a specified number of spot checks to guard against possible undeclared facilities. That is an example of the kind of verification requirement we have in mind. Additional problems would remain. However, we believe verification can be effective without being burdensome. We hope that a system acceptable to all concerned could be worked out.

In regard to control, the Soviet Government envisages that during the whole period of the existence of the "nuclear umbrella" strict control over it would be established. This control would come into operation from the very beginning of the second stage of disarmament and, as the Soviet delegation has already explained in the Eighteen-Nation Committee (ENDC/PV.114, p.40), would be established directly at the launching pads, the number of which should not be greater than the number of missiles retained. I doubt whether anyone would venture to assert that control based on the principle we propose would not be thorough.

As regards the problem of control in connexion with the establishment of the "umbrella", it should be pointed out that the retention by the Soviet Union and the United States of limited quantities of nuclear weapons would facilitate the achievement of agreement in regard to control over the implementation of a treaty on general and complete disarmament. We have always believed and continue to believe that, for the implementation of the entire programme of disarmament, control over the destruction of armaments and the disbandment of armed forces are sufficient. The Western Powers put forward demands for verification of remaining armaments and armed forces. The arguments with which the Western Powers have tried to justify these demands have boiled down to the following: that unless there was verification of remaining armaments, arming might be concealed. I have already stated that, now that it is proposed to retain a "nuclear umbrella", these arguments become quite valueless.

Third: the United States reaffirms, as a contribution to the objective of restricting dissemination of nuclear weapons, its proposal for a verified halt in the production of fissionable materials for use in nuclear weapons; and, in association with such a halt, the United States also reaffirms its proposal for the transfer by the United States and the Soviet Union of agreed quantities of weapon-grade U-235 to non-weapons use.

If such a production cut-off can be agreed as a separate measure, prior to agreement on Stage I of general and complete disarmament and establishment of an international disarmament organization, the possibility of verification by the International Atomic Energy Agency should be explored. For example, the International Atomic Energy Agency might verify the halt in production of fissionable materials for use in weapons at existing production facilities. That might be done on a temporary or permanent basis as agreed in consultation with that organization. Inspection to provide assurance that fissionable materials for weapon use were not produced at clandestine facilities could be conducted on a reciprocal basis pending establishment of the international disarmament organization.

Fourth: we have already stated that the United States intends to reduce its production of fissionable materials for use in nuclear weapons. President Johnson has announced that the United States is shutting down four plutonium reactors and cutting back production of U-235. This should provide a good opportunity for the Soviet Union to follow the principle of mutual example. We urge the Soviet Union to make a similar reduction of its production facilities. We are prepared to agree with the Soviet Union to the plant-by-plant shut-down of additional nuclear production facilities on a verified and reciprocal basis.

Fifth: the United States is prepared to permit international inspection of one of the weapon material production reactors scheduled to be shut down in our country. Possibly this could be done by the International Atomic Energy Agency. This offer by the United

States is intended to provide an example and a precedent. We hope that the Soviet Union will reciprocate, but the offer stands whether or not it is reciprocated.

If the Soviet Union agrees to corresponding verified reactor shut-downs, the United States offer to accept international inspection will be extended as other reactors are shut down.

ENDC/PV.166 USA/Foster

13.2.64

pp.18-19

Now I should like to consider some of the possible methods of verifying the cut-off. One of the reasons why the United States delegation believes that this proposal is promising is because the inspection required can be limited in scope.

For example, inspection of existing stockpiles of nuclear weapons would not be necessary.

The extent of inspection initially required would depend on whether the Soviet Union preferred a complete halt in the production of fissionable materials for weapons, or a reciprocal plant-by-plant shut-down.

If a complete production cut-off were agreed upon, the International Atomic Energy Agency might monitor declared facilities for the production of fissionable material.

Those facilities declared to have been shut down would be inspected to make sure that no production of fissionable materials was taking place. Other declared facilities might continue to produce fissionable materials for peaceful purposes. These facilities and the produced materials would be monitored to ensure that no such product was diverted to the fabrication of nuclear weapons.

Each side would also need to have assurance that the other was not engaging in clandestine production at undeclared facilities. We believe that inspection to guard against this possibility could be carried out on a reciprocal basis. We also believe that a reciprocal system could be devised that would not be onerous.

If, on the other hand, production were halted on a plant-by-plant basis by the United States and the Soviet Union, inspection would be even more limited at the outset. Only the plant or plants actually shut down would be inspected. The possibilities of International Atomic Energy Agency inspection of a plant-by-plant shut-down appear promising to us also, and we believe they should be carefully explored.

What we are proposing in this regard is a way of moving towards a complete cut-off. We would start with a plant-by-plant shut-down with plant-by-plant inspection. Such inspection could be carried out by the International Atomic Energy Agency. Both the United States and the Soviet Union are members of that international organization.

ENDC/PV.172 Canada/Burns

5.3.64

p.11

Members of this Committee will doubtless recall that an expert committee of the League of Nations Disarmament Conference studied exhaustively the problems involved in the limitation of military expenditures in the years 1932 and 1933 (Conf. D 158). Considerable progress was made at that time in working out methods whereby States could report their expenditures in a uniform manner which would permit comparison of the actual levels of spending. Although no agreement was reached at that time on whether it would be feasible to institute a system of agreed budgetary restrictions, it was unanimously agreed that it would be useful if States published their military expenditures on a uniform basis.

Bearing in mind that earlier attempt to solve the many problems connected with budgetary limitations, the Canadian delegation believes that it would be useful for

experts to examine in detail how the military budgets of various States are in fact composed — what constitutes military expenditures, how those expenditures are carried in the national budgets of various States, and whether agreed budgetary limitations could be verified in practice. We noted that at the beginning of his statement the representative of Poland suggested that we should study in depth the proposals for budgetary limitations; and this, it seems to the Canadian delegation, is one of the ways — and an important way — in which we could conduct such a study in depth if we are going to make progress with these proposals.

One result of the study which I have suggested might be the adoption of more uniform practices for reporting military expenditures. That could be valuable in two respects. In the first place, it would be useful under a general disarmament agreement for States to report military expenditures according to agreed practices to the international disarmament organization. In addition to that long-term advantage, a better understanding of other nations' accounting practices might assist States to follow a policy of mutual example in reducing military expenditures.

ENDC/PV.172 USA/Fisher

5.3.64

pp.17-18

First, the United States proposes that all future transfers of nuclear materials for peaceful purposes take place under effective international safeguards. We believe that this proposal could be implemented by appropriate agreements, which would grow out of this Conference, covering all such future transfers. Fissionable materials, or raw materials or equipment essential to the production of fissionable materials, would be covered.

Suppliers would agree to transfer materials and equipment only under IAEA safeguards or similar arrangements.

Recipients would agree to receive materials or equipment only under such safeguarded arrangements.

Provisions relating to open technology and authorized visits by scientists for study and observation might also be included.

We believe that the agreement regarding transfers should, in addition, provide for the extension of IAEA or similar safeguards to an increasing number of the peaceful use facilities of all States receiving assistance.

Second, the United States proposes that the major nuclear Powers accept in an increasing number of their own peaceful nuclear activities the same inspection as recommended for other States.

As a first step in that direction, the United States has already accepted IAEA safeguards on certain of its peaceful use facilities, as I have described previously.

As a second step, the United States will invite the IAEA to apply safeguards to a large power reactor in the United States. The Yankee power reactor at Rowe, Massachusetts, has been selected for this purpose. This privately-owned reactor, which is rated at a power level of 600,000 thermal kilowatts is one of the largest nuclear power reactors in operation in the United States. In 1963 it produced over one billion electrical kilowatt hours.

We are offering the Yankee reactor for IAEA inspection for two reasons. First, it will assist the IAEA further in developing and demonstrating the effectiveness of its inspection techniques for large reactor facilities. Second, we intend it as an example to other nuclear Powers. We hope that other States will join us in this step and invite the application of IAEA safeguards on some of their large civil reactors; indeed, we urge them, and in particular we urge the Soviet Union, to do so.

Progress towards development of an effective system of international safeguards for

peaceful nuclear activities is an important objective in itself. Therefore the United States will invite IAEA inspection of the Yankee reactor whether or not other States reciprocate. But, as I have said, we urge the Soviet Union in particular to reciprocate. If it should do so, we could then discuss the possibility that we might both place additional peaceful atomic energy installations under IAEA safeguards.

Some members of the Committee may wonder about the significance of these proposals as regards a slowing-down of the arms race. Today I have talked about IAEA safeguards, not general and complete disarmament. I have talked of inspection of peaceful nuclear reactors instead of the destruction of armaments. Yet I believe that the proposals which the United States has put forward this morning could, if acted upon, produce one of the most significant developments of this Conference.

ENDC/PV.173 Bulgaria/Lukanov

10.3.64

pp.9-10

For lack of serious arguments, the Western delegations return to the "difficulties" connected with control in general and to the proposal to set up international armed forces at the beginning of the disarmament process, in addition to the huge forces and arsenals existing in the world at the present time. Let us again take the question of control as an example. The delegations of the Western Powers put forward this question as a preliminary condition on which depends their attitude towards the Soviet proposal concerning the "nuclear umbrella" (and, incidentally, towards any other disarmament proposal). They are again calling for control in abstracto, when they want us to engage in the study of the concrete problems of verification of any particular measure in the field of disarmament without agreement on the measure itself which is to be subject to control.

The views of the socialist States on control are well known. I should like to quote the opinions of others on this question. Thus on 3 May 1962 the representative of India, speaking of control and, more particularly, of so-called "retained armaments", said:

"...I should have thought, particularly as regards those countries which have laid stress on the need for effective control, that their interest in a disarmament plan would be best assured if the plan moved fast, in a forthright manner, down the road of disarmament. Then the question of retained armaments becomes less difficult"...

Therefore let us approach this question of controls in a practical manner. Let us not approach it in a theoretical way." (ENDC/PV.30, pp.23, 24, 28).

It is time indeed to clear the question of control out of our way as an obstacle to agreement; let us agree on what we want to achieve, and then we shall pass on to discussing ways and means of verifying the implementation of the agreed measure. That should also be the approach to the study of technical details, in which the Western representatives are so greatly interested. It would not do any harm to recall the very interesting statement made by the representative of Brazil on 3 April 1962 in which he recounted how, over thirty years ago, the discussions on disarmament in the League of Nations were bogged down in technical details (ENDC/PV.14, pp.41, 42). The experience of the past should be always kept in mind. It teaches us that we should not be dominated by technical details, but that our objective is to achieve general disarmament and to ensure peace thereby. That is the objective which should above all dictate our decisions and help us to overcome obstacles, including technical ones. Man cannot be a slave to the technology he has created.

...That argument seems to me to confuse two separate problems — the problem of declared and legally-retained missiles, and the problem of undeclared and illegally-retained missiles. As I understand the position, the Soviet Government is now prepared to accept some form of control in respect of the first problem — that is to say, declared and legally-retained missiles —; but it is not yet prepared to accept any control in respect of the second problem — that is to say, undeclared and illegally-retained missiles. I shall return to the latter problem later in my statement this morning.

Regarding the first problem, the Soviet Government has expressed its willingness to accept some form of control over the number of land-based missiles which, under Mr. Gromyko's latest proposals, would first have to be agreed by both sides and which both sides would then be permitted to retain during stages II and III. Although Mr. Tsarapkin has not told us very much about the purpose and details of the sort of control which his Government has in mind, he did say on 4 February:

"This control would come into operation from the very beginning of the second stage ... and ... would be established directly at the launching pads ..." (ENDC/PV.163, p.24)

He indicated that the purpose of this control would be to check that the number of launching pads —

"...should not be greater than the number of missiles retained." (*ibid.*)

I suppose that the purpose of such control would also be to check that the number of land-based missiles legally retained corresponded to the number which had been originally agreed upon by both sides and the retention of which was therefore permitted.

So much, therefore, for the rather limited purpose of the Soviet Government's proposed control system in respect of declared and legally-retained land-based missiles under its own proposals. Of course, whether such control would effectively serve that purpose is still an open question, because we do not have enough details to determine precisely what would be involved.

However, I do not see why it should be any more difficult to apply measures with a similar purpose to sea-borne missiles and their platforms legally retained during the disarmament process. The ships come into port periodically. Would it really be any more difficult to devise a control system whereby the numbers of such missiles and their platforms could be checked at agreed times and locations? That would ensure that they corresponded to the numbers originally agreed and permitted. The fact that land-based missiles would be permanently located at fixed sites, whereas sea-borne missiles and their platforms would be mobile, is irrelevant in this context, and I think that our Soviet colleague has very considerably exaggerated the difficulties here.

I ought perhaps to make it clear that I am not justifying the inclusion of legally-retained sea-borne-launched missiles in stages II and III to the exclusion of legally-retained land-based missiles. What I am doing is merely questioning the Soviet thesis that they themselves must be excluded from stages II and III because, in the view of the Soviet Government, they present difficulties of verification.

But if our Soviet colleague was thinking about the possibility that during the disarmament process one side or the other might retain, illegally and clandestinely, sea-borne missiles and their platforms over and above the number which they would be permitted to retain, then of course he has put his finger on the second problem to which I referred earlier. If that is what he has in mind, then it is perhaps encouraging that our Soviet colleague has now recognized the existence of a problem which would arise in an acute form under Mr. Gromyko's proposal though not under the proposals of the West, and one to which the Western delegations have often referred. Needless to say, it is a problem which is not confined to illegally-retained sea-borne missiles and their plat-

forms. It is a problem which would arise also in respect of illegally-retained land-based missiles at secret sites. I hope, therefore, that our Soviet colleague is planning to carry the discussion of this problem further at future meetings; and, if so, we for our part shall be very glad to join him in that.

ENDC/PV.174 Sweden/Lind

12.3.64

pp.6-8

...that such a freeze "would permit significant reduction of military expenditures" (ENDC/PV.162, p.20). The argument has also been amplified by, inter alios, our colleagues from Burma (ENDC/PV.161, p.6), Italy (ENDC/PV.160, p.31), and Nigeria (ENDC/PV.159, pp.13, 14).

Turning to another aspect of the problem, Mr. Tsarapkin, the representative of the Soviet Union, said on 20 February 1964 in one of his elaborations of this theme:

"A substantial reduction of military budgets would have far-reaching positive consequences, both political and economic". (ENDC/PV.168, p.18)

Mr. Hassan, the representative of the United Arab Republic, stressed in his intervention on 25 February that the reduction of military budgets —

"...would have a beneficial effect on a number of problems relating to our work here, especially those aggravating the international situation". (ENDC/PV.169, p.34)

The economic and social consequences following disarmament were the point of departure for Mr. de Castro, the representative of Brazil, in the pleas he made for what he termed "collective economic security" (ENDC/PV.166, p.7). Indeed, as was pointed out by the delegation of India through Mr. Nehru on 27 February 1964 —

"...disarmament and development are closely interrelated, and both are essential for the strengthening of peace." (ENDC/PV.170, p.30)

The Swedish delegation has from the early stages of our work been interested in yet another aspect of disarmament measures and their budgetary effects: the possibilities of gaining information about the extent to which disarmament is really effectuated. When speaking on 28 January 1964, Ambassador Myrdal said:

"One of the most promising leads for the whole question of indirect, inoffensive control consists simply of increasing the internationally-available knowledge about changes in economic allocations for military purposes — without any hint of interference with the dispositions within each nation". (ENDC/PV.160, p.25)

That is also in line with the thinking behind the relevant parts of the treaty drafts on general and complete disarmament before us in the United States (ENDC/30 and Corr.1 and Add.1, 2, 3) and Soviet Union (ENDC/2/Rev.1 and Add.1) versions respectively. The approach is to some extent similar but also to some extent significantly different. The United States draft seems to be content to verify ex post that certain agreed disarmament measures have resulted in a decrease in military expenditures. One might say that the budgetary savings would be a concomitant of other disarmament measures and that the reports which are to include an itemization of military expenditures would rather serve purposes of control. In the Soviet draft, cuts in the military budgets have a more independent place in the disarmament scheme. But the Soviet plan also extends the requirements of control quite far, envisaging, among other things — already in stage I — that financial inspectors of the international disarmament organization should have free access to the records of the central financial institutions of the States parties to the treaty concerning the reductions in budgetary appropriations resulting from specific disarmament measures agreed upon.

At present we are far from the stage envisaged in the draft treaties. However,

when in the actual situation unilateral reductions in allocations for military purposes are announced, with still greater ones not being excluded, it is in a way regrettable that there is no international disarmament organization to report to. In the meantime, I venture to submit, it would be extremely useful if we could start to study more closely the possibilities of using the information which is available on budgetary movements in order to enable us to follow — indirectly and unobtrusively — what is happening in the disarmament field. In so doing we might also contribute to the preparation of fact-finding machinery to be utilized when more important disarmament measures are to be implemented.

As you, Mr. Chairman, reminded us last week (ENDC/PV.172, p.11), the idea of using budgetary control as a method of verifying the observance of an agreement in the field of disarmament is not a new one. During the preliminary work of the disarmament conference in 1932 here at Geneva, a careful study was made of that subject and a standard model was constructed in order to make possible a survey in a simple and comprehensive form of the military expenditures of all countries, irrespective of differences in the construction and presentation of their budgets (CONF.D. 158).

Since 1932 the conception and the scope of defence costs have been considerably widened, and we must obviously now tackle the problem from somewhat new angles and make new studies. As stated by Mrs. Myrdal in her intervention on 28 January, the Swedish delegation believes that —

"...the question of verification, if related to suggestions of reductions of military expenditure, opens an interesting field for co-operative study without any necessity to institutionalize a system of control".
(ENDC/PV.160, p.24)

I would suggest that this Committee should first discuss the need to study, or rather to "monitor", the trends of military expenditures; and subsequently we should set up a working group to study these problems further, and/or we should seek the co-operation of United Nations groups that may already be dealing with related matters. Pending the results of such studies, it might be useful to examine whether it would be worthwhile to make some interim arrangements for this kind of continuous checking of what is happening in the field of military budgets.

I want to stress once more in this context that at present we should be interested not in details — of military production, of upkeep of standing forces, or the like — but in more global approximations of the changes in allocations to military and other categories of expenditure. It is the dynamics, the trends of change, which should legitimately interest us as outsiders, rather than any specification of accounts. We should have the possibility of following what is the direction of change, whether the real expenditures do move up or down. If there are cuts, we shall thus have a chance to see whether they should be considered as temporary or as being of a more lasting character, as modest or of a dramatic boldness.

It would no doubt be a step forward even if we could reach only the level of first approximation in regard to changes in military expenditures. Several of our colleagues have argued for a closer scrutiny of these matters. So did Mr. Obi, the representative of Nigeria, when on 24 January he said:

"We are not unaware of the arguments adduced by some about the differences in the accounting procedures and economic systems of the parties primarily involved. We grant that it may be difficult, but we refuse to believe that that obstacle, if indeed it be real, is insurmountable."
(ENDC/PV.159, p.15)

Last Thursday the representative of Canada, Mr. Burns, on the basis of a rather full description of the many problems connected with budgetary limitations, strongly favoured an expert examination in detail of how the military budgets of various States

are in fact composed. (ENDC/PV.172, p.11)

ENDC/PV.174 India/Trivedi

12.3.64

pp.18-20

We all agree that the use of nuclear energy for production of weapons should be prohibited under international control and supervision. At the same time, it is not intended that checks should be placed on the peaceful utilization of nuclear energy. The "Atoms for Peace" programme holds great promise for the world, particularly for the developing nations. There is no doubt that atomic energy will play an increasing role in electric power generation; it is already competitive in many high-cost fuel areas, including those in the under-developed countries. We in India, for example, are going ahead with a modest nuclear power-station programme. We have received valuable assistance from the United States and Canada in our plans for construction of two power stations, one at Tarapur near Bombay and the other at Rana Pratap Sagar in Rajasthan. Our third station will be in the state of Madras. These power stations will make a significant contribution to our plans of economic development.

The first consideration we should bear in mind, therefore, is, as stated by Mr. Fisher (ENDC/PV.172, p.14), that an increasingly large number of countries have peaceful nuclear programmes and that it is in the interest of all that their number continue to increase. It would be running counter to this interest if we sought to establish a control which would operate only against the developing nations.

The second consideration is that we should control what we wish to prevent. We want to eliminate military use of atomic energy; we should therefore control plants which produce fissile material. For example, as the United Kingdom paper has indicated, it is not really feasible to institute a control on uranium ore right from the mining stage. In any case the uranium mines, the plants for fabrication of fuel elements, and the reactors are not in themselves a military danger. They do not promote any military purpose unless they are coupled with plants and facilities for the fabrication of fissile material into weapons; and it is these facilities which have to be eliminated. It is the chemical-separation and gaseous-diffusion plants which have to be safeguarded in order to ensure that the materials produced in them are not used for military purposes. When, therefore, we come to the question of stopping production of nuclear weapons, what we shall need to do is to institute a system of international inspection of all plants for the extraction of plutonium, and all gaseous-diffusion plants. The Indian delegation believes that it is possible to devise a system dependent on the control and inspection of chemical separation plants and isotope separation plants for uranium-235, which will prevent any country from making weapons in any significant manner.

In his statement last Thursday (*ibid.*), Mr. Fisher referred to the safeguards system of the International Atomic Energy Agency. We have always been of the view that enriched uranium and plutonium should be supplied under adequate safeguards to ensure that they are used only for peaceful purposes. At the same time, we do not think that such safeguards should be attached to equipment and devices which in themselves serve no military purpose. Moreover, we believe that extension of the system of safeguards of the International Atomic Energy Agency, as at present established, to equipment and devices which serve a peaceful purpose would widen the gap between the developed countries and the under-developed countries, as it would operate only in respect of the under-developed countries.

We welcome the stress placed by Mr. Fisher on the first two considerations mentioned in the fifth point of President Johnson's message to our Committee. We have also heard with great attention Mr. Fisher's account of the substantial assistance that the United States has given to many countries in developing peaceful uses of atomic

energy; and we welcome the decision of the United States Government to place the Yankee reactor under the International Atomic Energy Agency system of safeguards. India has always supported the system of international safeguards, and believes that this system should be based on certain objective criteria which should apply to all countries and to all reactors. I am sure that most of us would deplore a situation in which the nuclear power projects in the developed countries would be exempted from being brought under the Agency's system of safeguards. For example, we would favour the International Atomic Energy Agency recognizing EURATOM, so that agreement could be reached whereby projects in which EURATOM participates could be brought under the international safeguards system of the International Atomic Energy Agency.

As the Committee is aware, the International Atomic Energy Agency is considering these issues, and, as I said earlier, they form a much broader aspect of disarmament. Therefore I do not wish to go here, at this stage, into greater detail, except to repeat that the key to the safeguards problem is the safeguarding of gaseous-diffusion plants, centrifuge plants and chemical reprocessing plants, and not the imposition of control on mines, fuel fabrication facilities, or atomic power stations, particularly as at the moment we are discussing not the question of dismantling the nuclear weapon apparatus of the present nuclear Powers but that of preventing manufacture of weapons by non-nuclear nations.

ENDC/PV.174 USSR/Tsarapkin

12.3.64

pp.49-51

In reality this proposal for a "freeze" merely reflects the new military programme of the Pentagon. Let us now put the following question: if the United States "freeze" plan does not provide for a slowing-down of the arms race, perhaps it gives promise of some relaxation of international tension and might lead to increased confidence among States. To answer that question, let us take a look at the other aspect of the United States "freeze" plan, the proposal concerning the control to be established over implementation of the "freeze" on the production of strategic means of delivery of nuclear weapons.

But what does control over the "freezing" of strategic means of delivery really mean? In the first place, it would be control carried out without any disarmament measures whatsoever and in isolation from such measures, which would mean as a matter of fact opening up to foreign intelligence services the whole production of the most important types of weapons and their testing sites — that is to say, practically disclosing the most important secrets of the defence industry and the defence system of a country in the conditions of a continuing arms race and intensive military preparations. Furthermore, since under the United States plan the production of a certain number of missiles and aircraft to replace those that have become unserviceable would be permitted, there would also be a possibility of raising the question of control over the remaining armaments, in order to verify whether the quantity of these replaced armaments is not being increased and whether their quality is not being improved. In fact there would also be opened up a possibility of demanding the establishment of control over the activities of any scientific institution.

In essence, adoption of the United States proposal would involve the danger that it would open up to any party interested in carrying on espionage and intelligence work in the territory of other States legal opportunities under the guise of control to collect the most valuable and secret information on the armed forces, defence systems and defence industry of those States and, indeed, in any part of their territories, since it would always be possible to say that it was necessary to verify in any particular area whether there was any hidden production or secret testing of missiles, aircraft or any of their components.

The Soviet Union, as we are constantly stressing, is not at all against control. We stand for strict and effective control over disarmament measures. But the establishment of foreign control and the disclosure, in that way, of the most important elements of the defence system in conditions where not only has the problem of general and complete disarmament not been solved, but also no measures of actual disarmament are being implemented at all, could only serve the purposes of intelligence and espionage, the purposes of the preparation of aggression.

No State that is concerned about ensuring its defence can give its consent to the implementation of such control. No State that does not harbour any aggressive designs in regard to other States would press for control without disarmament, for control over the existing armaments of the other side. Adoption of the United States proposal would mean that a potential aggressor, having obtained a complete and thorough idea of the defence systems of the peace-loving States which he has marked down as his victims, and having obtained information regarding the targets which he intends to hit, could try to utilize the information thus obtained in order to launch a surprise attack and unleash a nuclear war.

Thus implementation of the United States proposal would not lead to halting the arms race; it would not decrease by a single nuclear bomb or a single missile the tremendous arsenal of destruction accumulated in the world today. This proposal would merely conduce to intensifying mistrust and suspicion in the relations between States. This United States proposal would result in reducing to nought the successes in the matter of relaxing international tension which were achieved as a result of the efforts of all the peace-loving States, and which were expressed in such universally-known acts as the conclusion of the Moscow Treaty banning nuclear tests, and the reaching of agreement to refrain from placing in orbit any objects carrying nuclear weapons.

It is impossible not to see that the United States proposal for a "freeze" on strategic means of delivery is a direct replacement of disarmament by measures of control over existing armaments, in the first place over those which form the basis of the defensive power of the Soviet Union. This proposal could merely open up a way for the widespread activities of foreign intelligence services in the territory of the Soviet Union, which would be solely to the advantage of the NATO military bloc. This fact reflects very clearly, among other things, the striving of the United States by means of its "freeze" proposal to secure for itself unilateral advantages, unilateral military advantages.

ENDC/PV.175 Czechoslovakia/Zemla

17.3.64

pp.13-14

Another objection raised recently by the Western delegations, and in particular by the delegations of the United Kingdom and Italy, relates to the problem of hidden weapons. That problem was mentioned, among other things, by the representative of Italy, Mr. Cavalletti, on 10 March (*ibid.*, p.26). At that meeting the United Kingdom representative, Sir Paul Mason, asserted that the Soviet Union was unwilling to accept any control in respect of "undeclared and illegally-retained missiles" (*ibid.*, p.19). The question of the verification of hidden weapons has been dealt with extensively this morning by the representative of the United States also.

We cannot understand why the Western delegations cling to that argument, knowing, as they do, the following facts.

First, the missiles retained within the "nuclear umbrella" would be subject to control at the launching pads from the beginning of stage II in such a way that the number of missiles should not be greater than the number of launching pads;

Second, the Soviet draft (ENDC/2/Rev.1) envisages broad and reliable measures of

control during stage I over both the elimination of delivery vehicles and the prohibition of their continued production;

Third, the "nuclear umbrella" itself would, by its substance, nature and constitution, form the best possible complementary guarantee against the possibility that a country might intend to retain missiles illegally;

Fourth, in view of the high technical standard and complexity of the existing missiles and nuclear weapons and their servicing, their clandestine storage is very problematical — not to mention their clandestine production, to which the representative of the United Kingdom drew the attention of the Committee in its working paper submitted as early as 1962 (ENDC/53);

Fifth, even a hypothetical use of several of the illegally-retained missiles and nuclear weapons would not bring the expected advantage to the aggressor, since (a) the military potential of States would be considerably restricted in the course of the disarmament process or would be almost non-existent, so that the aggressor could not reach his main objective, namely to win the war, and (b) the aggressor would place himself in the position of being subject to all measures at the disposal of States for use against a violator of the treaty on general and complete disarmament — that is, the means provided for by the "nuclear umbrella", as well as the measures which the Security Council would have at its disposal for keeping the peace during the disarmament process.

Sixth and finally, it is well known that, according to article 38 of the Soviet draft treaty on general and complete disarmament, by the end of stage III, when disarmament will be general and complete, control also will be all-embracing and comprehensive. Inspectors of the international disarmament organization shall have the right of —

"...access at any time to any point within the territory of each State party to the Treaty". (ENDC/2/Rev.1, p.26)

It also envisages the possibility of instituting aerial inspection and aerial photography.

We should not forget, either, that confidence in international relations will be continually strengthened during the course of disarmament and that the possibilities of violation of the treaty will diminish very rapidly.

From what I have said it follows that the so-called problem of control of clandestinely-retained weapons is artificially constructed by the delegations of the Western Powers.

ENDC/PV.175 Canada/Burns

17.3.64

pp.19-21

I must confess I found it rather difficult to follow the arguments adduced by the Bulgarian representative on 10 March in regard to the demands of the Western nations for proper measures of control over all disarmament measures (ENDC/PV.173, pp.9, 10). Surely that is one of the principles which was agreed (ENDC/5). Mr. Lukanov related his remarks particularly to the Canadian delegation's having raised this question with regard to Mr. Gromyko's "umbrella". He then went on to say:

"It is time indeed to clear the question of control out of our way as an obstacle to agreement..." (ENDC/PV.173, p.9)

I think, Mr. Chairman, you made a similar comment yourself in your statement today. Then the representative of Bulgaria made the unacceptable suggestion:

"Let us agree on what we want to achieve..." (ibid.)

—which is the same as: "Let us agree in principle, and then we will discuss the details".

My delegation and other Western delegations here have stressed again and again that the principle of verification is one on which our whole negotiation must be founded. Unless it has been shown to us by those who propose any measure that it is

susceptible of adequate control, we cannot in principle accept such a measure; and that is the case with the Gromyko "umbrella" proposal.

I will explain further the questions that we asked and what we have been told about the control that is proposed for this group of related measures for getting rid of nuclear weapon vehicles. I hope to show how unsatisfactory the answers have been, and how necessary it is that the limited amount of explanation which has been given to us should be greatly expanded if we are to make any progress in solving the problem of reducing and eliminating nuclear weapon vehicles.

At our meeting of 18 February I asked how Mr. Gromyko's proposal was to be verified, and I pointed out that so far we had been told only that inspectors might be present on the declared intercontinental ballistic missile launching pads at the second stage. I further said the Soviet proposals for destroying all nuclear weapon vehicles in the first stage, except the limited number postulated in the Gromyko proposals, were open to the same objections which the Western countries had raised against the original Soviet proposal before the Gromyko amendments (ENDC/PV.167, p.8). All that our Soviet colleagues have told us in regard to the control measures they envisage for a general destruction of nuclear weapon vehicles is exemplified by article 5, paragraph 3, of their draft treaty for general and complete disarmament, which says:

"Inspectors of the International Disarmament Organization shall verify the implementation of the measures referred to in paragraphs 1 and 2 above."
(ENDC/2/Rev.1, p.6)

— that is, the destruction of rockets in this case.

We have recently heard the Soviet representative repeat that the Soviet Union is in favour of a strict and effective control over disarmament (ENDC/PV.174, p.50); but all that we have been able to learn about what it means by control is that it will let the inspectors witness the destruction or dismantling of armaments or disbandment of troops. However, as the West has reiterated so often, it is the possibility that some armaments may be left, that some may not be declared, and that some may exist in places where the inspectors may not go, which will create uncertainty, doubt and fear. Mr. Chairman, I am afraid that your statement this morning did not take us any further forward in meeting the difficulty to which I have just referred.

Let me restrict the discussion for the moment to the question of destroying rockets alone. To begin with, the Western countries do not know how many the Soviet Union has, and, for the time being and until disarmament begins, it is of course within its rights in not publishing numbers, although the United States has done so. The Soviet Union has not told us how it proposes to demonstrate or verify to the world that all its rockets except those constituting Mr. Gromyko's "umbrella" are in fact destroyed.

If the West is to take the Soviet proposals as a serious basis for negotiation, it is necessary for the Soviet Union to put forward a tentative, or at least an illustrative, programme of how the territory of the Soviet Union and its allies and, at the same time, the territory of the United States and its allies would be opened up for inspection to prove that there are no rockets other than those declared at the launching pads. That programme would have to relate the areas opened, and the time they would be opened after the commencement of disarmament, and the percentage or proportion of rockets as well as all the other categories of nuclear weapons that would be supposed to be destroyed by that time.

ENDC/PV.175 USSR/Tsarapkin

17.3.64

pp.25-27

Let us turn to what the United Kingdom representative, Sir Paul Mason, said to us (ENDC/PV.173, pp.18 et seq.). He began by casting doubt on the feasibility and effec-

tiveness of the control which we propose over the missiles to be retained by the Soviet Union and the United States. The Canadian representative said the same thing today (*supra*, pp.16 *et seq.*). As we have pointed out on more than one occasion, this control can be carried out directly at the launching pads or sites. This means that the missiles retained by agreement would be under permanent control. Such control would enable each interested party to have complete assurance that no suspicious preparations for launching these missiles are being carried on by either side. Nevertheless, Sir Paul Mason is still full of doubts about the effectiveness of the control over the remaining missiles which is proposed by the Soviet Union.

But as soon as Sir Paul Mason begins to talk about Polaris missiles, all his doubts about the possibility of carrying out effective control over them vanish. On the contrary, in regard to Polaris missiles Sir Paul Mason sees no difficulty of control and is satisfied merely with periodic control during the short period when vessels carrying Polaris missiles put in at their bases. Consequently, in regard to Polaris missiles the Western Powers would not permit systematic control and permanent supervision, but only occasional control: namely, when a vessel carrying Polaris missiles returns to its base. It is well known, however, that nuclear submarines with missiles on board can navigate independently under water for many months without putting in at their bases.

Thus the Polaris missiles on board these military vessels could be for months beyond any control. It is obvious, Sir Paul Mason, that with such a control system the security of States would not be safeguarded but the threat of surprise attack, the fear of which is constantly being mentioned by the Western representatives in their statements, would increase to a great extent.

Thus on the one hand Sir Paul Mason cannot be satisfied with the permanent control which we propose over remaining missiles directly at the launching pads; but on the other hand he is quite satisfied with occasional control when, as a representative of the Western Powers, he starts talking about including Polaris missiles in the "nuclear umbrella".

What Sir Paul Mason has said about control, his double yardstick for control in connexion with the Soviet proposals and with those of the West, the objections of the Western representatives to the inclusion of defensive missiles in the "nuclear umbrella", and their insistence on including in it missiles which are obviously intended for preparing and carrying out a clandestine surprise nuclear attack against the other side — all these facts reveal to the members of the Committee a fairly clear picture of the real attitude of the Western Powers both to the question of safeguarding the security of States and to the question of control. They are interested in control, not as a means of supervising the implementation of disarmament measures, but as a means of achieving certain military and political aims. In the case we are considering it is clear that the Western representatives in the Committee insist on an approach which would lead to increasing the possibility of waging a nuclear war and launching a surprise nuclear attack.

In his statement the United Kingdom representative developed the theme of whose approach would be more likely to encourage illegal concealment of the means of delivery — the Soviet approach or the Western approach. He asserted that, given the Western percentage approach, there would be no possibilities of concealing missiles, or at least they would be extremely limited, but that, given the implementation of the Soviet proposal for an agreed and strictly limited quantity of missiles to be retained within the scope of the "nuclear umbrella", there would in his opinion be such a danger.

Actually, however, the situation is quite the opposite. The Soviet proposals on disarmament (ENDC/2/Rev.1 and Add.1) would eliminate the danger of missiles being concealed, because they would make such concealment, so to speak, unprofitable, useless for achieving its aim, and practically impossible. Let us consider under what conditions

the Soviet proposal for a "nuclear umbrella" would be carried out in stage I of our disarmament programme.

During the first stage of disarmament all means of delivery, except for a strictly limited agreed number of missiles to be retained in the territories of the Soviet Union and the United States, will be destroyed under control.

All enterprises connected with the production of means of delivery will be closed or re-equipped for peaceful production under control.

All launching pads for military missiles will be eliminated under control.

All testing sites, airfields and so forth will be eliminated or re-equipped for peaceful purposes under control.

Research activities connected with improving means of delivery of nuclear weapons will be discontinued.

Scientists, engineers, technicians and workers employed in all these sectors will be transferred to peaceful activities.

The launching of missiles for the purposes of peaceful research and the conquest of outer space will be carried out under international control.

I shall not touch on other disarmament measures in the field of the reduction of armed forces and the elimination of conventional armaments.

It suffices to picture the whole breadth of the disarmament measures to be carried out and the range of control over their implementation to see clearly how untenable and groundless is the talk of the Western representatives about the possibility of concealing nuclear weapon delivery vehicles if the Soviet disarmament plan is carried out. Let us examine this question more closely. After all, the purpose of concealing the means of delivery is in order to use them. But in order to use them, complicated installations, launching pads and specialized staff are required. Given the measures proposed by us for the first and subsequent stages of disarmament and for control over their implementation, the retention of these enormous installations — and, what is more, in secret — would become quite impossible.

ENDC/PV.175 Italy/Cavalletti

17.3.64

p.36

Without effective control, there is no limit to the number of weapons that can be hidden. There is no way of knowing how many weapons can be hidden by a country of bad faith, and to guard against such a danger — unknown and unknowable — it would be necessary to maintain an unlimited arsenal of weapons. In reality, if weapons are retained during the disarmament process, it is to permit of a balanced process of disarmament, and for no other reason. The problem of hidden weapons belongs to the subject of control; it can be solved by inspection, not by open and legal possession of other weapons.

Mr. Tsarapkin stated that authorized and declared missiles should remain under permanent control. We entirely agree. But, within the framework of the Gromyko proposal, we still want to know to what type of control — permanent or not, total or not — any hidden missiles will be subject.

I am addressing this question likewise to the Czechoslovak representative, who this morning (Supra, p.14) quoted a passage on control from a speech by the Italian delegation at a previous meeting. He spoke of courage. Well, I agree that courage is necessary in dealing with control, as indeed with all aspects of disarmament, while making due allowance for the very grave dangers which at present exist owing to the absence of disarmament. But Mr. Zemla must have misunderstood me — or else I did not express myself clearly — if he thinks that I said that effective and general control was impossible. I did not say that it would be impossible to apply complete control at the end of

disarmament. I said that it would be impossible to apply complete or nearly complete control at the end of the first stage, as implied by the Gromyko proposal. We consider that control must be gradual and that its scope must expand with the progress of disarmament.

In my view there is a contradiction in the Gromyko proposal; namely, that almost complete disarmament cannot be realized without almost complete control, which — I repeat — is very difficult to achieve at the end of the first stage. Moreover, I fear that it will be difficult to come to an agreement on any form of control so long as the necessary inspections are regarded as espionage and as violations of a country's security. That attitude must be discarded, and I had hoped that the present improved international atmosphere would have enabled us to do away with — or, at least, reduce — these apprehensions.

ENDC/PV.178 Canada/Martin

26.3.64

p.21

Since both the Soviet Union and the Western Powers have made suggestions with respect to observation posts in the context of measures to reduce the danger of war, this subject seems to us a promising collateral measure for discussion at this time; and, as so many delegations observed at the last session of the General Assembly, we hoped — and I continue to hope — that we shall reach agreement on this subject before too much time has expired. A system of observation posts, by providing assurance against surprise attack, would in the Canadian view result in a significant decrease in East-West tension. Canada believes that the establishment of an appropriate system of such posts would lead to progress in disarmament negotiations and, indeed, perhaps to progress on the main political problems dividing East and West.

ENDC/PV.178 Czechoslovakia/Zemla

26.3.64

pp.29-30

In ending my statement, I should like to deal in a few words with the question of control envisaged in the United States proposal. It has been emphasized that the freeze should be verified. The representatives of the Western Powers try to convince us that, as they see it, the question of control should not be an insurmountable obstacle in this respect. However, so far they have offered no clarification in this connexion and have given us no facts that would justify that assertion. In our view their contention is in fact only another attempt to create false, unfounded illusions, because the concept of control in the United States proposal gives rise to serious problems. After all, the proposal for a freeze of strategic nuclear weapon delivery vehicles touches upon the most sensitive area in relation to safeguarding the defence and security of States. Moreover, as I have said, the United States proposal is far from being a disarmament measure, and its adoption would not prevent States from continuing the armaments race in practically all fields.

Certain indications in the statements of the Western delegations, and of the United States delegation in particular, make it clear that the Western Powers would like to carry out such control measures in connexion with the proposed freeze as would make it possible for them practically to have access to the entire territories of other States. On the pretext of verifying possible clandestine production of means of delivery, they would be in a position to demand an inspection at any place in the territory of a particular State.

In such conditions it is evident that, both from the point of view of the measures to be effected and from the point of view of the control called for, the proposal for a

freeze of nuclear weapon delivery vehicles would not contribute to enhancing the security of States and strengthening mutual trust in international relations — not to mention alleviating the danger of a nuclear war — but rather would have the opposite result.

ENDC/PV.178 USA/Fisher

26.3.64

pp.37-39

This morning, however, I would like to speak primarily in support of the statement on observation posts made by the representative of the United Kingdom. I would like in particular to express the gratitude of my Government for the effort which the United Kingdom has made in developing a working paper on this subject. (ENDC/130). That working paper will undoubtedly provide an excellent basis for discussion of this important but complex matter. It appears to point up the problems which we must solve if we are to make progress on this measure. The United States delegation believes that this paper will be of great help in advancing the work of the Committee.

On 16 August 1963 the representative of the United States spoke on the subject of observation posts (ENDC/PV.152, pp.6 *et seq.*). The position of the United States, put forward at that time, was that a properly-designed system of observation posts would be a measure which, in and by itself, could reduce the risk of war. The position of the United States is the same today. The United States believes that a properly-designed system of observation posts would be a measure which in itself would advance the cause of peace. It would be of value in enhancing military security for both sides, in strengthening international confidence, and in facilitating progress towards future arms control and disarmament measures.

The United States, in supporting the suggestions put forward by the United Kingdom, does so in the belief that they will unite, not divide, this Conference. We say that because both sides have suggested that such a system of observation posts would reduce the risk of war. We should examine what each of us has in mind regarding the requirements for an effective system. We should explore together the nature, scope and function of such a system.

The nature of such a system should be such that it is capable of providing prompt and reliable information on unusual military movements and events. By providing early warning of any indication of possible preparations for hostile actions, it would increase the time available for diplomatic or other action to avert any threat of hostilities. It should be capable of providing timely and reliable information during an international crisis, and thus help to reduce the risk of war through misunderstanding of the posture of the other side. It would be an instrument available to each side through which concrete evidence of peaceful intent would be provided and through which unusual events which otherwise might be subject to misleading interpretations could be clarified.

The scope of such a system should include posts established by mutual agreement in North America, the United Kingdom, Europe and the Soviet Union. The precise location of posts in those areas is a matter upon which we should conduct the most direct and intensive exploration. I assume also that any system established at this time would of necessity have to be partly experimental and might be subject to periodic review.

Discussions about the functions of the observation posts may be considered the most significant part of our deliberations on this subject. Each side will of course have in mind a number of theoretical threats against which an observation-post system might prove useful. But, to be of value, an observation-post system need not deal with the entire range of possible threats. Indeed, it would not be feasible to devise a system which could deal with all imaginable threats. What is important is that the system should have a demonstrable, practical utility for those threats with which it is designed by our mutual agreement to deal.

It would not be in anyone's interest to establish a system having a purely symbolic purpose and no practical utility. Such a system could be exploited for unhelpful political purposes with no compensating gain in military security. Indeed, it might even generate a false sense of security and, in so doing, exert a destabilizing influence on the military situation.

Both sides will have an equal interest in devising appropriate safeguards to prevent the use of posts for espionage or any other clandestine purpose. We are certain that this can be done. For our part, we have in mind a system which operates openly, in full view of the host government. Any improper activity on the part of observers which could cast suspicion on the use which was being made of the posts would defeat a major purpose of this measure, which is to build confidence.

It will be important to reach a full understanding on the rights, duties and functions of the observers. The reliability of their communications and the degree of access and freedom of movement which they are to enjoy will in large measure determine the effectiveness of the system.

ENDC/PV.178 USSR/Tsarapkin

26.3.64

p.53

In conclusion, I should like to say a few words about the proposal made today by Mr. Thomas regarding the establishment of observation posts (ENDC/130). The first thing which strikes one about this proposal is the complete absence of any new ideas, of any new thoughts. It essentially amounts to control without disarmament, control over armaments. The United Kingdom delegation continues to divorce the establishment of observation posts from effective steps which would lessen the danger of war.

Since this point has been raised, I would remind the Committee that the Soviet Government has always been and still is in favour of taking real and effective measures to prevent a sudden attack. It is well known that the Soviet Union has to this end submitted a proposal for the establishment of a network of observation posts on the territories of the countries belonging to the two opposing groups of States, in conjunction with certain measures for lessening international tension such as a reduction in the numbers of foreign troops in the territories of European countries, and an undertaking not to station nuclear weapons in the German Democratic Republic or the Federal Republic of Germany.

The Soviet Government considers that if the establishment of observation posts is carried out in isolation from these concrete measures for the easing of international tension and the limitation of armaments, it cannot achieve the desired objective — the growth of confidence among States and the lessening of the risk of war. On the contrary, it might even lead to an increase in tension on both sides and to the aggravation of international relations.

The establishment of a system of observation posts can prove useful only in conjunction with concrete measures for lessening the threat of war. Practical steps for a real lessening of the possibility of an outbreak of military conflict in Europe and the establishment of observation posts would in that case be two complementary aspects of a single process — the lessening of tension in the danger zones where the armed forces of the opposing groups face each other.

ENDC/PV.181 USSR/Tsarapkin

7.4.64

pp.38-41

In his statement today Mr. Thomas, the United Kingdom representative, told us that he was not satisfied with the Soviet proposals for control in the first stage of disarma-

ment, that he considered these proposals to be inadequate and incapable of ensuring the verification of disarmament measures. With a view to putting an end once and for all to such unwarranted bargaining — and even at the expense perhaps of wearying you — I propose to enumerate the control measures for the first stage of disarmament which are included in the Soviet draft treaty for the purpose of verifying the destruction of nuclear vehicles.

These measures are as follows.

During the first stage of disarmament, inspectors of the International Disarmament Organization will, in accordance with the Soviet proposal for the elimination of rockets capable of delivering nuclear weapons, verify the implementation of the following measures: the elimination from the armed forces and the destruction of all rockets capable of delivering nuclear weapons of any calibre and range, whether strategic, operational or tactical, and pilotless aircraft of all types, except for an agreed and strictly limited number of intercontinental missiles, anti-missile missiles and anti-aircraft missiles in the ground-to-air category, to be retained by the USSR and the United States, exclusively in their own territory, until the end of the third stage. They will verify the strictly limited number of rockets to be converted to peaceful uses under the provisions of article 15 of the Soviet draft treaty. They will verify at the launching pads the missiles to be retained under the provisions of the treaty until the end of the third stage of disarmament; the complete demolition of all launching pads, silos and platforms for the launching of rockets and pilotless aircraft; the destruction of all instruments for the equipment, launching and guidance of rockets and pilotless aircraft; the demolition of all underground depots for such rockets, pilotless aircraft and auxiliary facilities.

They will control the complete discontinuance of the production of all kinds of rockets and pilotless aircraft, and of the materials and instruments for their equipment, launching and guidance; the dismantling of all undertakings or workshops thereof engaged in their production; the destruction of machine tools and equipment specially and exclusively designed for their production; the conversion to peaceful uses of the premises of undertakings as well as of general-purpose machine tools and equipment; the demolition of all proving grounds for tests of such rockets and pilotless aircraft.

The Soviet draft treaty further provides that the production and testing of appropriate rockets for the peaceful exploration of space shall be allowed; provided that the plants producing such rockets, as well as the rockets themselves, will be subject to supervision by the inspectors of the International Disarmament Organization.

The Soviet draft treaty provides for the following further measures of control for the first stage of disarmament:

The inspectors of the International Disarmament Organization will verify the implementation of the following measures:

They will verify the elimination from the armed forces and the destruction of all military aircraft capable of delivering nuclear weapons; the rendering inoperative or the conversion to peaceful uses of military airfields serving as bases for such aircraft and the repair and maintenance facilities and storage premises at such airfields; the closing of training establishments for crews of such aircraft; the complete discontinuance of the production of all the above-mentioned military aircraft; the dismantling or conversion to the production of civil aircraft or other civilian goods of all undertakings or workshops thereof designed for the production of such military aircraft.

They will verify the elimination from the armed forces and the destruction of all surface warships capable of being used as vehicles for nuclear weapons and of submarines of all classes or types; the demolition or dismantling and handing over to the merchant marine for peaceful uses of naval bases and other installations for the maintenance of the above warships and submarines; the complete discontinuance of the build-

ing of warships and submarines; the dismantling or conversion to peaceful production of shipyards and plants wholly or partly designed for the building of such warships and submarines.

They will verify the elimination from the armed forces and destruction of all artillery systems capable of serving as means of delivering nuclear weapons; the destruction of all auxiliary equipment and technical facilities designed for controlling the fire of such artillery systems; the destruction or the conversion to peaceful uses of surface storage premises and transport facilities for such systems; the complete destruction of the entire stock of non-nuclear munitions for such artillery systems, whether at the gunsite or in depots; the destruction of underground depots for such artillery systems and for the non-nuclear munitions thereof.

They will verify the complete discontinuance of the production of these artillery systems; the closing and dismantling of all plants and workshops thereof engaged in the production of such systems; the destruction of all specialized equipment and machine tools at these closed or dismantled plants or workshops, and the conversion of the remainder to peaceful uses; the discontinuance of the production of non-nuclear munitions for these artillery systems; the complete dismantling of plants and workshops engaged in the production of such munitions and the destruction of their specialized equipment.

All the forms of control I have mentioned relate solely to the elimination of nuclear delivery vehicles in the first stage of disarmament. I am not here referring to the controls applicable to other disarmament measures in the first and later stages.

We consider that this whole range of control measures, this whole series of verification arrangements with their wide coverage during the very first stage of disarmament, fully meet the need to ensure adequate verification of the implementation of the agreement on the elimination of all nuclear delivery vehicles during the first stage, and to ensure control of the missiles left as part of the "nuclear umbrella".

The Western Powers nevertheless contend that they are not satisfied with this control; they are continuing to intensify their demands for control and making more and more stipulations. Today the United Kingdom representative sounded a pessimistic note, alleging that it would be difficult to verify so large a number of disarmament measures during the period of eighteen months suggested by the Soviet Union. This is an untenable argument, since control would take the form of observing, of verifying the physical action to be taken. If, during the eighteen-month period specified for the first stage in the Soviet draft treaty on general and complete disarmament, it is possible to destroy the armaments we propose and to reduce the armed forces, it will obviously also be possible to control the implementation of such measures. Control would, after all, be effected simultaneously with the implementation of a given measure of disarmament.

The attempts by Mr. Thomas to give the impression that it would be impossible or extremely difficult to carry out the disarmament measures included in the Soviet draft treaty for the first stage within the time-limit proposed for this stage are unconvincing and groundless. We consider that it is perfectly feasible. We make a formal statement to this effect here and now.

ENDC/PV.182 UAR/Hassan

9.4.64

p.14

Meanwhile I should like to refer to the constructive proposal put forward on 24 March by Mr. de Araujo Castro of Brazil during his short stay with us, when he said that underground tests above a certain range which both sides agreed could be identified within their developing systems might be added to the interdiction area of the Moscow partial test-ban agreement (ENDC/PV.177, pp.9, 10). In view of the fact that

both sides in 1960 included in their negotiations the idea of banning all tests, including underground tests above seismic magnitude 4.75, we believe — in view of the recent development in the detection and identification systems — that the Committee should call upon the nuclear Powers to enlarge the partial test-ban treaty in order to cover the banning of underground tests, at least of the above-mentioned seismic magnitude.

In this connexion, we were very interested to read in The New York Times of 4 April that the underground Soviet test in Central Asia in February 1962, and the underground French test in Algeria in May 1962, were detected with unexpected clarity by seismic stations in the central United States up to 6,000 miles away. While the two underground tests were described as large ones, it was reported that the strength with which seismic signals were received was "surprising" and that promising new possibilities were being opened for monitoring a ban on underground tests. We think that scientific co-operation under the formula we suggested before could help to improve the capabilities of detecting and identifying smaller underground tests, and the threshold could be progressively lowered to match such improvements. This could be on the whole another step forward towards banning all tests for all time.

ENDC/PV.182 Canada/Burns

9.4.64

pp.17-20

I now turn to the question of the establishment of observation posts. In a statement made on 26 March Mr. Martin, Secretary of State for External Affairs of Canada, mentioned the subject of observation posts, (ENDC/PV.178, pp.20, 21) the purpose of which, as we know, is to reduce the risk of war through surprise attack. Mr. Martin thought this was a promising collateral measure for our discussion at this time, and welcomed the submission of a paper by the United Kingdom representative (ENDC/130) as a positive contribution towards this discussion.

Today I should like to elaborate further the views of the Canadian delegation on observation posts. However, first, as a background to what I have to say on this particular subject, I think it is important to understand the nature of some of the proposals which have been put forward as measures to reduce tension and to halt the arms race. Each side claims that the measures it advocates would achieve those aims. Their unacceptability to one side or the other depends to a great extent on the context in which they are submitted and the degree of control which is to accompany them.

Soviet Union representatives in this Conference have often told us that there can be no control without disarmament. Yet I do not believe that anyone can dispute the fact that both sides, the United States and the Soviet Union, have put forward measures which do not entail the actual physical destruction of weapons or disbandment of forces — which is the definition of disarmament — but the implementation of which requires some degree of control if they are to have any meaning. Such measures are the following: the withdrawal of foreign troops from the territories of other countries; the establishment of denuclearized zones; measures to prevent the spread of nuclear weapons; the prohibition of underground tests; the freeze of strategic nuclear vehicles; halting the production of fissionable materials for weapon use; and measures to reduce the risk of war by surprise attack. I suggest that all these measures must have some control associated with them.

Let us take, for example, the Soviet Union's proposal to withdraw all foreign troops from the territories of other countries (ENDC/123). This is not a measure of disarmament in the true sense of the word; it is a redeployment of forces. The forces are not being disbanded, the armaments are not being destroyed; they are being moved to some other place. What Chairman Khrushchev said in this connexion in his closing speech to the Plenum of the Communist Party of the Soviet Union in December 1963 is of interest,

and I would quote an extract from that speech. He said:

"When we speak about reducing armed forces and armaments, including foreign troops in European States, we are not seeking to damage any country. We assume this can be carried out without violating the balance of the forces of States belonging to NATO and the Warsaw Pact.

Obviously, as before, we are proposing the establishment of control over implementation of these steps. Apart from that, as is known, we are proposing the establishment of control posts on territories of States belonging to both groups to prevent a secret concentration of armed forces and avert a surprise attack." (Pravda, 13 December 1963)

It is clear from that statement that Mr. Khrushchev does not contend that the withdrawal of all or some foreign troops from the territories of other countries could be put into effect without some form of verification. Why, then, should Mr. Tsarapkin object to the United States proposal for a freeze of strategic nuclear vehicles (ENDC/120) on the ground that it would constitute control without disarmament?

It seems to us that the Soviet Union delegation is also inconsistent in regard to control of collateral measures, since it supports the Polish initiative concerning the freezing of nuclear weapons in central Europe. On 26 March Mr. Tsarapkin told us (ENDC/PV.178, p.52) that the Soviet Union regards the Polish proposal as a positive one. That proposal is for a freeze and does not entail the actual destruction of weapons — that is, there is no disarmament —; but, if we understand it correctly, it would be subject to rather elaborate measures of control.

At the same meeting, when referring to the United Kingdom proposal concerning the establishment of a system of observation posts, Mr. Tsarapkin said:

"The first thing that strikes one about this proposal is the complete absence of any new ideas... It essentially amounts to control without disarmament..." (ibid., p.53)

When one examines the Soviet Union's position with regard to control over collateral measures, it becomes apparent that it does not adhere rigidly to its maxim "No control without disarmament", but will accept control over a measure which does not entail the reduction of arms if that measure is clearly to its advantage.

I am sure that all members of this Committee are looking for a collateral measure which will reduce tension, increase the security of States, will not upset the balance, and will be of advantage to all and of disadvantage to none. The establishment of a system of ground observation posts appears to the Canadian delegation to meet all those criteria. Observation posts can provide a means by which the host country — that is, the country on whose territory the posts are located — can reassure the nation or nations manning the post that its actions are peaceful and defensive and that it has no aggressive intentions. In that way tensions on both sides will surely be reduced.

It has been argued that attempts by posts to gain military information outside the scope of what was agreed could greatly increase suspicion and tension. If any nation manning the posts should allow this to occur, however, it would be a clear indication that it had no serious intention of making the system work. There will no doubt be fears on both sides in this regard; but safeguards can and should be built into the system which would eliminate the possibility of improper collection of intelligence — or, as our Soviet colleagues prefer to call it, espionage.

A system of ground observation posts would, in the opinion of the Canadian delegation, clearly favour nations having only peaceful and defensive intentions, and would deter aggression. No country or group of countries would accept posts on its territory if it contemplated aggression to further its political aims. If one pursues this line of thought further, it becomes clear that the mere fact of accepting posts on its territory and facilitating the use of these posts for the purpose for which they are intended

would indicate a nation's peaceful intent.

If the system operates as it should, the nation whose posture is defensive would obtain information of an impending attack in time to bring its defensive forces into a state of readiness. The nation initiating or intending to initiate an attack would have either to interfere with a post to prevent it from passing legitimate information -- and that in itself would arouse suspicion of hostile intent -- or to deprive itself of the use of transportation facilities monitored by the post, thus limiting the possibilities for effecting a military concentration and bringing off a surprise.

The establishment of a system of observation posts, if put into effect as an isolated measure, could not possibly upset the balance now existing between the major Power blocs in Europe and thus could not work to the disadvantage of either. Apart from the purely military advantages I have mentioned, there are political aspects which, in our view, are also significant. A system of observation posts, however modest at the start, would contribute greatly to the growth of confidence in an area of existing tension, and such confidence is required for the solution of political issues which now make progress on disarmament difficult.

ENDC/PV.182 USSR/Tsarapkin

9.4.64

p.45

There is no doubt that an agreement prohibiting all underground tests without exception would be a very valuable and important step, which would be welcomed by the whole world. The conclusion of such an agreement is, however, impeded by the position of the Western Powers, especially the United States, which are unjustifiably continuing to insist on international control of a ban on underground tests. It has already been fully demonstrated in practice that special international control is no more needed for detecting underground nuclear tests than it is for tests in the atmosphere, in outer space and under water.

In this connexion it is interesting to note an article in The New York Times by Mr. John Finney, the well-known writer on nuclear questions, to which the representative of the United Arab Republic referred today. In his dispatch from Washington published in The New York Times on 4 April, Mr. Finney states that on 2 February 1962 the United States system for observing underground nuclear tests detected with unexpected clarity a small underground nuclear explosion set off the same day in the Soviet Union 6,000 miles away. The same was true of an underground nuclear explosion set off by France in the Sahara on 1 May 1962, which was also registered with unexpected clarity by the United States seismic observation service in United States territory, in other words, several thousand kilometres from the site of the explosion.

Another point Mr. Finney revealed in his article was that, at that time, United States Government agencies tried to conceal these facts so that the United States delegation in Geneva could go on asserting that national observation systems could not effectively detect underground nuclear explosions and so that it was not prevented from pressing its demand for the establishment of international control in the territory of the Soviet Union. Mr. Finney's article clearly shows that as early as 1962 the United States had no grounds for demanding the institution of international control. It is all the more strange, two years later, to see the United States still maintaining its old and unjustified attitude in this matter.

These baseless demands by the United States are the sole obstacle to the conclusion of an agreement on prohibiting underground tests. If the United States, the United Kingdom and the other Western Powers were to give up their baseless demands for international control, a comprehensive agreement prohibiting all nuclear weapon tests in all media, including underground, would be concluded.

This morning I propose to examine some aspects of a question which, as we all know, lies at the root of some of the problems which the Committee is trying to solve. I refer to the question of verification of the reduction and elimination of nuclear delivery vehicles under a treaty on general and complete disarmament.

In the view of the United Kingdom delegation, there are at least two major aspects of that question. First, there is the need for verification of the actual destruction of nuclear delivery vehicles. Arrangements will be required for checking that the nuclear delivery vehicles which we agree to destroy in all three stages of disarmament are in fact destroyed — or, as we say, are "thrown on to the bonfire". Secondly, there is the need for some verification of "remainders", or remaining war potential. There must obviously be verification of what is destroyed; there must also be the right to check that no State has retained, or is building up illegally and clandestinely, stocks of nuclear delivery vehicles over and above the number permitted at any given stage of the disarmament process. Any such excess could, of course, be a strategically-destabilizing force, which could be used for aggression.

I do not propose to dwell this morning on the first major aspect of verification to which I have just referred. We all seem generally agreed that the actual physical destruction of nuclear delivery vehicles must be verified, although we have not yet discussed the modalities of such verification. I must interpolate that these will be extremely important. They need not, I think, present insuperable obstacles; provided of course that we do not try to make stage I of the disarmament process a very short period of time, or to overload it to the unrealistic extent envisaged in the present Soviet plan (ENDC/2/Rev.1 and Add.1).

With regard to the second major aspect of the verification problem to which I have just referred: I believe there has been some narrowing of the wide gap between the positions of East and West as regards verification of declared and permitted nuclear delivery vehicles under a general disarmament treaty. It is with this point that my statement this morning is mainly concerned.

As we all know, the Soviet Government has expressed its willingness to accept some form of verification of legally-retained armaments: namely, the land-based missiles which, under the Soviet Government's own proposals, the United States and the Soviet Union would be allowed to retain until the end of stage III. Although, as I hope to explain in a moment, there are some aspects of this verification which are still not clear to us, we have in the past welcomed this slightly more flexible Soviet approach, and I do so again today. In view of the fact that the Soviet Government has now recognized that some form of verification of what, under its own proposals, would be the most powerful weapons left in its hands during the disarmament process would not constitute espionage, we hope that in due course the Soviet Government will also recognize that, even with the Soviet criteria for control, there is no reason why verification should not be extended to cover all retained armaments, whether they be legally or illegally retained and produced. We hope, therefore, that the Soviet delegation will consider how best to give both sides adequate assurance that the stability of the mutual nuclear deterrents to be retained during the disarmament process under either plan could not be upset by the clandestine and illegal retention and production of weapons.

Now, I said earlier that certain aspects of the verification system apparently contemplated by the Soviet Government for the missiles to be declared and legally retained during the disarmament process under its proposals were not clear to us. Perhaps I may explain what I have in mind.

The Committee will recall that on 4 February our Soviet colleague said that control

"would be established directly at the launching pads" and that one of its purposes would be to verify that the number of launching pads "should not be greater than the number of missiles retained" (ENDC/PV.163, p.24). On 10 March I myself suggested that another purpose of such control would presumably be to check that the number of land-based missiles to be retained under the Soviet plan corresponded to the number agreed by both sides and the retention of which was therefore permitted (ENDC/PV.173, p.19). I made that suggestion because it had seemed implicit in our Soviet colleague's own remarks. He has not, I think, disputed my interpretation; and I shall therefore assume that it is correct.

If so, I still do not understand why sea-borne missiles legally retained during the disarmament process could not be subject to verification with a similar purpose. As I pointed out on 10 March, ships on which sea-borne missiles are mounted come into port periodically (*ibid.*). It would not, therefore, I believe, be too difficult to devise a verification system whereby the number of such missiles and their platforms could be checked at agreed times and places to ensure that they corresponded to the numbers agreed and permitted. Therefore, on this score alone our Soviet colleague has not convinced me that the legal retention of land-based missiles offers any particular advantage over the legal retention of sea-borne missiles.

However, at our 173rd and 175th meetings our Soviet colleague somewhat shifted his ground. He tried, as I understood it, to adduce other verification arguments in favour of the legal retention of land-based as opposed to sea-borne missiles; and I myself thought that in doing so he was confusing certain important issues. For one thing, it seemed to me that he tended to equate the term "verification" and the term "control" in a somewhat misleading manner. Therefore it is perhaps worth looking fairly carefully at the arguments which our Soviet colleague used.

ENDC/PV.184 USA/Fisher

16.4.64

pp.17-18

How would the freeze be verified? As a point of departure, the parties to the agreement would have to make a complete declaration of all production and testing facilities relevant to the agreement. Declarations would be made after the conclusion but before the implementation of the agreement. Included would be facilities producing — or recently utilized in producing — completed armaments and specified major sub-assemblies of armaments affected by the freeze. Facilities producing, or recently involved in the production of, vehicles for space or aeronautical programmes, and their major sub-assemblies, equivalent to the boosters used for affected armaments would also be included. All installations used for space launchings and sites to be used for all allowed missile firings would also be declared. Declarations would have to be kept up to date if new facilities were used.

The verification arrangements which we have in mind for the freeze would concentrate on monitoring critical production steps, replacements, and launchings. A verification system sufficient to provide adequate assurance of compliance would of course be required. Such a system could include the following:

- (1) continuing inspection of declared facilities;
- (2) a specified number of inspections per year to check undeclared locations for possible prohibited activities such as armament production or launching-site construction;
- (3) the stationing of observers to verify all space launchings and all allowed missile firings in order that stated requirements for replacement missiles could be verified and the launching of prohibited types of missiles detected;
- (4) observation of the destruction of — or, in the case of accidents, other

confirmation of — vehicles and launchers being replaced.

Further details of the verification system required will be developed on the basis of further study. It is clear, however, that the verification system for the measure which we are now exploring would be less extensive than that required for general and complete disarmament. It would not involve verification of the levels or the deployment of existing armaments.

To formalize an agreement on the freeze, we would propose embodying it in a treaty which would enter into force within an agreed interval after signature and ratification by the United States, the Soviet Union and such other States as might be agreed. We believe that such a treaty should contain a withdrawal clause similar to that contained in the partial test ban treaty (ENDC/100/Rev.1), with which I know the Chairman is familiar. The freeze agreement should also contain a provision that a conference would be held, periodically or at the call of any party, to consider whether the treaty should be continued or modified. It should be further provided that after such a conference any party could consider whether to exercise its right under the withdrawal clause on the basis of the results of the conference.

I have described the essential elements of the United States proposal to explore a verified freeze of nuclear delivery vehicles. We have put forward this concept for serious exploration by the Soviet Union, the United States and their respective allies. As a result of such continuing exploration the United States may wish, therefore, to review the outline of the elements of the freeze concept which I have just presented.

The freeze provides a practical means to halt the most costly and potentially destructive segment of the arms race. The suggestion for a freeze deals with the areas of the arms race which are of the greatest danger and with the arms which are most easily controlled. This suggestion is designed to affect those armaments which are the most significant in halting the arms race and which are, at the same time, the simplest to verify in regard to limitations on production and testing.

ENDC/PV.184 Canada/Burns

16.4.64

p.39

The analysis which the representative of the United States made on 9 April (ENDC/PV.182, pp.27 et seq.) of the Soviet proposal for an agreement on the reduction of military budgets showed most clearly, I think, that we should be careful to distinguish, when considering this measure, between military budgets and military expenditures. As I understand it, what we want to see reduced are the total resources which States devote to financing their military establishments. These resources make up their military expenditures. "Military budgets", on the other hand, is a more restricted term, since in practice it refers only to the heading under which States choose to announce certain types of military expenditures. Bearing in mind the actual accounting practices of certain States, which were described very vividly to us last week by Mr. Fisher, it seems to me quite evident that an announced reduction in military budgets would not necessarily entail a reduction in the total level of the resources which States were devoting to financing the maintenance of their military strength.

Besides the need for reliable information on these questions, there is the need to devise means which would give assurance that a State would not falsify or distort its published record of defence expenditure. We are told that the Soviet Union is prepared to accept verification of an agreement to reduce military budgets, but we have not been told anything about the method or extent of such verification. As I have just pointed out, the Canadian delegation believes that a mere examination of national defence accounts would not be sufficient, since a State that wished to frustrate the basic purpose of the agreement could simply transfer items from the military to the civil

sector of its budget. For example, expenditures on military rocket research could be shifted to space research for peaceful purposes; or part of the pay and maintenance of troops might be shifted to the budget for police or militia.

How to be assured that States would not undermine the purpose of an agreement in this way is one of the most obvious problems which, we believe, needs solution before it will be possible to limit military budgets by international agreement — ...

ENDC/PV.187 India/Nehru

28.4.64

pp.59-60

....If there is disagreement on the question of inspection, surely it should be possible for the nuclear Powers to consider the suggestions which have been made for closer co-operation in the scientific field with a view to determining which underground tests are capable of being detected without on-site inspection and bringing such tests within the scope of the ban imposed by the Moscow Treaty. Even some limited progress in this field would help to create greater confidence and improve the international situation.

Another proposal in the nuclear field on which progress seems to be possible is the one relating to non-dissemination of nuclear weapons. We understand that some negotiations or talks have taken place between the nuclear Powers on this question. Both the nuclear Powers have expressed a desire to prevent, and shown their interest in preventing, the further spread of nuclear weapons. Both have supported the Irish resolution on the subject (A/Res/1665 (XVI)). There may be difficulties in regard to the interpretation of the resolution. Does it, for instance, permit some change in the existing deployment or disposition of nuclear weapons, or in regard to giving access to others so long as control of the weapons is not transferred?

Irrespective of the question of interpretation, however, it seems to us that at the present time, when there is a progressive improvement in the international situation, it would be most unwise — and might even bring about a setback — if any change were made in the existing arrangements for the control, use or deployment of nuclear weapons. In our view this is a matter in which the special concerns of one side should be respected by the other. An agreement on non-dissemination which freezes all existing arrangements pending an agreement on the reduction and elimination of nuclear armaments is a logical next step to the Moscow Treaty which would be welcomed by the world as a whole.

I am going rapidly over a few other proposals on which some progress might be possible. We have already, at a previous meeting, welcomed the United States proposal for a cut-off of fissile material for weapon use and the transfer of the material to peaceful uses (ENDC/132). My predecessor spoke on this subject; and, as he pointed out, while we agree that proper verification to prevent the use of fissile material in weapons should be applied, the verification or safeguards should not be such as to place checks on the peaceful utilization of nuclear energy (ENDC/PV.174, p.18). The International Atomic Energy Agency safeguards should also not be extended to equipment and devices which serve a peaceful purpose. Safeguards of that kind would have the effect of widening the gap between the developed and under-developed countries and would be a source of further tension (*ibid.*, p.19).

We should also support the proposal for the setting up of observation posts to prevent surprise attacks (ENDC/130). This is a useful measure which at one time seemed to be acceptable to the Soviet Union. Perhaps it might be easier to reach an agreement on such a measure if some other measures which are equally useful could also be considered. One such measure which we have in mind is the Polish proposal, which is being discussed between Governments but which has not yet been formally placed before the Conference, for some sort of freeze of nuclear weapons and production facilities in

a limited area in central Europe. A freeze of this kind would be consistent with our larger aim of reducing the danger of a nuclear conflict. Some other measures also have been discussed in the present session; but it does not appear that they are likely to be agreed to in the near future. It is desirable at the present time to confine ourselves to measures which show greater promise.

ENDC/PV.188 Brazil/Correa do Lago

9.6.64

pp.8-9

I should like to take this opportunity to recall a suggestion made here by the Brazilian delegation on a partial ban of underground nuclear tests (ENDC/PV.177, pp.9, 10). My delegation considers that all disarmament measures should go hand in hand with adequate controls ensuring that the agreements will be respected. Nevertheless, the problem of controls has turned out to be one of the most difficult to solve. We should continue to devote attention to it. I consider that one of the most important results that could be achieved by this Conference would be to ensure that any decision on disarmament, however partial and limited, would be accompanied by the establishment of a control system. We should not, however, make control an obstacle to disarmament. When it is clear that a specific ad hoc control is not necessary for the adoption of certain disarmament measures, it does not seem to me to be logical to insist on that control. That was the criterion which led to the signature of the Moscow Treaty (ENDC/100/Rev.1), in which control was not stipulated since it already exists in fact, being exercised by the national systems of detection and identification.

As a logical consequence of that criterion, my delegation considers that we could ban immediately, without establishing a special control system, underground tests powerful enough to be detected and identified by national systems. My delegation has said that it was prepared to submit a draft on this subject. However, there is one point which we must determine: what should be the limit of power for banned explosions? In other words, what is the technically correct limit above which underground tests can be detected and identified by national control systems? My delegation considers that there would be no point in submitting the draft which it has prepared if we did not possess the technical information needed to settle this point, or indeed if the Conference is not prepared to study this information itself. In our opinion this could only be done if we agreed to set up a technical sub-committee.

ENDC/PV.188 USA/Foster

9.6.64

pp.12-13

During our last session we discussed collateral measures in greater depth than ever before. Many delegations raised questions about a problem which has seemed so many times to make agreements here more difficult. That problem is verification. To assist the Conference in getting out of this difficulty, my delegation intends to discuss verification in more detail at this session. In particular, we will discuss it as it relates to our proposals for collateral measures.

Verification should be sufficient to assure nations that their security is not being jeopardized through clandestine violations by other nations. This must have been what Foreign Minister Gromyko had in mind when he observed:

"Our country does not intend to take anyone at his word... Nor do we expect others to take us at our word." (ENDC/PV.2, p.11)

Our Secretary of State, Mr. Rusk, elaborated on the same point early in this Conference. He said:

"No government, large or small, could be expected to enter into disarma-

ment arrangements under which their peoples might become victims of the perfidy of others.

In other affairs, accounting and auditing systems are customarily installed so that the question of confidence need not arise. Confidence grows out of knowledge; suspicion and fear are rooted in ignorance. This has been true since the beginning of time.

Let me make this point clear: the United States does not ask for inspection for inspection's sake. Inspection is for no purpose other than assurance that commitments are fulfilled." (*ibid.*, pp.22, 23)

With that principle in mind, the United States has attempted to design its collateral measures so as to reduce the scope of inspection while providing the necessary assurance of compliance. We fully recognize that many nations have facilities which cannot be opened to inspection at this time. Certainly my Government has sensitive facilities of this kind; but that does not mean we cannot find a way to reconcile this need with the need for verification. Indeed, that should be one of our primary tasks.

The formulation of verification proposals requires hard work and careful preparation by all of us. The United States Arms Control and Disarmament Agency and other agencies of my Government have devoted tens of millions of dollars to research programmes designed to reconcile the need to provide assurance and the need to protect sensitive facilities. Experts from some of our leading industrial and other concerns and specialists within our Government have devoted many hours to that end.

The verification plans which we will elaborate at future meetings are the end product of that effort. Inspection would be confined to those objects -- and only those objects -- which must necessarily be placed under scrutiny to provide assurance that commitments are fulfilled. In the freeze and the cut-off, for example, the production plants to be regularly observed would be limited to those of a particular type. We would also limit the scope of the inspectors' observations within those plants so as to inhibit their receipt of information which might be of military value. In neither the freeze nor the cut-off would there be inspection to verify the levels of retained armaments.

ENDC/PV.191 USA/Foster

18.6.64

p.9

As I pointed out earlier, verification of a cut-off could be relatively limited in scope. It would deal with three kinds of facilities having functions related to the production of fissionable material: (1) those which were declared and completely shut down; (2) those which were declared and continued to produce fissionable material for non-weapon purposes; and (3) those, if any, which were not declared but which might be engaged in clandestine production.

A plant-by-plant shutdown might in the beginning be verified on a plant-by-plant basis. Inspection thus would be even less at the outset than it would be in a complete cut-off.

In August 1962 the United Kingdom delegation submitted an interesting paper (ENDC/60) on the control of fissionable material production in general and complete disarmament. Paragraphs 1 through 26 of that paper deal with control of a cut-off in such circumstances. I can assure representatives that the control provisions which we have in mind for the cut-off as a separable, pre-stage-I measure would be less than those envisaged in that paper for general disarmament. This is true because, as a separable measure, the risk of small diversions of fissionable material by one of the nuclear Powers is less significant than it would be under general disarmament. As the United Kingdom paper makes clear, large hidden nuclear production plants would be difficult to construct and conceal, given limited but sufficient inspection rights to deter such

activity.

ENDC/PV.192 Nigeria/Obi

23.6.64

p.15

The time is long overdue for a thorough re-examination of the so-called technical problems. We have been told by the United States delegation of the millions of dollars spent by its Government to perfect the means of detection and identification; and we have no doubt that comparable sums have been spent by the other nuclear Powers. We are anxious to know the results of these gigantic efforts. It may well be, if serious discussions are held with the assistance of competent advisers, that the control requirements envisaged by the West, for instance, may no longer be necessary, at any rate not in the same measure. It may well also be that, as a result of any technical progress — and progress, I believe, must have been made — a political compromise would become more possible through considerably reducing, if not dropping altogether, the number of proposed additional seismic stations in the territories of the nuclear Powers, and agreeing on a minimum of on-site inspections as a means of deterrence, should this become necessary.

We are not prejudging the work of the Nuclear Sub-Committee. We are merely trying to underline the usefulness of seriously taking up the subject of a comprehensive test ban, convinced that from such serious discussions would emerge a clear picture that would help all concerned, my delegation not excluded, in seeking the necessary political compromise. Furthermore, we still feel that the Sub-Committee — if the nuclear Powers still maintain their entrenched positions — should as an interim measure explore the possibility of extending the Moscow Treaty to cover underground tests up to a threshold, acceptable to both sides, for which national means of control are adequate.

ENDC/PV.193 USA/Foster

25.6.64

pp.11-14

On 9 June I set forth our general philosophy in regard to verification (ENDC/PV.188, pp.12 *et seq.*). I mentioned the extensive research in this area undertaken by the Arms Control and Disarmament Agency. That research seeks to devise systems which reconcile the need for adequate verification with the desire to protect the sensitive facilities of inspected parties. The inspection system we have designed for a cut-off agreement recognizes that certain sensitive facilities may be involved. It represents a concrete expression of our philosophy.

To establish the scope of the inspection system, we started with its purpose. That purpose is to provide a high degree of assurance that no significant increase in existing stockpiles of materials for weapon use could result under the agreement. We are not asking for inspection for its own sake or in order to spot minor inaccuracies. Our inspection requirements have been guided by our security needs. As I pointed out on 18 June, under a complete cut-off as a separate measure, small diversions of fissionable materials by nuclear Powers would be less significant than under general disarmament (ENDC/PV.191, p.9). The inspection system we propose is designed with all these thoughts in mind. It seeks only that amount of inspection necessary to guard against diversions by parties which should be significant at the present time.

The system which we propose would subject three types of facilities to inspection: U-235 separation plants, which produce enriched uranium; nuclear reactors, which also produce fissionable material; and chemical-separation plants, which isolate the products of reactor operations. There would be no need to inspect mines or refineries. Nor would there be any requirement to inspect nuclear stockpiles.

The system would operate in the following manner. First, each nuclear Power would declare all U-235 separation plants, chemical-separation plants and reactors. Under the cut-off agreement a nuclear State would probably close many fissionable-material plants rather than maintain them in partial operation. The declarations would therefore specify, by individual identification and location, plants to be shut down and plants to continue allowed production. Such declarations would not reveal information concerning the storage or deployment of nuclear weapons. Nor would there be a statement of the amount of fissionable material presently available to each party for use in weapons. The declarations would include the amount of fissionable materials required for allowed purposes and the production schedules for each facility which would remain in operation. Production requirements would be stated according to categories of allowed purposes. These would include research, power and propulsion reactors, explosions for peaceful purposes, and transfers to other States or to international organizations for allowed purposes. Each nuclear Power could question the accuracy of another's declaration. If a satisfactory explanation were not received, the questioning Power would have the right to withdraw from the agreement.

The next step after the submission of declarations would be the inspections themselves. These would be of three kinds:

First, to check that shut-down plants did not resume operation;

Second, to guard against over-fulfilment or diversion of production at the declared operating plants; and

Third, to ensure that no undeclared plants were engaged, contrary to the agreement, in clandestine production of fissionable material for use in weapons.

I should now like to sketch briefly for the Committee how each kind of inspection might be implemented. Let us begin with the simplest: this is the observation of a facility which has been shut down completely. This would require an initial inspection to identify the plant and to ensure cessation of production. Thereafter only occasional inspections would suffice to confirm the shut-down status. The procedure can be simple, because reopening any significant part of a shut-down production complex is a very difficult and time-consuming process. Irregular inspections, undertaken without too much advance notice, would inhibit resumption of operation.

Procedures for monitoring allowed production at declared facilities are also relatively simple and less intrusive than might at first be expected.

First, to see that U-235 separation plants produced U-235 only in declared amounts, inspectors would require ground access to the perimeter of the process buildings. They would measure the electrical input to the plant. They would check the perimeter uranium input, declared product output, and uranium tails for uranium and U-235 content. They would not enter the actual separation plant. By such a perimeter examination, the inspectors could gauge the amount of fissionable material available for allowed uses. By these procedures they would also be able to estimate the production potential accurately enough to guard against diversion of significant quantities. Of course, if the U-235 product were stored for future peaceful use, the U-235 input and output at the storage sites would have to be recorded and the sites monitored.

Second, to inspect nuclear reactors maintained in operation, International Atomic Energy Agency procedures could be used. Under a cut-off agreement, nuclear Powers could agree to accept IAEA or similar inspection on a phased basis starting with reactors of 100 or more thermal megawatts. Since the fissionable product of the reactors would be processed in declared chemical-separation plants, there would be added assurance against its diversion to prohibited uses.

Third, to monitor chemical-separation plants, the inspectors would require complete access to the facility at all times. This is because the plutonium, the U-233 and the enriched uranium fuel — all possible products of chemical separation — are all also

potentially useful in weapons.

Inspectors of a chemical-separation plant would maintain a system of records, check reports on materials and use of the facility, and ensure that all material was accounted for. Plutonium, U-233 and enriched uranium would be monitored in storage or used under safeguards consistent with those I have been describing. But a nuclear Power could choose a substitute for this particular inspection procedure. It could place under international safeguards an equal amount of the same type of fissionable material as that to be processed in the chemical-separation plant. Of course, the substituted material could not previously have been under international safeguards. By making an independent measurement of the feed to the plant — that is, of all the material to be processed in the plant — the inspectors could determine the quantity of fissionable material to be substituted.

By these three methods it would be possible to verify that fissionable materials were produced at declared facilities according to agreed allowances.

Finally, we would have to ensure that no undeclared facilities were producing fissionable materials. For this purpose, we propose that the parties allow a limited number of inspections of suspected clandestine facilities. Normally such inspection would require internal access to the suspected facility. However, if it were considered particularly sensitive, appropriate external inspection might suffice. The guiding principle would be that a nuclear Power could take any reasonable precaution to protect its sensitive facilities as long as the inspectors were satisfied that no prohibited activities were occurring.

The procedures I have described are designed for declared plants, both operating and shut-down. They would also cover undeclared plants. The International Atomic Energy Agency might undertake the inspection of the declared plants. We are prepared to explore that possibility with the Agency. For undeclared plants, we propose adversary inspection: I inspect you, and you inspect me.

These procedures would constitute a reliable verification system for the complete cut-off without involving excessive intrusion. There would be no inspection of mines and refineries, and no inspection of existing nuclear weapon stockpiles. As much as possible, inspection would take place on the periphery of the plants.

We have also proposed a partial cut-off, on a plant-by-plant basis. Verification of such a cut-off would at the outset be even more limited, involving only inspection of shut-down plants.

We have submitted today as a Conference document a paper containing the system I have just outlined, with some additional details. Circulated as document ENDC/134 We hope it will be studied by this Committee. We recognize that the technical aspects of the proposed verification system are somewhat complex. For this reason we neither expect nor desire immediate reactions. In due course we do hope to hear the considered views of the members of the Committee.

ENDC/PV.193 Canada/Burns

25.6.64

pp.22-23

What seems to us of paramount importance is that a determined effort should be made to start the process of ensuring that production of fissile material is only for peaceful purposes. If the further intensive discussion of this measure which we hope will take place between the co-Chairmen and in the Conference should reveal obstacles to an early agreement which might accomplish the cut-off in a single step, the way is open for more limited action which could be taken immediately and which would keep potential difficulties to a minimum. An approach of this sort would reach the final goal of a complete cut-off by stages and start with the verified shut-down of agreed facilities on

a plant-by-plant basis.

In the opinion of my delegation, any agreement in this field, however modest initially, would yield great dividends. We are confident that, following action by the nuclear Powers towards a verified cut-off, non-nuclear Powers will wish to associate themselves with the agreement in such a way as to reinforce the fundamental objective of limiting the production of fissionable materials the world over to peaceful purposes alone. I have emphasized the flexibility inherent in the proposals before the Committee with respect to the method of implementing the cut-off. The same flexibility is apparent in the United States proposals for subsequent transfers by the nuclear Powers of quantities of fissionable materials from past production to peaceful purposes.

My second point concerns verification. This morning the representative of the United States has given the Conference a preliminary but quite detailed picture of the verification provisions which the United States proposes should accompany this measure. We shall, of course, study his statement with interest, as well as any documents on this subject which may be circulated. This provides us with ample material for concrete negotiations. The verification measures which have been set out are evidently the result of intensive study.

My preliminary comments on these provisions are as follows. In general they do not appear to involve the acceptance by States of unduly burdensome procedures, particularly when we consider the great importance of the cut-off as a first step towards nuclear disarmament. They take fully into account the legitimate concern of States to protect sensitive defence installations in the interest of their national security. We note in particular that the manufacture, storing and deployment of nuclear weapons are explicitly excluded from the ambit of inspection. Once again, it seems to my delegation that considerable flexibility is maintained with respect to the extent of the inspection which would be required under the agreement. The scope of verification would depend on whether the initial agreement involved a complete or a partial cut-off. In the latter case verification would be applied only to ensure compliance with an agreement to shut down certain specified facilities, and would involve only an inspection to identify the plants in question to make sure that their production had ceased; thereafter occasional inspections would be necessary to confirm that these plants remained inoperative.

ENDC/PV.195 USA/Foster

2.7.64

p.36

The Committee will be interested to learn that the Board of Governors of the IAEA on 11 June 1964 approved the terms of an agreement between the Agency and the United States Government, which was then signed on 15 June. The new agreement, which is for a five-year term subject to extension by mutual consent, provides for the application of IAEA safeguards to the Yankee reactor, and also for continuing IAEA inspection of the three smaller United States reactor facilities already safeguarded. The United States has agreed that the four reactor facilities and any special fissionable material produced by those facilities will not be used to further any military purpose. The United States has obligated itself, in accordance with the Agency's system of safeguards, to grant access to IAEA inspectors in order to verify the exclusively peaceful uses of the facilities and of the nuclear materials involved. The Yankee facility will be the first to which the IAEA's recently-approved safeguards for large reactors will be applied.

In the case of two of the reactors, the Brookhaven graphite research reactor and the Yankee power reactor, the agreement requires the IAEA inspectors to have "access at all times". To facilitate this inspection, the United States has agreed that the Agency may designate one or more inspectors to be stationed in the United States. With respect

to the facilities where access is to be permitted at all times, the agreement specifies either continuous inspection or that an indefinite number of separate inspection visits may be performed. This includes the right to inspect without advance notice.

We believe that the placing of these reactors under the International Atomic Energy Agency is an important step in furthering the development of an effective system of international safeguards. These safeguards will ensure against diversion of the peaceful nuclear activities involved to any military purpose. Once again we urge other States to join in this step and invite the application of these safeguards to their peaceful nuclear facilities and materials.

ENDC/PV.197 USA/Timberlake

9.7.64

p.7

Finally, we come to the matter of verification. In exploring the verification aspects of a freeze, we are convinced that verification requirements for this measure would be less onerous than for a production freeze on the entire range of major armaments, such as would be envisaged under our plan for general and complete disarmament. We believe that verification procedures for the freeze should be designed to reduce the scope of inspection while providing the necessary assurance of compliance. Such a system can be made effective without being burdensome; it can be made efficient without being intrusive.

Existing levels of armaments would not be subject to verification under the freeze. The verification arrangements we have in mind would concentrate on monitoring critical production steps, replacements, and launchings.

At subsequent meetings of the Conference I shall spell out the requirements for verification. The arrangements we will recommend are the result of many months of careful study and research. Every effort has been made to ensure that they meet the verification objectives I have already mentioned.

My Government continues to place great emphasis on President Johnson's proposal for a verified freeze of offensive and defensive strategic nuclear vehicles. We believe that it offers a genuine opportunity to put a halt to the arms race and the best possible foundation for further progress towards disarmament. I am sure that other delegations share this view and will find our proposals worthy of careful study.

ENDC/PV.197 Czechoslovakia/Pechota

9.7.64

pp.13-16

Another problem which inevitably arises if one examines the proposal for a verified freeze of strategic delivery vehicles — and the way in which this problem is posed by the United States delegation causes us to have serious doubts — is that of the control requirements in connexion with this proposal. We deem it appropriate to recall once again the place which control occupies in the whole disarmament process and, in particular, the mutual relationship which must be maintained between disarmament measures and control measures. Moreover, this is precisely what is stipulated in the relevant provision of the Joint Statement of Agreed Principles for Disarmament Negotiations (ENDC/5) of 1961. It seems to us that, if agreement in principle was achieved on this subject, there should no longer be any ambiguities in regard to it. It is generally acknowledged that no disarmament measures can be adopted without corresponding control, just as no control measure can be adopted without a corresponding disarmament measure.

We have already said that the proposed freeze of strategic delivery vehicles is not at all a measure which could be regarded as a disarmament measure. Moreover, it

undoubtedly affects the most important sphere in the whole complex of factors which in the present conditions determine the military strength of the nuclear Powers.

In these circumstances it is legitimate to ask: on what are the control requirements contained in the United States proposal based? After all, it should be clear to everyone that any control — and this applies with all the more force in the field of nuclear weapons and their delivery vehicles — can be justified only in conjunction with corresponding effective disarmament measures. This indissoluble link between disarmament and control measures shows again that the most suitable prerequisites for solving the problem of nuclear weapons and their delivery vehicles are undoubtedly to be found within the framework of negotiations of general and complete disarmament.

But certain possibilities for carrying out effective measures in this field also exist outside the framework of general and complete disarmament. One can cite as an example the important Soviet proposal for the elimination of bomber aircraft (ENDC/123). But in one way or another, whether we seek for a solution to the problem of nuclear weapons and their delivery vehicles within or outside the framework of general and complete disarmament, effective disarmament measures justify the requirements of corresponding control and at the same time create the necessary basis for the achievement of agreement on control. Outside a link with corresponding disarmament measures, no requirement for control has anything to do with control over disarmament, and must inevitably be regarded as a measure which would make it possible to collect information on existing armaments in a sphere where such information, in view of the importance of nuclear weapons and their delivery vehicles, would affect the most sensitive spots where the safeguarding of the security and defence capability of any State is concerned.

The correctness of this conclusion is indeed fully confirmed by the United States proposal for a verified freeze of delivery vehicles. It is significant that the United States proposal gives great attention to the problem of control and puts forward great requirements in this respect. In the past — and the statement made today by the United States representative is very significant in this regard — the United States representatives have maintained that the control required would not be as extensive as the control which would have to be exercised in connexion with corresponding measures within the framework of general and complete disarmament (ENDC/PV.184, p.18).

That is the main argument put forward by the Western Powers in support of their control requirements. But we have to admit that we fail to understand the logic on which that argument is based. Indeed, if one takes into account the character of the measures envisaged, it is altogether impossible to compare general and complete disarmament with the proposal for a freeze of strategic delivery vehicles. Equally unconvincing are the attempts to compare the control measures which would and should be carried out within the framework of general and complete disarmament with the control measures which are required in connexion with the proposal for a freeze of strategic delivery vehicles (*ibid.*, pp.17, 18).

I do not intend this morning to analyse in detail the requirements for control over a freeze, especially as the United States representative himself said that he did not intend to spell out the requirements for verification envisaged in the United States plan. Nevertheless, we base ourselves on the statements which the United States representatives have made in the Committee in the past.

For our part, we consider that the mere list of the required verification measures which has been put forward by the United States delegation in the past fully entitles us to draw the conclusion that the implementation of such measures would lead to the establishment of extremely extensive control over armaments in the most sensitive sphere. Once again we must draw attention to the fact that this control is to be carried out at a time when not a single strategic delivery vehicle would have yet been

destroyed and when their further production would still be going on, even though to a limited extent. Furthermore, the production capacity, which would make it possible to re-establish production on the present or even a greater scale in a short time, would remain intact. Moreover, as we know, the United States proposal — judging from the explanation given by the United States representative on 16 April — envisages that a possible agreement would include a clause under which any of the parties would be free to withdraw at any time from such a treaty on a freeze (*ibid.*, p.18).

We think that these few considerations show clearly the reasons why we do not consider the proposal for a verified freeze of strategic offensive and defensive nuclear weapon delivery vehicles, in the form in which it has been presented by the United States delegation, to be a suitable basis on which a mutually-acceptable agreement could be reached.

ENDC/PV.199 USA/Timberlake

16.7.64

pp.16-17

The adoption of our proposal would place into operation the very simplest of verification procedures, would provide needed experience in the process of physical destruction, and would call to the attention of the world the serious intention of this Conference to make real progress. I put it to the Committee: would it not be an historic moment if this Conference could inform the peoples of the world that we had agreed to eliminate substantial numbers of bomber aircraft capable of carrying over a thousand times the explosive power of all bombs dropped by bombers during the Second World War?

Should this Conference endorse that measure, what are some of the essential elements in carrying it out?

First, as indicated previously, the United States and the Soviet Union would agree to destroy an equal and agreed number of TU-16 and B-47 jet bombers over a two-year period.

Second, destruction of the B-47s and TU-16s would take place in the United States and the Soviet Union respectively. One airfield in each country would be designated for such purposes.

Third, the agreed number of bomber aircraft would be flown by each party and landed at its designated airfield on the first day of each month.

Fourth, destruction would be carried out under the supervision and direction of the host country by its personnel and at its expense.

Fifth, destruction would be comprehensive enough to ensure that each bomber aircraft could no longer be restored to flyable condition and its engines no longer used for propulsion.

Sixth, the host country could, prior to destruction, remove from its bombers any equipment, instruments and the like which in its discretion it would wish to retain.

Seventh, such destruction would be verified by adversary inspection — you inspect me and I inspect you — a process which is elementary, uncomplicated and non-intrusive. That is a point I hope my Soviet colleague will not overlook.

Eighth, we think it would be desirable for observers designated by the non-aligned members of this Committee, and by the Secretary-General of the United Nations, to participate in the verification process.

The verification process we envisage, as I have already emphasized, is an extremely simple one, sufficient solely to ensure that the agreed destruction is actually carried out. We would propose the designation of perhaps six persons each by the United States and the Soviet Union; and those persons would verify the destruction of bomber aircraft at the designated airfield of the other party. Official personnel would be designated by

the host country to accompany inspectors during the performance of their duties.

Inspectors would have the right to keep designated bombers under visual observation, witness their destruction, and make records of the destruction for their own governments.

Inspectors would not have the right to examine any bomber before it had been destroyed or any equipment, instruments or the like removed if desired by the host country.

Inspectors would enjoy the same privileges and immunities accorded by the host country to diplomatic envoys.

What would be the responsibilities of the host Government to facilitate the verification process? They would be as follows:

To co-operate promptly with both inspectors and observers at its designated airfield, refraining from interference with the verification operations and giving assistance and support as may be required;

To keep inspectors and observers informed in advance of the precise time and place of landing of bombers and their destruction;

To provide prompt transportation and suitable living quarters and other amenities for inspectors and observers, including supplies or support to carry out their functions.

To permit and assist diplomatic officials of the designating country to visit and communicate freely with inspectors at the airfield of the host country.

ENDC/PV.207 USA/Timberlake

13.8.64

pp.19-20

What, then, would constitute an agreement on a separable, verified cut-off in the production of fissionable material for use in nuclear weapons? The essential obligations are few. Each party would have to agree to these basic undertakings:

(a) To halt, prohibit and prevent the production of fissionable material for use in nuclear weapons at all facilities under its jurisdiction and control;

(b) To refrain from rendering assistance to anyone for the purpose of production anywhere of fissionable material for use in nuclear weapons; and

(c) To accept appropriate inspection.

In addition, to protect the vital interests of all concerned, the agreement should contain a provision for withdrawal which could be similar to that of the limited test-ban Treaty (ENDC/100/Rev.1).

In enumerating these undertakings, I would direct special attention to the matter of inspection, which all too frequently is thought to be the bogey-man in our disarmament efforts. As I have stated, inspection is mandatory. Its scope, however, is dictated by the necessity to guard against any significant diversions of fissionable materials. The system we envisage for the cut-off would be precise and limited in scope. It would recognize the desire to protect the sensitive facilities of the inspected parties.

The inspection system we advocate has been described in some detail in the statement made by Mr. Foster on 25 June (ENDC/PV.193, pp.10 *et seq.*) and in a working paper (ENDC/134) submitted to this Conference. However, I should like to stress again the limited extent of the inspection required.

Following appropriate declarations concerning identification, location and production activities of facilities involved in the agreement, three kinds of inspection would be undertaken. One type would ensure that closed plants remained closed; another would check against diversion or over-production at operating plants; and the last would check on illegal or clandestine production. For those facilities which have been completely shut down, an initial inspection would be required to verify that production had, in fact, ceased. Thereafter, only occasional inspections would be required to confirm the shut-

down.

To check allowed production at declared facilities, methods would differ depending on the kind of plant involved. In the case of U-235 separation plants, ground access at the perimeters of processing plants would suffice. Operating reactors could be inspected under International Atomic Energy Agency procedures. Only in the case of chemical-separation plants would inspection require complete access to the facilities at all times. This is necessary since the possible products of chemical separation — which are plutonium, U-233 and enriched uranium fuel — are potentially useful in weapons. Should this prove difficult to accept, a substitute inspection procedure could be adopted. A nuclear Power could instead place under international safeguards an amount of the same type of fissionable material equal to that to be processed in the chemical-separation plant.

The third category — undeclared facilities which could be engaged in illegal production — would be subject to a limited number of inspections. These inspections would be on an adversary basis. They would require internal access to the suspected facility. But, in the case of a particularly sensitive installation, an agreed external inspection procedure would probably be sufficient.

I would also point out that, should the cut-off be initiated through a plant-by-plant shut-down, inspection could be even more limited than in the case of an immediate and complete cut-off. Verification, in this case, might well be confined in the beginning to the specific plants involved in the shut-down.

Let me emphasize that in no instance would there be inspection of mines. Nor would there be inspection of refineries. Nor would existing nuclear weapon stockpiles be inspected.

In brief, we have sought to avoid excessive intrusion. I believe a careful study of the United States working paper will bear this out. The important point is that the inspection system we have proposed for the cut-off is designed simply and solely to provide a high degree of assurance that no significant increase in nuclear stockpiles could result from violations of the agreement.

I hope that all delegations, and particularly the Soviet delegation, will give the system we have proposed the same careful study as we have given it. We have had lengthy discussions of verification requirements more or less in the abstract. Now we have an opportunity to examine a specific system for a particular measure. I am certain that close study of our proposal will confirm both its practicality and its reasonableness.

ENDC/PV.207 USSR/Tsarapkin

13.8.64

pp.22-24

In connexion with a cut-off of production of fissionable materials, there is bound to arise an extremely complicated problem which, it must be said quite frankly, is insoluble in the absence of an agreement on general and complete disarmament. We refer to the problem of control over the execution of this measure.

The crux of the matter is that here it is a question of establishing control without disarmament. In its statements concerning a cut-off of production of fissionable materials for military purposes at the meeting of 25 June (ENDC/PV.193, pp.10 *et seq.*) and at today's meeting, the United States delegation has been inclined to minimize the importance of the difficulties to which we have just referred, by attempting to represent the control proposed by the United States over the implementation of this measure as very simple and limited to the sole function of verifying the fulfilment by States of their commitments to discontinue the production of fissionable materials for military purposes.

Let us see how the fulfilment of this function would work out in practice, if we examine the working paper submitted by the United States delegation on this subject

(ENDC/134) and consider also the statements made by the United States representative in this regard.

Let us take, first of all, that provision in the working paper which states that each nuclear power will declare at the outset "by individual identification and location, all U-235 separation plants, chemical separation plants, and reactors", and also the nature of the production of fissionable material required for allowed uses and schedules for production at each operating facility. Anyone reading those words in the working paper will naturally ask himself what this means in practice. In practice it means that, in a situation where no measures of disarmament are being carried out, when there are tremendous stockpiles of nuclear weapons in the arsenals of the nuclear Powers and, consequently, when the threat of thermonuclear war still exists, States would have to submit such information as would enable the other side to ascertain the location of all plants producing uranium-235 and plutonium — that is, the basic materials for the production of nuclear weapons. It is not difficult to see how seriously this would affect the security of States.

But this is by no means all. The provisions of the working paper concerning the nature and extent of the inspection of atomic facilities also turn out to be not so simple and limited as the United States representative, Mr. Timberlake, has tried to make out today. The inspection measures proposed by the United States delegation make it possible not only to establish the volume of the current production of uranium-235 and plutonium, but also to ascertain the volume of the nuclear resources stockpiled by States. This follows directly from those provisions in the working paper which provide for the access of inspectors to all basic data connected with the operation of plants producing fissionable materials (direct access to the plants, the measurements of the energy used, and so on).

Moreover, the inspection proposed by the United States would make it possible to ascertain the volume of the stockpiles of individual types of nuclear weapons in the possession of States, and in any case the volume of the stockpiles of nuclear weapons based on uranium-235 and the volume of the stockpiles of such weapons based on plutonium. Furthermore, the visits by inspectors to the atomic plants subject to control under the United States proposal would reveal the whole technology of the production of nuclear materials. All this — as you yourselves are bound to realize, gentlemen — represents extremely important and strictly-guarded information relating to the most intrinsic interests of State security.

Further, the United States working paper contains a provision regarding the right to withdraw from the agreement to discontinue the production of fissionable materials. Moreover, the State which wished to withdraw would merely have to declare that it was not satisfied with the data submitted by the other side on its atomic industry. This provision in the working paper in fact makes it possible for one side, after obtaining information about the quantity, production capacities and locations of the atomic plants of the other side, to refer to this provision of the treaty and to withdraw from the agreement — that is, to refuse to carry out the agreement once it had received the information of interest to it and wished to use this information for purposes having nothing to do with the maintenance of peace. It is obvious that no State concerned with its security and not harbouring any plans directed against the security of the other side could accept such an agreement without relinquishing very important, very serious interests of its people.

Those are the ideas which inevitably arise in connexion both with Mr. Foster's statement at the meeting on 25 June (ENDC/PV.193, pp.10 et seq.) and Mr. Timberlake's statement this morning, and also in connexion with the United States working paper on a cut-off of production of fissionable materials for military purposes. In the light of the aforesaid considerations, we doubt whether attempts to solve this problem outside the

framework of general and complete disarmament could lead to any useful results. It is self-evident that the achievement of agreement on general and complete disarmament would also solve the problem of a cut-off of production of fissionable materials for military purposes together with the establishment of the necessary control over the implementation of that measure. But unfortunately there is as yet no agreement on general and complete disarmament, and so far we have not even come anywhere near it.

ENDC/PV.209 UK/Tahourdin

20.8.64

pp.11-12

A comprehensive test-ban treaty must, however, contain adequate provisions for ensuring that it is loyally being carried out. In our view this would still involve some on-site verification. Regarding that need I would suggest, with great respect, that in the face of the complicated technical questions involved some misunderstanding seems to have arisen in the minds of certain recent speakers in our debates. There seems to be an impression that there exists a level, or "threshold", at which it is possible by existing national means not only to detect but also to identify with certainty underground events of a given kiloton magnitude. But, according to our scientific advice, that is unfortunately still not the case. We are doing all we can to increase our seismological knowledge. But, as the United Kingdom Foreign Secretary, Mr. Butler, said in the House of Commons on 13 July:

"I am advised that it would be very difficult to define a threshold above which scientists would be prepared to assert that all underground tests could be conclusively identified, unless it were so high as to permit the great majority of tests to continue." (Official Report, Vol. 698, No. 141, col.164)

This misunderstanding or confusion to which I have referred may have arisen because we are indeed able to detect — and I would emphasize the word "detect" — an increasing number of underground events by purely national means. But this is very far from meaning that we can identify their nature without some on-site verification. In other words, without additional verification we could not be certain whether an underground event which we might have detected was a natural phenomenon or the result of an underground test. That is the reason for which we maintain the need for some inspection and verification, although we have done our best to limit this and make it as little intrusive as possible.

It is disappointing that in this respect our Soviet colleagues seem to have taken a backward step from their earlier position when they were prepared to accept a limited amount of on-site verification. They have argued, and will doubtless argue again today, that Soviet scientific knowledge now makes on-site verification unnecessary. But they have not told us how. Consequently it is disappointing also that they are still not prepared to pursue with us the possibility of holding expert talks between scientists of both sides in the hope of establishing an agreed verification basis for a comprehensive test-ban treaty.

For our part, we remain as ready as ever to conduct such talks, and I would express the hope that the Government of the Soviet Union might reconsider its attitude on this point. As the United Kingdom Prime Minister said in the House of Commons on 12 March:

"There have been no scientific advances that would justify us in proposing a comprehensive treaty without adequate provision for effective on-site verification ... there have been no new scientific advances to justify a change of attitude. It would be helpful if Russian scientists got together with United States and British scientists and tried to thrash these matters

out and come to an agreed formula." (Official Report, Vol. 691, No. 72, Cols.662, 663)

If they were to do that, it would be a most useful step towards reaching agreement on a comprehensive test-ban treaty — an objective which is shared by all members of the Conference and indeed by the peoples of the whole world. I fear that until they are prepared to do so it will be impossible for us, despite all our sense of urgency, to report progress to the General Assembly of the United Nations.

ENDC/PV.209 USSR/Tsarapkin

20.8.64

pp.28-29

Among the instructions given to the Committee by the United Nations General Assembly, there is also another: the Committee is requested to continue its negotiations for the conclusion of an agreement banning underground nuclear tests as well (A/RES/1910(XVIII)). This, of course, is an important instruction. Everybody understands that the banning of underground nuclear tests, in addition to the banning of nuclear weapon tests in the atmosphere, in outer space and under water, as provided for by the Moscow Treaty (ENDC/100/Rev.1), would block the way to the further improvement of nuclear weapons and thereby lead to a substantial restriction of the nuclear arms race and contribute towards improving the international situation. The Soviet Union is decisively in favour of prohibiting underground nuclear tests as speedily as possible. This can and must be done, especially as it is not difficult to do so, provided there is goodwill on the part of those States which are still testing nuclear weapons.

In the memorandum of the Government of the USSR on measures for slowing down the armaments race and relaxing international tension, it is stated that:

"Actual experience has fully confirmed that no special international control need be organized to detect underground tests any more than it is needed to detect tests in the atmosphere, in outer space and under water." (ENDC/123, p.6)

And indeed, the achievements of recent years in science and technology and in seismology, no matter what the representatives of the Western Powers may tell us here, testify that, with the help of existing national means of detection and identification of underground events, it is possible to pin-point all underground explosions, wherever they take place. This is acknowledged not only by Soviet scientists but also by many of the leading authorities in the United States, the United Kingdom, and other countries. Consequently from the scientific and technical point of view there are no obstacles to the immediate conclusion of an agreement banning nuclear tests underground.

How, then, can we explain that the simple question of discontinuing underground nuclear tests is still unsolved? The only explanation is that its solution is of no interest to the United States, which for a number of years has been systematically carrying out underground tests for the purpose of further improving its nuclear weapons. That is the gist of the matter. And in order to camouflage its position, which in fact is a challenge to the nations that are striving to curb and end the nuclear arms race, the United States puts forward artificial, far-fetched and baseless arguments: for example, that if underground nuclear tests were prohibited it would be impossible to do without international control, on-site inspection, and so on. But all this is merely a pretext, an excuse and nothing else.

Where the Soviet Union is concerned, we have already stated on a number of occasions that the Soviet Government is prepared, even immediately, to conclude an agreement extending the prohibition of nuclear tests to tests carried out underground, under the same conditions as those laid down in the Moscow Treaty banning nuclear weapon tests in the atmosphere, in outer space and under water: that is, without the establish-

ment of international control but with the use of national means of detection for the verification of compliance with the agreement banning nuclear tests underground.

ENDC/PV.211 USA/Timberlake

27.8.64

pp.5-11

...I refer to the verified freeze of offensive and defensive strategic nuclear vehicles, the exploration of which President Johnson urged upon this Committee.

Today I should like to elaborate on that proposal by presenting some illustrative material on the nature of the verification that would be required in its support. The procedures which I shall outline will, of course, require further detailed discussion and negotiation within this Conference. Also, it is not intended that this presentation should cover all aspects of the verification of the freeze. For example, I shall not discuss the problem of verifying the freeze of strategic anti-ballistic-missile systems, which we have previously indicated would be included along with offensive delivery vehicles (ENDC/PV.197, p.6). However, I believe that the material which I present today will provide a basis for a sound understanding of the nature of the verification system we contemplate and for initiating explorations of the freeze proposal.

I believe that it is appropriate to set forth this material on verification of a freeze in some detail at this time for two reasons. First, questions raised by other delegations in past discussions, especially by the delegation of the Soviet Union, indicate that there is some misunderstanding of the nature and extent of the verification measures we propose. Second, we wish to make this information available for study by the other delegations and their Governments while the Conference is in recess.

As regards the matters to be negotiated, it might be helpful to begin by noting those elements which would be necessary for effective operation of the verification arrangements. It will, of course, be necessary to agree on the armaments affected by the agreement. Each party would submit a list indicating which of its armaments it considered to be affected. It will also be necessary to agree on the non-strategic military and non-military vehicles possessing weight, thrust and range characteristics falling within the categories included in the agreement. Any differences of opinion would be negotiated.

Agreement would also have to be reached on the specified major sub-assemblies affected by the agreement. The United States believes that the following sub-assemblies should be specified: (a) for ballistic missiles — liquid rocket engines and tankage, solid rocket motors, stage assemblies and mobile launchers; (b) for cruise-type missiles and aircraft — fuselages.

Affected armaments and specified major sub-assemblies could continue to be produced on the basis of a one-for-one replacement by an armament or sub-assembly of the same type. Each party would submit a list indicating which of its armaments it considered to be of the same type and describing each model within a type by gross external characteristics, such as major dimensions and gross configuration. Any differences of opinion would be negotiated. This procedure would assist in precluding the possibility of introducing more advanced weapons through replacement production. The parties would seek to agree on acceptable replacements for the armaments and specified major sub-assemblies no longer in production.

It would be necessary also to agree on annual production quotas for each of the allowed armament and specified sub-assembly replacements. This would be done by deciding upon (a) an annual number of permitted confidence and training firings for each type of missile; (b) an estimate of the number of vehicles lost annually by accident for each type of vehicle; (c) the anticipated number of replacements due to natural attrition — such as end of maintenance life or malfunction — for each type of armament and

specified sub-assembly.

We believe that there should be an arrangement under which all quotas would be reviewed at the request of any party. Parties would have to agree, of course, upon arrangements relating to verification, such as the annual quotas of inspections and the rights of inspectors.

As regards declarations, each party would describe and give the location of the facilities involved, or those which had been involved, in producing the affected armaments and the specified major sub-assemblies and retaining a capability to produce those items. The parties would identify those facilities intended for use for allowed replacement production and those to be converted to peaceful uses or closed down.

The facilities to be declared would include the following:

(a) Facilities performing final production-line assembly of the armaments or vehicles in the affected categories. However, this would not be interpreted to include military installations not engaged in manufacturing at which partial assembly or disassembly might be performed for operational or maintenance purposes.

(b) Facilities producing the specified major sub-assemblies — that is, those producing or testing ballistic-missile liquid-fuelled engines or solid-fuelled motors; those fabricating and assembling tankage; ballistic-missile stage assemblies and mobile launchers; and those manufacturing aircraft or cruise-type missile fuselages.

(c) Facilities manufacturing ship hulls used for launching sea-based missiles.

Armament production quotas would also be declared. Thus the yearly amount and type of each affected armament and/or specified major sub-assembly to be produced at each of the facilities performing allowed replacement production would be declared. Each party would be responsible for scheduling its production in conformance with its annual quota.

In addition, each party would describe and give the location of those facilities involved, or which had been involved, in space or aircraft programmes which retain a capability to produce affected armaments or specified major sub-assemblies. Those facilities would be allowed to continue to perform their declared allowed activities, and the anticipated production of specified sub-assemblies of aircraft and space boosters would be declared.

Parties to the agreement would declare all installations to be used for space vehicle launchings and all sites to be used for allowed firings of vehicles affected by the agreement. No other operational launching sites would have to be declared.

The aforementioned disclosures would be made after any agreement had been concluded but before implementation had begun. During the course of the agreement the following additional disclosures would have to be made. The parties would declare any facilities which were converted or constructed after the initial declarations and which could be used to produce or assemble the affected armaments and specified sub-assemblies. The declarations would be made at the time conversion or construction was begun.

The parties would, in addition, give notice of any armaments and specified sub-assemblies to be destroyed because of natural attrition. They would supply the date and location of the destruction, with sufficient advance notice to permit observers to be present at the destruction site. In the event of accidental destruction, appropriate evidence would have to be supplied as a basis for replacement production. If no replacement production were required, no notice or evidence would be required. To the extent that launcher replacement is permitted, appropriate declarations relating to such replacement would be required.

Parties would also have to give appropriate notice of the planned production of space boosters, including the anticipated utilization of each booster in their space programmes, to provide reasonable assurance against stockpiling. That would not mean,

however, that the nature of the payload would have to be announced.

As regards all space launchings and allowed missile firings, the parties would have to give advance notice of the time and launching-site location. Information to be provided would include identification of the booster designated for each space launching and the type of missile for each allowed firing. Notification would have to be given in sufficient time to permit on-site observation of the vehicle prior to launching. In the case of missiles launched from submarines or ships, notification would have to be sufficiently in advance to permit observation ships to be in the vicinity.

With respect to the question of scheduling, each party would be responsible for maintaining a balance between the accidental destruction or expenditure of armaments, including allowed missile firings, and the scheduled annual production. That is to say, for each year and for each type of armament the number of armaments produced would not be permitted to exceed the number destroyed or lost through firings or accidents; a similar balance would be required for each specified major sub-assembly and for space boosters.

Turning now to the verification procedures, we believe that inspectors should conduct an initial check of declared facilities no longer producing the affected armaments and specified sub-assemblies to ensure that they had been dismantled, closed or converted to other production activities. This initial inspection probably could be accomplished at each facility in several days and would include an examination of all manufacturing areas of the facility. Since many months are required to establish the production lines of relevant armaments and the specified sub-assemblies and to attain a reasonable production rate, occasional unannounced checks of these facilities subsequent to the initial inspection would be adequate.

As regards declared operating production facilities, inspectors would monitor the allowed production of armaments and specified major sub-assemblies at the declared facilities. They would verify that only agreed numbers and configurations of affected items were being produced for purposes of replacement or allowed missile firings. The allowed production of aircraft and space boosters falling within the affected categories would also be monitored to ensure that only declared permitted activities were taking place.

The inspectors would conduct an initial check of declared operating production facilities. With the assistance of liaison personnel from the inspected country, they would determine the layout and organization of the facilities to be inspected. The inspectors would develop inspection procedures most suited to each facility. Suitable production schedules would be provided by the inspected party.

After this initial check, the inspectors would have access to manufacturing, testing and assembly areas involved in the production cycle of the declared facilities. Within these areas the inspected country would be required to expose equipment and processes only in so far as this was necessary to permit the inspectors to confirm the number and configuration of affected items produced. I should point out that in monitoring the production of these items the inspectors would check their external characteristics by visual observation and would not require detailed information such as engineering drawings.

The destruction of armaments to be replaced would be performed by the party owning the armaments. Inspectors at the designated depots would verify by visual observation that the armaments and specified major sub-assemblies submitted for destruction were of the declared types, and would record the numbers and types destroyed.

Observers would witness announced missile and space firings to ensure that the proper types and numbers of vehicles were being launched. It is our view that pre-launch inspection should consist of visual observation of the gross characteristics of the vehicles being launched.

Accidental losses or destruction of vehicles and launchers would normally be verified by on-site inspection. If physical difficulties prevented such inspection, provision would have to be made for confirmation of such losses in a manner satisfactory to all parties. In the event that one of the parties could demonstrate to the satisfaction of the other parties that its accident rate had exceeded that allowed in any annual period, it could produce agreed replacement items during the succeeding year to replace those accidentally expended. Should no replacement allowance be required, no inspection to confirm accidental loss or destruction would be required.

There would be appropriate inspection procedures relating to limitations on launchers, for the purpose of ensuring that violations of any agreed limitations on launcher replacement, construction and improvement were not taking place. The United States, however, does not feel that either declarations or inspection of existing inventories of armaments or of the number and deployment of existing launchers would be required as part of a strategic nuclear vehicle freeze agreement. This would not preclude the inspection of existing launchers or launching sites for possible unauthorized launcher construction and improvement activities as provided for in the following discussion.

With regard to any undeclared production facilities or unauthorized launcher construction and improvement activities, an inspection system that would include a specified number of inspections per year at times and places selected by the inspecting power would be required to provide reasonable assurance against possible prohibited activities and to deter possible violations. The inspectors should, of course, have at their disposal appropriate transportation to ensure that inspections could be conducted without delay.

Within the agreed quotas, inspections would have to be initiated and carried out by parties other than the party whose territory was to be inspected. This is sometimes referred to as "adversary inspection". For example, the United States would be allowed to initiate and carry out inspections in the territory of the Soviet Union, and the Soviet Union, on the other hand, would be allowed to initiate and carry out inspections in the United States; suitable arrangements would be made for inspection in the territories of other parties which might participate.

It would not be necessary to disclose any evidence to justify the selection of the site to be inspected. However, mutually-acceptable arrangements should and, we believe, could be developed to protect the host country against abuse of inspection privileges for the purpose of observing sensitive activities or facilities which did not legitimately fall within the scope of objects subject to inspection. In particular, while the inspected country would endeavour to provide the other parties with assurance that undeclared production and unauthorized launcher construction and improvement were not taking place, it would be permitted to institute appropriate safeguards to ensure the security of sensitive installations.

The United States has already indicated that a treaty embodying the provisions of a freeze should contain a withdrawal clause similar to that contained in the partial test-ban Treaty (ENDC/100/Rev.1). I know the Committee is familiar with the text of that Treaty, and I know the Soviet representative is familiar with its history and development. The freeze agreement should also contain a provision that a conference would be held, periodically or at the call of any party, to consider whether the treaty should be continued or modified. It should be further provided that after such a conference any party could consider whether to exercise its right under the withdrawal clause on the basis of the results of the conference. That withdrawal clause could be used to prevent the safeguards designed to ensure the security of sensitive installations from being used to evade the provisions of the agreement. If, in its judgement, a party felt that a safeguard was being used to evade the provisions of the agreement, this could be a reason

for that party to invoke the withdrawal procedures of the agreement.

The United States believes that an inspection arrangement of the type I have just described, together with such additional procedures as might be required, would be much less intrusive than that required for general and complete disarmament and yet sufficient to afford the necessary level of assurance of compliance with the proposed freeze of strategic nuclear vehicles.

I have noted both the extent and the limits of the verification requirements. Some degree of technical complexity cannot be avoided; but it is necessary not only to ensure that a freeze can be achieved with security and confidence of compliance, but also to ensure that verification requirements are not excessive. The procedures I have sketched would, as I have said, require further detailed discussion and negotiation. They have been put forth as a basis for exploration in the same spirit as that in which my Government has already proposed the basic principles of the freeze. It is my sincere hope that other delegations will examine this proposal further. That hope is particularly directed at those delegations whose countries also possess such vehicles and therefore also bear particularly heavy responsibility for the continued security of the human race.

ENDC/PV.213 USSR/Tsarapkin

3.9.64

pp.44-45

Now a few words on the question of what is called a controlled freeze of strategic nuclear delivery vehicles. We have shown at the previous session (ENDC/PV.184, pp.35, 36) that this proposal (ENDC/120), which leaves untouched the whole arsenal of nuclear destruction accumulated by States, and consequently the menace of nuclear war as well, at the same time envisages the establishment of a wide-spread system of international control which, in conditions where no disarmament measures were being carried out, could be nothing else but an international intelligence system. We were told, however, that we should wait a while and the delegation of the United States would submit new proposals concerning verification of the fulfilment of an agreement to freeze strategic delivery vehicles, proposals which, they said, would eliminate any danger of espionage.

Now, after the somewhat lengthy statement made by the representative of the United States, Mr. Timberlake, on this question at our 211th meeting, we have merely received further evidence of how right we were. As Mr. Timberlake's statement showed, no new elements have been introduced into the actual substance of the United States proposal for a freeze of strategic nuclear delivery vehicles. It remains just the same as when it was submitted to us at the previous session: a proposal which does not envisage any measures of actual — that is physical — disarmament.

At the same time this proposal, as Mr. Timberlake himself has confirmed, is linked with the implementation of extensive measures of control (ENDC/134), of verification in respect of objects of exceedingly great importance from the standpoint of the defence interests of the State, and would lead to the establishment of control over practically the whole territory of the country. The demand to establish control in conditions where no disarmament measures at all are in existence is bound, of course, to give rise to cautionness and perfectly natural suspicion among the States in whose territories such control, such verification would be carried out.

The statement made by Mr. Timberlake at our 211th meeting confirmed once again that the United States proposal for a freeze of strategic nuclear delivery vehicles is in fact a direct substitution for disarmament of measures of control over existing armaments, and, in the first place, over those which form the basis of the defensive power of the USSR. It is self-evident that the Soviet Government, which bears the responsibility for ensuring the security of our country and which has commitments to ensure the security of other socialist countries, cannot agree to such proposals and will not agree

to them.

ENDC/PV.213 Czechoslovakia/Klusak 3.9.64 pp.54-55

We also agree with the view that the absence of an agreement on the prohibition of nuclear tests and the continuation of these tests underground can only have unfavourable consequences. For this reason we are firmly in favour of a ban on underground tests, which would crown the success of the Moscow Treaty. Given goodwill on the part of all the parties concerned, this measure could be implemented in a very short time. The present state of science and technology makes it possible to solve the problem of control, detection and identification, thus removing the main obstacle that had previously stood in the way of reaching agreement on the complete cessation of all nuclear tests. However, the Western Powers have so far lacked sufficient goodwill to make such an agreement possible. It is true that they acknowledge in words the importance of an agreement banning all nuclear tests, but at the same time, by putting forward unjustified demands in regard to control, they prevent any possibility of concluding such an agreement.

The allegation that national means of identification of all seismic events are inadequate, and the demand put forward on this basis for on-site inspection, are in the existing circumstances merely a pretext to cover up the unwillingness of the Western Powers to accept a general agreement to put an end to tests, and their desire to retain for themselves the possibility of continuing underground tests. After all the United States is now the only State that is still carrying out an extensive programme of underground tests.

We fully agree with the opinion expressed by the head of the Soviet delegation on 20 August that no special international control need be organized to detect underground tests any more than it is needed to detect tests in the atmosphere, in outer space and under water. (ENDC/PV.209, p.28). Actual experience and the statements of a number of scientists of different countries, including Western countries, confirm that national means of detection and identification are fully adequate for effective and reliable control.

ENDC/PV.215 USA/Foster 10.9.64 pp.50-52

A second United States proposal which would help to prevent the spread of nuclear weapons is the cut-off of production of fissionable material for use in nuclear weapons. We are prepared to agree to a complete cut-off or to a plant-by-plant shut-down. We are prepared to accept such a cut-off with or without the transfer of a large quantity of existing stocks of fissionable material to peaceful purposes.

The Soviet representative has apparently misunderstood this proposal. At our meeting of 13 August he claimed that its verification system (ENDC/134) would require disclosure of the following:

- (1) location of all plants producing fissionable material;
- (2) volume of current production of U-235 and plutonium;
- (3) volume of nuclear resources stockpiled; volume of stockpiles of individual types of nuclear weapons in possession of States; and, in any case, volume of stockpiles of weapons based on U-235 and plutonium production; and
- (4) the whole technology of the production of fissionable material (ENDC/PV.207, pp.22, 23).

I should like to touch on each of those points individually.

First, we are discussing a measure to stop all production of fissionable material for weapons. Therefore the disclosure of the location of plants which are no longer being used for weapon material production should not affect the security of States which propose to abide by the agreement.

Second, the system proposed by the United States does not make it possible to establish the volume of production of fissionable material before the cut-off. The only production which would be disclosed would be that which a nation wished to continue for peaceful purposes after the cut-off. The original capacity at the plants which are shut down or operated on a partial basis would not be revealed. Only the continuing peaceful production of a plant after the weapon cut-off would be known. The ratio of production after the cut-off to production before should be small. That ratio would not have to be disclosed. As a result, neither would the pre-cut-off production.

Third, no information would be disclosed on either the volume of fissionable material stockpiled or the volume of types of weapons in stockpile. In order to determine material stockpiles, it is necessary to have information on both plant capacity and past schedules. As already indicated, the original production capacity of plants that were shut down or operated on a partial basis would in no way be revealed. These would comprise the largest part of the total plant capacity. Furthermore, no information revealing past production schedules of any plants would be needed. Without schedules or capacity, the existing stocks of weapon material could not be computed. Even with figures on the existing stocks of material — which the verification system would not provide — it would be impossible to deduce figures on the stocks of weapons. The material stocks could be divided in an infinite number of ways into different weapon types. Thus, another insuperable obstacle would be erected to gaining information on the existing number of weapons.

Fourth, the United States proposal does not require disclosure of technology for the production of fissionable material for weapon purposes. In the case of U-235 production, it was specifically stated that the access would be only to the perimeter of the process buildings, avoiding the necessity of revealing technology. In the case of plutonium production, only those reactors continuing to operate for non-weapon purposes would be given International Atomic Energy Agency or similar inspection. Initially, only those over 100 thermal megawatts would be inspected. The inspection would be of the same kind as a number of countries all over the world are now accepting as evidence that their plants do not produce fissionable material for weapon purposes.

Under our proposal, plants producing plutonium for weapon purposes would be shut down. All that would be needed in this case is a simple inspection to demonstrate that they were not operating. This would not require disclosure of either the production technology or the capacity of the plant. In the case of chemical-separation plants, a nation could avoid all internal inspection by substituting already-produced plutonium for that separated in the plant (ENDC/134, para.IV B 2 (d, iii)).

In sum, the United States proposal has been designed to avoid disclosure of processes and capacities for production of fissionable materials for weapon purposes, as well as stockpiles of weapons and the material for weapons. The only disclosures would involve continuing programmes for peaceful purposes. Such disclosures all nations should be willing to make.

The United States is prepared to negotiate in another area relating to non-dissemination. We are prepared to discuss an agreement, or agreements, under which all transfers of fissionable materials for peaceful purposes would be subject to International Atomic Energy Agency or similar safeguards. Moreover, we urge all nations to accept international inspection of their own peaceful nuclear activities.

ENDC/PV.218 USA/Foster

27.7.65

p.14

For many years the United States has been conducting a vigorous research programme, working co-operatively wherever possible with other nations of the world, to assist in solving the problems of adequately verifying compliance with the treaty which would cover underground tests. That programme has achieved major progress. Scientific developments permit the detection of seismic events of much smaller size throughout the world and greatly improve the ability to discriminate between natural earthquakes and underground explosions. We have now reached the stage, in the development of very large seismic arrays and other new types of instrumentation, of being confident that they can provide still further improvements.

However, in spite of these improvements all present scientific evidence indicates that there will still be a significant number of natural events occurring each year which have signals which cannot be distinguished from those to be expected from an explosion. These events, therefore, cannot be identified by distant seismic devices. Thus all evidence at present indicates that a number of inspections continues to be necessary to provide verification of a comprehensive test ban. Unless reassurance could be provided by those inspections, such events would give rise to undesirable suspicions that they might have resulted from clandestine explosions in violation of a comprehensive test-ban treaty.

The United States, however, continues to be willing to explore what would constitute an adequate verification system in the light of recent and prospective developments in our capabilities. If such exploration indicates that verification requirements can be satisfied by a different number and type of inspections than were previously proposed, we will take those facts into account. We invite other countries to submit any data or research results which may be helpful to this end. We are determined to make progress towards the prohibition of all nuclear weapon tests at the earliest possible date.

ENDC/PV.222 Sweden/Myrdal

10.8.65

p.18

As was recognized already at the time of signing the partial test-ban Treaty, 100 per-cent certainty can never be achieved that every shot violating the treaty could be discovered. And now we must continue to reason in the same terms of probabilities and risks. There now only remain (a) the question whether inspections — and if so what kind of inspections — are really the best way to narrow the margin of uncertainty, and (b) the question as to what margin of uncertainty is tolerable when weighed against the gain of obtaining an agreement.

In this connexion I would only take the liberty of reminding us all that just prior to the signing of the Moscow partial test ban, some interesting suggestions had been offered by various non-aligned members of the Committee with a view to facilitating a comprehensive treaty. These might now be revived for discussion, placed in the context of new knowledge, and elaborated further to meet the needs of a workable compromise. An important suggestion might be the participation of non-nuclear Powers in the process of detection and identification.

Another suggestion was tendered in case on-site inspections should still be wanted — and I do not pronounce any view on the need for these, but just assume for the sake of argument that they would figure as an element of a verification system. It was suggested that a much better formula than an annual quota for them would be one referring to longer periods, possibly made to overlap each other. The purpose would be to get effective deterrence with a lower inspection rate by decreasing the boundary effects and making the selection process more efficient. By way of example — and this

is a theoretical example only — six inspections over three years might have as much worth as three a year; this because I believe nobody expects the quota ever to be fully utilized.

There is a particular reason prompting us today to re-examine the need for verification and to search for more flexible procedures for any such verification. For when we discuss this problem in the context of stopping the further spread of nuclear capabilities, it becomes glaringly evident that it is no longer one that can be dealt with in terms of adversaries, as they have been called, implying the Soviet Union on one side and the United Kingdom/United States on the other. Any contemplated system, be it with or without inspections, must be built up so as to cover all the countries which are to comply with the obligations.

ENDC/PV.226 Canada/Burns

24.8.65

pp.11-13

I should like now to say a few words about the provisions for the application of International Atomic Energy Agency safeguards set down in article III of the United States draft treaty. Canada attaches much importance to including in the treaty practical measures of control, that is, verification of the compliance of the parties with their obligations. The acceptance of obligation to place peaceful atomic activities under IAEA safeguards seemed to us to be one of the most feasible methods of doing this. These safeguards have been accepted by many countries: the IAEA is a truly international organization on which a large number of countries are represented. We here who have been negotiating disarmament are all agreed in principle that control over measures of disarmament — and certain measures leading to disarmament — should whenever possible be international. We understand also that the Soviet Union favours the principle of IAEA controls over atomic installations for peaceful purposes.

We agree with those who have stated that controls over atomic installations for peaceful purposes should be accepted by nuclear Powers as well as non-nuclear States; and article III of the draft treaty is phrased in such a way as not to discriminate between nuclear and non-nuclear States. The Canadian delegation would have preferred to see this article put in stronger terms; but it was left in its present form in deference to the expressed views of certain countries. At the same time, we were unable to see why or how the acceptance of IAEA safeguards would in any way hinder developing countries in installing atomic power plants or other installations for peaceful purposes. We think that, as Lord Chalfont remarked, a country which is developing atomic power for peaceful purposes would be reassured to know that its neighbours, and more distant countries, were equally peaceful in their intentions in developing atomic power.

Canada's long-standing decision not to manufacture nuclear weapons will undoubtedly be familiar to members of this body. Recently the Canadian Prime Minister, the Right Hon. Lester Pearson, outlined to the House of Commons Canadian policy regarding the export of uranium. I quote from his statement to the House on 3 June 1965:

"As one part of its policy to promote the use of Canadian uranium for peaceful purposes the Government has decided that export permits will be granted, or commitments to issue export permits will be given, with respect to sales of uranium covered by contracts entered into from now on, only if the uranium is to be used for peaceful purposes. Before such sales to any destination are authorized, the Government will require an agreement with the government of the importing country to ensure, with appropriate verification and control, that the uranium is to be used for peaceful purposes only.

Canada has been a member of the International Atomic Energy

Agency since its inception and successive governments have vigorously supported the principle of safeguards on uranium sales. This policy is a fundamental part of Canada's general policy to work internationally to avoid the proliferation of nuclear weapons." (Canada: House of Commons Debates, Vol. 110, No. 35, pp.1948,9)

In answer to a question raised on 4 June this year regarding the possible use by Canada of some of our uranium to manufacture our own nuclear arms in the future, the Prime Minister said:

"It is certainly not our intention to manufacture nuclear arms in any way, shape or form. It is the purpose of this policy to prevent the proliferation of nuclear arms in the world." (ibid., No. 36, p.1981)

So far, I have been speaking about the application of safeguards to the peaceful nuclear programmes of States. Inspection of the military nuclear programmes of nuclear Powers clearly involves rather different considerations. In this context, inspection would be contingent upon agreement by the military nuclear Powers to proposals such as the cut-off and transfer of fissionable material and the freeze of strategic nuclear weapon vehicles. Until such times as agreement is reached on these or similar proposals and suitable arrangements for inspection can be worked out, it seems pointless to contemplate extending the IAEA safeguards system to military programmes, for which it was never intended and which the IAEA, under its statute, would not be able to carry out.

There is another kind of control — perhaps "remote control" — to assure parties that others are complying with their obligations. This is the provision of article VI, paragraph 1, of the draft treaty (ENDC/152) regarding withdrawal. The effect of the requirement that a country contemplating withdrawal should state its case to the Security Council would mean that the circumstances would be brought out into the open. These circumstances would surely be such as would affect international peace and security. Withdrawal from a treaty such as this would indeed be, if it had been acceded to by the majority of States in the world, as we hope it would be, a serious matter requiring action by the Security Council, which could act to clear up any misunderstandings by a thorough investigation, if that should be found necessary. The Security Council might even take other decisive action to prevent the upsetting or degradation of a treaty which would be a very important bulwark for world peace, and against the possibility of nuclear war.

Of course, the provisions for a review of the treaty, in the second paragraph of article VI, would allow a majority of the parties to withdraw from their commitments after the period stated in the eventual text if it appeared that the treaty was ineffective, if no steps towards nuclear disarmament had been taken by the nuclear Powers, and if the treaty was not protecting their security and lessening the danger of the outbreak of a nuclear war.

ENDC/PV.228 Nigeria/Obi

31.8.65

pp.10-11

....If I remember correctly, at one time the West insisted on seven on-site inspections as well as a strengthening of detection and identification capabilities by the construction of seven automatic seismic stations in its territory and that of the Soviet Union respectively.

On the other hand, for a brief period in the winter of 1962-63 the Soviet Union agreed as an act of political compromise to accept three on-site inspections and three automatic seismic stations on its territory. It is true that the Soviet Union later withdrew that offer. At this point may I remind the Committee once more that, before the Soviet withdrawal of that offer, however, and to help bridge what seemed to be a

rather small gap — one could almost say a matter of numbers, even though a fundamental difference of principle was discernible in the positions of the two sides — various suggestions were made by the non-aligned delegations. Among these was one made by certain delegations and formally developed by the three African delegations in the memorandum which I have already mentioned and which states:

"It may very well be that science may, in the future, show beyond doubt that on-site inspections may no longer be needed to identify suspicious seismic events or to adequately control a test-ban treaty. For the time being, however, the 3 African delegations recognize that three, four or so, yearly truly effective inspections — or an adequately proportionate figure spread over more years — may be needed to dispel mutual suspicions, to help build up confidence between the nuclear Powers, and, no less importantly, to facilitate their reaching a practical political settlement." (*ibid.*, pp.2-3)

The representative of Sweden, in her customarily lucid and excellent statement on 10 August this year, revived a similar idea as a possible solution (ENDC/PV.222, p.18).

My delegation is of the opinion that the main obstacle in the way of agreement on a comprehensive test-ban treaty is to a very high degree political — indeed, so political as to make the technical obstacles which may well exist almost insignificant in comparison. It seems to us that what is lacking perhaps is political will on both sides — and I repeat both sides — to reach agreement on this measure. Or is it that the nuclear Powers do not see anything to gain from such an agreement? Let us be frank about this. If the Soviet Union at one point of time could agree to accept three on-site inspections as an act of political compromise and without wavering in its conviction and declaration that this was not necessary technically — I repeat, if the Soviet Union could do that at one time — we honestly do not see any reason why, if it really desires agreement as we are convinced it does, it cannot do so again.

At the same time, we confess ourselves to be not fully convinced, to put it very mildly, by most of the arguments of the West concerning the necessity for verification arrangements additional to those provided by national control networks. It is conceivable, I grant, that not all tests, and particularly very small tests, can be detected and identified by national control networks; but is it really the intention of the West to be perfectionist in its approach to this problem? Is it a lone test that counts, or a series of tests? And, if a series, what are the chances of a series of tests — even in the low kiloton range and even in alluvium and by means of such expensive methods as decoupling — being conducted without being detected? In short, would it be worthwhile, even from a military point of view, to test under such difficult conditions? Does the West truly believe that the Soviet Union would cheat on such a matter even in the present position of relatively little confidence in each other? These are questions which have been perturbing our minds, and we should appreciate answers to at least some of them.

We know that to the Soviet Union the expression "on-site inspection" is anathema. We know also that for the West the expression "agreement without on-site inspection" equally is anathema. Unfortunately the positions of both sides have hardened almost to positions of principle, and for us such principles are anathema. My delegation refuses to consider this problem as intractable, and accordingly demands an immediate solution. We do so not only because the United Nations Disarmament Commission instructed us to seek such an agreement with a sense of urgency, but also because we see the very life of the partial test-ban Treaty, to which we attach the utmost significance, threatened.

I must stress, of course, the essentiality of adequate verification. Without it there will be no reasonable assurance that all parties are living up to their obligations under any treaty which is achieved. This is especially important as a factor now. It is well established that both the United States and the Soviet Union have conducted underground nuclear tests and that both consider the results of such tests to have military significance.

We do not share the thought which Ambassador Tsarapkin expressed on 31 August when he touched on the issue of an underground test ban. He then (ENDC/PV.228, p.34) urged the United States to follow the principle established by the limited nuclear test-ban Treaty. That principle was, he said, that only national control measures were to be used and that no inspection arrangements were required.

We suggest that the limited test-ban Treaty established a different principle. For us, that treaty vindicated the position that international obligations in the arms control and disarmament field should be accompanied by appropriate measures of verification. The nature of those measures will depend on what is to be controlled. It is possible that they may be national or that they may be international in form. The important point, however, is that verification measures are necessary.

This is precisely the case with the limited test ban. It applies to those environments where the means of verification could be developed adequately on a national basis. It does not apply to the remaining environment where adequate national means were not available and where the Soviet Union would not concur in the international means we felt to be necessary.

The Soviet Union has not given us so far — I use the words "so far" — any sign that it may be prepared to adopt a more reasonable stand on inspections, which would be a feature of international control arrangements for an underground test ban. Therefore the question of the state of the technical art in regard to underground controls on a national basis becomes highly relevant to a consideration of the whole problem.

As all of you know, the United States has been allocating significant resources — I will not say "dollars", since they appear to have been questioned as a means of measurement, but will say simply "significant resources" — and scientific talent to its seismological research programme aimed at improving monitoring capabilities. In addition to American efforts, important research has been conducted by the scientists of many other nations. Some of the most significant results, for example, have been obtained from the programme carried out by the United Kingdom. Needless to say, all these recently-acquired data have been drawn on in arriving at our present evaluation of the so-called "state of the art".

The "art" about which we are talking here is, as we are all well aware, the ability to detect, locate and identify earth tremors or seismic events. Our problem remains the same as it was when the question was first taken up on an international technical level in 1958. That problem is: how to find out when underground events have occurred, where they have occurred and, finally, whether they were caused by an earthquake or a nuclear explosion. In this regard the chief difficulties have arisen in relation to earthquakes falling into the range of lower seismic magnitudes. Such magnitudes are those which correspond to the energy released underground by the detonation of a nuclear weapon having a yield of about twenty kilotons or less. As a consequence a great deal of our research programme has addressed itself to overcoming these difficulties.

Accordingly much effort has been directed at the determination of what, if any, differences might be observed in the seismic signals received at great distances from underground disturbances when on the one hand the signal emanated from a nuclear explosion and on the other the signal came from an earthquake. In order to be able to

study these signals with precision so as to determine their characteristics, it became necessary first to get a good record of the desired signals. This is much more complicated than it may sound, because seismic signals from a single source point are not registered on seismographs at great distances in a pure form. On the contrary, the lines on a seismogram are distorted by the effects of extraneous earth motion, called microseismic noise, which is also recorded by the instrument. Thus the task is to purify the record, so to speak, by getting rid of this background noise. If we could do so, the real seismic signal, which it is important to analyse in connexion with an underground test ban, would be available for study.

Research has shown that microseismic noise can be greatly reduced through the use of arrays — that is, groups of instruments arranged in a particular pattern. A prototype array containing 525 detectors distributed over an area of 200 kilometres in diameter is being constructed in the State of Montana in the United States. It is not yet in operation. Nevertheless we expect that this array will lead to a signal-to-noise ratio at least ten times greater than that heretofore available at the quietest single-instrument surface stations now in existence.

Other means of collecting more and better seismic data are also being investigated. For example, an ocean-bottom instrument has been developed which is capable of recording for a thirty-day period. After this period it is retrieved on to the surface, where its recorded data are examined. If such instruments were put into operational form it would be possible to place them permanently on the ocean floor and to use cables for obtaining their data by telemetry. Ocean-bottom seismometers of this kind would be especially significant in achieving an improved capability to locate events near ocean shorelines. Another example of improved data collection is the placement of instruments in deep wells on land. There is also a major programme to design improved detection instruments.

The prospects are good that in the future we shall have data available for analysis that will be in much purer and more usable form than in the past. We see that simultaneously we shall have much more of these data — in fact great quantities of data. Through the application of solid-state circuitry and the use of digital computers it will be possible to process and analyse these mounds of information.

All of this should allow us to bring about a substantial improvement in the means for detection, location and identification. However, before indicating the probable magnitude of this improvement I will mention that the United States has been anxious also to arrive at a better understanding of seismic wave patterns and the peculiarities of their travel through the earth. This has led us to carry out several underground nuclear detonations in areas other than the established test sites for such devices. The purpose of these experiments has been threefold: first, to observe how differences in the rock and geological conditions at the point of origin of the seismic event influence and cause variations in the resulting seismic signal; second, to observe the patterns of seismic wave propagation from as many different points of origin as possible; and third, to learn what differences may exist between seismic signals from earthquakes and those from underground nuclear explosions originating in the same region.

To obtain these data the United States has carried out not only detonations at the Nevada test site but also the "Gnome" test in New Mexico, the "Shoal" test in northern Nevada, and the "Salmon" test in Mississippi. We expect to explode late in 1965 the so-called "Longshot" test in the Aleutian Islands. This will enable us for the first time to observe signals from an explosion in an area where there are many earthquakes. We already have many wave patterns from natural events which have taken place in that region. Comparison of them with the patterns from a nuclear explosion will then be possible. The United States will furnish to interested governments appropriate data about the Longshot test. We would appreciate receiving from others the seismic data

which they may acquire from that explosion.

Let me now return to the results which research efforts have produced to date. The use of large arrays of detectors with their greater sensitivity in comparison with single-point detectors means that we should be able to detect smaller earth tremors than before. We hope to be able in due course to detect in most rock formations both earthquakes and explosions of a magnitude equivalent to nuclear detonations having yields in the hundreds of tons range — that is, equivalent to less than one kiloton of TNT. Even in dry porous materials such as alluvia deposits the detection minimum will be of the order of a kiloton. Deposits of this type of material, however, are limited.

An even more important feature of large arrays, however, is their capacity to obtain higher signal-to-noise ratios by filtering out background or microseismic noise. This will make possible more accurate readings of the characteristics of signals and will assist in identifying the original nature of those signals which are detected. The net result is that, if a world-wide system of large arrays is constructed in the future, it should be possible to detect seismic events in the range of a few hundred tons. It should also be possible to identify about 80 per cent of the events which produce seismic signals that correspond to yields above a few kilotons. Only about 20 per cent of events of a yield equivalent to above a few kilotons would remain unidentified.

In specific terms, we estimate that, given a world-wide system including large arrays, all natural seismic events of a seismic magnitude of 4.0 or greater could be detected. To apply this to the Soviet Union, it is our understanding that in an average year the number of seismic events of this size occurring in that country which could be detected but not identified as earthquakes by this world-wide system would be about forty-five. Moreover, even then certain of those forty-five unidentified events which occurred near an ocean could be identified through the use of the ocean-bottom seismometers which I mentioned earlier.

I must stress that the foregoing major improvements would only result from a world-wide system of large arrays. Naturally such a system would take time to build, and its construction would require the co-operation of a number of countries. Once the system was installed, it would make it possible to use four primary methods of seismic signal identification. These would be: first, the determination that the direction of the first motion of the signal was compatible only with an earthquake; second, the observation that the wave pattern of the signal involved complexities greater than observed in the case of nuclear detonations; third, the finding that the location of the geographical point of origin of the event was in water; and fourth, evidence that the event took place at great depth below the surface.

The conclusion which the United States Government has drawn from the scientific state of affairs which I have set forth is that we believe we shall be able to determine the nature of a substantially greater proportion of seismic events than we now can. This has important consequences for the problem of verification, since our inability to identify a high fraction of events by means of instrumentation has always been the most serious obstacle to over-all technical advance. At the same time, however, it is still apparent that a significant fraction of underground events above a certain size — specifically 20 per cent above a few kilotons — will not be identified by seismic instruments. We shall still not find it possible to say in those instances whether the seismic signal originated in an earthquake or in a man-made nuclear explosion.

It follows, of course, that we shall want to be assured in other ways that these unidentified events in the Soviet Union are not nuclear explosions. We believe that the only method available for giving this reassurance — and for generating the international confidence which alone will guarantee the permanence of the treaty — is the use of on-site inspections. Up to now we have not heard any feasible suggestion for another means of verification which could fulfil that indispensable requirement.

We should like to note with satisfaction the constructive development of the views of the non-aligned States on the question of prohibiting underground nuclear weapon tests, to the discussion of which they have devoted considerable attention in the Committee and, what is more important, on which they have put forward constructive ideas and proposals. In contrast to the static position of the United States, which continues to put forward its old demands for international inspection and thereby makes agreement on the question of prohibiting underground nuclear weapon tests impossible to achieve, among the non-aligned States there have cropped up new ideas, considerations and proposals which contribute towards the solution of this problem.

In this connexion the Soviet delegation is of the opinion that the proposal made by the representative of the United Arab Republic, Mr. Hassan, deserves attention. The proposal, put forward on 17 August of this year, was that the scope of the Moscow Treaty banning nuclear weapon tests in the atmosphere, in outer space and under water should be extended to cover underground nuclear weapon tests above a seismic magnitude of 4.75, and that as an additional measure the nuclear Powers should agree to a moratorium on all other underground nuclear weapon tests pending the achievement of agreement on a comprehensive nuclear test ban. Mr. Hassan said:

"...whatever the remaining differences are, political or technical, the Committee has before it various suggestions presented to it by the non-aligned delegations around this table, such as that for the extension of the Moscow Treaty to cover underground tests above a seismic magnitude of 4.75, which the admitted capacities and capabilities of the existing national equipments are able to detect and identify... As a complementary measure to the preceding one, we again proposed ... that there should be a voluntary moratorium by nuclear Powers under which they would refrain from any further testing pending agreement on the decision needed for a comprehensive test-ban treaty." (ENDC/PV.224, pp.9, 10)

This proposal by the Government of the United Arab Republic, reflecting a realistic approach to a question which is ripe for solution, namely the need to put an end to underground nuclear tests, was supported on 2 September by the representative of Ethiopia, Lij Imru, who said:

"What is needed today is the political decision and the ability to accept minor risks in the expectation of making gains in the wider field of disarmament." (ENDC/PV.229, p.16)

He went on:

"The Ethiopian delegation supports the proposal made at our meeting of 17 August by the leader of the delegation of the United Arab Republic, Mr. Hassan, that there should be a voluntary moratorium by the nuclear Powers under which they would refrain from any further testing pending agreement on the decision needed for a comprehensive test-ban treaty." (ibid.)

In raising this question we should like to point out once again that the Soviet Union is ready, as in the past, to reach immediately an agreement banning all underground nuclear weapon tests, on the basis of the use of national means of detecting nuclear explosions, which are quite adequate for monitoring such a ban. As the proposal of the United Arab Republic relates to the banning of a part of underground nuclear tests precisely under such conditions, and to the establishment of a moratorium on all other underground nuclear tests, the Soviet Union is prepared to meet the position of the United Arab Republic and to agree to the halting of underground nuclear weapon tests in that way.

ENDC/PV.230 Czechoslovakia/Cernik

7.9.65

p.17

It seems, however, that there is still a possibility of a compromise solution, which would help to overcome the gap between the positions of the two sides on the question of the cessation of underground tests. In our opinion the way to such a solution is opened up by the initiative of the non-aligned countries (ENDC/145), and in particular by the idea put forward by the representative of the United Arab Republic at the meeting of the Eighteen-Nation Committee held on 17 August of this year. In his statement Mr. Hassan proposed an extension of the Moscow Treaty to cover underground nuclear tests above a seismic magnitude of 4.75, which the existing national equipments are able to detect and identify, and, as a complementary measure to this partial ban, he proposed that there should be voluntary moratorium by nuclear Powers under which they would refrain from any further testing pending agreement on the decision needed for a comprehensive test-ban treaty (ENDC/PV.224, pp.9, 10). This idea was supported by the representative of Ethiopia, Lij Imru, on 2 September (ENDC/PV.229, p.16).

The Czechoslovak delegation listened with great attention to the statement made this morning by the representative of the Soviet Union, Mr. Tsarapkin, in which he expressed the support of the Soviet Government for this proposal of the United Arab Republic. We welcome this move by the Soviet Government as further important evidence of its desire to solve the problem of underground nuclear tests on the basis of a compromise. We consider that this important move by the Soviet Government opens up new opportunities for achieving positive results in our negotiations, namely on a question the importance of which has been rightly stressed in the statements made by the delegations of all the States represented in the Eighteen-Nation Committee.

ENDC/PV.230 USA/Foster

7.9.65

pp.22-23

There seems to be a misconception in some quarters that the IAEA actually has operational control of facilities and materials which are subject to the safeguards. That is not true. The IAEA safeguards system is

"...designed to ensure that special fissionable and other materials, services, equipment, facilities and information ... are not used in such a way as to further any military purpose." (Statute of the IAEA, Art.III A 5)

The system of safeguards has been specifically designed to avoid hampering a State's economic or technological development. Moreover, the inspectors are under instructions to implement the system in a manner designed to be consistent with prudent management practices required for the economic and safe conduct of nuclear activities. In large power reactors inspectors must, of course, have access at all times to the facilities, the equipment and the materials; but they must not interfere with the economic operation of the facilities. The recent experience of a private utility company in the United States with IAEA inspections has shown that they are not burdensome and that they in no way hamper economic operation of the reactor.

We know of no reason why any State which is willing to undertake not to manufacture nuclear weapons should not be willing also to accept IAEA or equivalent international safeguards, both to demonstrate its faithful compliance with its treaty commitments and to establish means of reassuring itself that other parties are also complying. Those international safeguards are not costly; they are not burdensome; they do not hamper the economic operation of reactors; they do not lead to the revelation of trade secrets. In short, they do not in any way interfere with a nation's peaceful nuclear activities.

The question has been raised by the distinguished representative of India of the

need for safeguards on reactors, since the plutonium produced in a reactor is not useful for weapons until it has been processed through a chemical separation plant (ENDC/PV.223, pp.19, 20). The IAEA safeguards system is designed to cover the entire nuclear fuel cycle, including fuel fabrication plants, reactors and chemical separation plants. The reason for that is that diversion to clandestine military activity could occur at any point in the cycle. The more parts of the cycle the inspectors can observe, the more difficult it would be to hide such diversion.

To be sure, specific procedures for safeguards on all of the various types of nuclear facilities have not yet been developed. The IAEA regards the development of a safeguards system as a step-by-step matter, and up to now the first major step has been taken by the development of procedures for reactors. Authority now exists for inspections of other types of facilities, and procedures for those inspections will be developed as need arises.

In our view, whatever may be the slight inconvenience occasioned by international nuclear safeguards, it is minuscule in comparison with the large contribution which their general acceptance would make to curbing nuclear proliferation. Given the practicability of these IAEA procedures and the fact that they are not really burdensome, it is difficult to understand why there should be any resistance to their application by any country. This is particularly true of non-nuclear countries, for whom the widespread application of safeguards would provide an assurance that other States were not making preparations to initiate a weapons programme.

Some have said that it is discriminatory to ask non-nuclear countries to accept safeguards on their peaceful activities as long as certain nuclear Powers do not do so. I might, of course, argue that this view misses the essential point: namely, that until a cut-off of production of fissionable material for nuclear weapons is accepted, the application of safeguards to the peaceful activities of nuclear Powers would still leave their most important nuclear production facilities unsafeguarded. But in any case our draft treaty would not discriminate. In article III we have called on all parties, nuclear and non-nuclear alike, to co-operate in facilitating the application of such safeguards to peaceful activities. By inviting IAEA inspections of one of their large power reactors, the United States (ENDC/PV.172, p.17) and the United Kingdom have both taken a lead in preparing the ground for the widespread, non-discriminatory application of those safeguards. Agreement on our proposal to halt the production of all fissionable material for weapons use would remove any remaining obstacles to the IAEA safeguards on peaceful activities in the nuclear States. Those who are as anxious as we are to further this process should address themselves to the Soviet Union.

But, in the meantime, many States are planning to build power reactors which will unavoidably produce significant quantities of plutonium. In the absence of IAEA or equivalent international safeguards on such reactors, suspicion is bound to arise that some diversion of plutonium to a future weapons programme is taking place. That is why a strong safeguards provision is necessary in a non-proliferation treaty. Rather than cast doubt on its necessity, therefore, non-nuclear States as well as nuclear Powers might question whether the provision we have suggested is strong enough to avert the threat which we already face and which may soon grow to dangerous proportions.

ENDC/PV.231 Canada/Burns

9.9.65

p.34

Canada has followed with interest the views expressed from time to time by the Swedish authorities on the possibility of forming a "detection club". We welcome the action of the representative of Sweden in placing at our 229th meeting a memorandum (ENDC/154) on what is proposed before this Committee. Of course it will be necessary

for my Government to give further careful consideration to the proposals, but I believe that I may say in a preliminary way that we see great advantages in the establishment of an international network of seismological stations in various parts of the world to provide data on seismic events and on possible underground explosions. It occurs to us that there is a need for co-ordination of views on the concept of a chain of elaborate arrays of seismographs set out in Mr. Foster's statement (ENDC/PV.229, pp.20 *et seq.*) and the kind of organization which is suggested in the proposals tabled by Mrs. Myrdal (ENDC/154).

Canada's geographical position and the development of seismological science in our country are such that we may be able to play a useful part in the building-up of any world-wide system of reporting on seismic events and detecting underground nuclear explosions; or perhaps I should put it more hopefully, of providing a system which could detect and identify underground nuclear explosions and would therefore provide a deterrent against anyone's undertaking them. Canada has already contributed in various ways to experiments in improving detection and identification techniques which have been spoken about in this Committee. I feel I can assure the Committee that our country would be prepared to play an appropriate part in any arrangements that might be agreed for maintaining verification apparatus for a comprehensive test ban, and we should be ready to engage in any discussions on this matter that might be proposed.

ENDC/PV.234 Poland/Goldblat

16.9.65

pp.13-14

Take the test-ban issue. The fundamental question, to test or not to test, has in fact been transformed into the question "to inspect or not to inspect?", as if intensive underground tests were conducted solely because of lack of adequate means for detecting and identifying seismic events. No one can force the nuclear Powers, or for that matter any other Powers, into signing an international treaty which would not be politically advantageous and serve their national interests. Therefore an agreement, freely entered into, to stop nuclear explosions would actually be self-enforceable; for it is inconceivable that anyone would risk the loss of sure political gains obtained owing to the treaty and resort to sneaky underground shots of doubtful military value. In all fairness, nobody here has suggested such an eventuality. However, some, while admitting the unlikelihood of secret testing, insist on providing deterrence even against the hypothetical contingency of cheating. Let me for the sake of argument follow their line of reasoning, however alien to sound political thinking it may be.

It is obvious that one cannot test nuclear weapons "under the jacket". The explosions set off underground propagate seismic disturbances far beyond the borders of the testing State. We have learnt from the representatives of the United States (ENDC/PV.229), the United Kingdom (ENDC/PV.155; PV.231), Sweden (ENDC/154) and Canada (ENDC/PV.231) about the impressive achievements in the art of detecting, locating and identifying earth tremors. We have been informed also that even more significant results are expected from further research in the field. If that is so -- and there is no reason for us to question the veracity of those statements --, then, I submit, the steady and dynamic world-wide progress of geophysical sciences and the concomitant constant improvement of seismic monitoring capabilities will, by dint of their very unpredictability, discourage any prospective violator of a test-ban treaty. In any event such deterrence, if there really is need for it, is certainly more effective than on-site inspection involving haphazard hole-digging and wandering, as if on speleological expeditions, in mines or other subsurface cavities, as suggested by the West.

This brings me back to my original question: what in reality are we discussing here -- the cessation of tests or the establishment of inspection? The linking of the two

reminds one of a misalliance; one can exist without the other. The Western Powers are primarily interested in inspection. The socialist countries for their part, as well as the non-aligned nations, are primarily interested in the cessation of tests. That is why we have been talking at cross-purposes.

ENDC/PV.237 UK/Lord Chalfont

3.2.66

pp.7-8

Members of the Committee will have noticed in the conclusion to the report these significant words — which are the very last words in the report:

"Therefore there is, and always will be, an uncertainty about the ability to detect and identify an individual low-magnitude event at a particular place and time".

In the light of this considered advice from some of our most distinguished scientists, I need hardly say that my Government fully endorses the need for effective verification of any comprehensive test ban. As you know, the resolution on the subject adopted by the General Assembly on 3 December drew attention to "the improved possibilities for international co-operation in the field of seismic detection ...". (A/RES/2032 (XX); ENDC/161)

We must neglect no opportunity of exploring ways of reducing the gap between the present positions of the Soviet Union and the West. I think that we should, in particular, devote careful study to some of the suggestions made by the non-aligned members of the Eighteen-Nation Committee on Disarmament. For example, the creation of an international detection club, as proposed by the Swedish delegation (ENDC/154), would be a development of existing arrangements which my Government would welcome. We believe that it would give a valuable impetus to seismic research in non-nuclear countries, although we fully realize that the establishment of a world-wide array system is bound to take time and money.

There is also what might be called the theory of inspection by challenge. This idea was, for instance, reflected in a speech to the First Committee of the General Assembly by the Swedish permanent representative to the United Nations, who said:

"We might well consider the fact that the ultimate sanction against a breach of an agreement of this kind is a retreat from the agreement by the party that considers its supreme national interest to be endangered. Indeed, if a State party to the treaty were to suspect an unidentified event to be an underground nuclear test, and if a request for clarification and verification were rejected or answered in a manner which international scientific opinion found unsatisfactory, that might constitute a right for the party concerned to reconsider its further participation in the agreement." (A/C.1/PV.1385, p.6)

I need not point out that under some such arrangement as this the accused and the accuser would be under an equal obligation to explain. Withdrawal from a treaty is not a move that can be lightly undertaken. It is, however, already provided for in article IV of the partial test-ban Treaty. I do not wish to isolate either of these ideas for special discussion, but I mention them to underline my view that we should examine every possible means of verification that might lead to an effectively-policed comprehensive test-ban treaty.

ENDC/PV.237 Canada/Burns

3.2.66

p.22

Another approach to the solution of the problem of fact relating to an agreement on

how a ban on underground testing is to be verified is that which has been suggested by Sweden both here (ENDC/154), and in the United Nations General Assembly (A/C.1/PV. 1385, p.6). Canada strongly supports the Swedish idea of a nuclear detection club for this purpose. There are many States — prospective adherents to a comprehensive test ban — which, although they do not have detailed, scientific knowledge of this subject, could find their interests seriously affected by a breach of a comprehensive test ban. These States would have as much right as any others to assurance that the treaty was being adhered to. One of the reasons why the Swedish idea appeals to us is that it would go some way toward meeting this very real need. We are willing to join an organization such as Sweden proposes, and feel that Canada would have something useful to contribute to it. We hope that our Swedish friends will be able to make effective progress towards the formation of the club in the near future. We shall have more to say about this approach at a meeting devoted to underground test prohibition.

ENDC/PV.242 Ethiopia/Aberra

22.2.66

p.21

We are not unaware of the question of detection and identification of underground explosions. We are happy to learn that modern technology has advanced to the point that it can identify underground explosions to the extent of a seismic magnitude of 4.75 and above. We anticipate, with hope, further acceleration of such studies, and we, for our part, look forward to our contribution through the joint research of the countries belonging to the Organization of African Unity. It was in that sense that my delegation subscribed to the Joint Memorandum of the non-aligned nations (ENDC/159), which points in particular to the need for an exchange of scientific and other information by the nuclear Powers with respect to detection and identification techniques, and in general to the need for international co-operation in this field.

In this spirit we welcome and appreciate the proposal of the Swedish delegation for an international "detection club" (ENDC/154). An agreement on such co-operation might perhaps serve as the basis for a comprehensive test-ban treaty such as the one envisaged in General Assembly resolution 2032 (XX). It seems appropriate here to remark that the Ethiopian delegation has noted with regret the lack of effective co-operation between this United Nations Committee and the International Atomic Energy Agency in Vienna, which we believe is well prepared to expand its activities in order to extend us technical help in our task.

ENDC/PV.246 Mexico/Gomez Robledo

8.3.66

pp.8-10

We are aware of the technical objection to the extension or universalization of the Moscow Treaty, ratione materiae, which consists in the difficulty of detection and identifying movements in the earth's crust in such a way as to distinguish with absolute certainty between those caused by earthquake or seaquake and those artificially produced by a nuclear explosion. According to one of the major nuclear Powers the difference can be established by purely national identification systems, whereas the other maintains that there would be doubtful cases which could not be decided without an inspection in situ. This in turn, in the former Power's view, would involve a serious risk of espionage and thus represent a threat to its safety.

This, then, is where the difference resides; but, thanks to the extraordinary progress of seismology, the difference seems to be narrowing every day. In this connexion, we should like to express once more our appreciation of the admirable efforts of the Government and scientists of Sweden to promote the so-called "detection club"

(ENDC/154), a kind of central bureau for co-ordinating or exchanging data between the countries at present possessing the most advanced seismological stations, so as to hasten the date, which now seems fairly close, when every movement in the earth's surface, whatever its cause, can be fully detected and identified.

The United Kingdom delegation's memorandum of 9 September 1965 is also, in our opinion, an illuminating document. It states that "there still remains a residual number of seismic events ... that would be unidentifiable by remote seismological observations alone ..." (ENDC/155, p.3). Our comment on this document when the subject was discussed in the First Committee of the General Assembly was as follows:

"This question of 'residual number' implies to us ... that the great majority of movements, be they natural or artificial, on the surface of the earth or in the sub-soil, are at present detectable and identifiable."

(A/C.1/PV.1386, p.17).

On this basis we thought at the time and continue to think that, since the margin of uncertainty is so narrow, the nuclear Powers ought to make reciprocal concessions: one should resign itself to the smaller explosions remaining within the margin of uncertainty, and the other to periodical inspections taking place under conditions which would not compromise its security. As to these conditions, it is easy to understand the misgivings one Power may feel at having inspectors on its territory who are subjects of a rival Power. The difficulty could perhaps be obviated by agreeing that the inspecting team should consist entirely of geologists or seismologists of recognized standing who are nationals of neutral or non-aligned countries.

The best solution would certainly be impersonal inspection by means of instruments located in situ, such as the "black boxes" which we heard so much about at one time, but since that method failed, for reasons which we need not go into now, we cannot visualize any other possibility than sporadic and therefore personal inspection, by persons whose nationality and scientific eminence would provide a safeguard against their compromising their important duties by associating with intelligence services or spying operations.

Matters as serious as those now involved, or even more serious, such as formal questions of sovereignty, territorial claims and so on, are submitted by States to judges or arbitrators for final decision. Surely it should be also possible to find a disinterested third party — the tiers indifférent mentioned by Pascal with specific reference to international conciliation — to act in the nuclear field. We think that, in the same way as a list of possible arbitrators was deposited with the Netherlands Ministry of Foreign Affairs when international arbitration began — since the Permanent Court of Arbitration was originally only a list — a list of possible inspectors could be drawn up for the purpose which now concerns us. It would comprise the most eminent names in seismology and related sciences, of persons of irreproachable integrity, and could be deposited with the Secretary-General (who might also co-operate in preparing it), so that the parties could have recourse to this select team as occasion required and choose inspectors who offered them every guarantee of competence and integrity.

We put this forward as a modest suggestion for the Committee to consider, not because we look upon it as an "open sesame" to success, but merely so as to leave no avenue unexplored and no idea uninvestigated on this vital question which has been awaiting a satisfactory solution for so long.

Only in the last resort (and we would stress this point), if the nuclear Powers are absolutely unable to agree on an inspection procedure acceptable to all of them, should we, as we see it, examine the feasibility of extending the prohibitions of the Moscow Treaty to all underground tests which are known to lie beyond the present threshold of uncertainty and are therefore, beyond all risk of contradiction, fully detectable and identifiable by national seismological stations. This, as we said in New York, is the old

idea of the "threshold" (A/C.1/PV.1386, p.17) — old in the sense of venerable, but not of feeble — which at least gives us an opportunity of offering some measure of immediate relief to the anxiety felt by the millions of invisible but very real spectators outside this room who cannot wait for seismology to reach a peak of absolute perfection before they are released from the nightmare of a nuclear war.

If agreement of this kind can be reached on a treaty on the partial prohibition of underground tests — or better still perhaps, an additional protocol to the present Moscow Treaty — we think the text should include a mandatory provision for the periodical review of the treaty, maybe once a year — not of course to enable the parties to withdraw from the obligations they have entered into, but simply, as seismology advances, to push back the threshold of uncertainty until the concept can be abandoned altogether and the treaty can be given the completeness it deserves by a prohibition of all nuclear tests in all environments. Once again, this is only half a solution, though of course better than none at all; but that does not mean that we can rest content with it and relax our efforts towards achieving our ultimate aim.

ENDC/PV.246 USSR/Tsarapkin

8.3.66

pp.24-25

It is well known that the Moscow Treaty (ENDC/100/Rev.1) is of a partial nature and that after its conclusion the problem of banning underground nuclear explosions remained unsolved. Even in 1963, however, the Soviet Union was prepared to include also this latter category of nuclear tests in the Moscow Treaty. The Soviet Union declared at that time that, for control over the observance of an agreement on the prohibition of underground nuclear tests, the national means of detecting and identifying underground seismic events which States had at their disposal were quite adequate. We still adhere to this view today. The facts which followed the conclusion of the Moscow Treaty have merely confirmed this Soviet point of view. The Soviet Union is prepared to sign immediately an agreement which would extend the Moscow Treaty to cover underground nuclear tests.

The Western Powers, especially the United States, maintain a different position on the question of the cessation of underground tests. They still insist on the establishment of international control and the carrying out of international inspection in order to verify the observance of an agreement on this question. It is this eight-year-old position of the Western Powers that has in fact led the solution of this question into a deadlock. One may well ask who stands to gain by such a situation. Obviously it is those circles which are interested in continuing the testing of new types of nuclear weapons — that is, the United States first and foremost.

A short while ago we perused some communications concerning the latest annual report of the United States Atomic Energy Commission which was submitted at the end of January this year to the United States Congress. It is evident from this report that those in the United States who are connected with the fabrication of nuclear weapons need to carry out further underground nuclear tests. Thus the report notes with satisfaction the successful execution of the "energetic" programme of underground nuclear tests which was commenced after the conclusion of the Moscow Treaty in 1963. The report indicates that, as a result of the development of "improved testing devices", the Commission was able to carry out weapon tests underground which were previously considered only possible in the atmosphere. Furthermore, by way of conclusion, the Commission indicates that "new tests are presently being prepared".

Three days ago — on 5 March — the Atomic Energy Commission announced in Washington that it had carried out a further nuclear test explosion in Nevada. This was, as reported in the press, the sixth nuclear explosion this year within two months. It is

obvious to everyone that the directors of the United States atomic programme intend to continue testing new types of nuclear weapons underground. This explains why the United States is not prepared to settle the question of prohibiting underground nuclear tests under the terms of the Moscow Treaty and continues to insist on the old demand for international inspection, although it realizes perfectly well that this demand is precisely what prevents agreement on the prohibition of underground nuclear tests.

To solve the problem of prohibiting underground nuclear tests, there is now no need to seek any other way than that already opened by the 1963 Moscow Treaty. The Soviet Union is prepared to reach such agreement and, as soon as the United States abandons the unacceptable demand for international inspection, the way to an agreement on the prohibition of all nuclear weapon tests will be open.

ENDC/PV.246 USA/Fisher

8.3.66

pp.36-37

Let us first consider the proposal for the cessation of the production of fissionable material for use in weapons. I believe we should consider it first because, as a matter of common sense, agreement on it is necessary for agreement to be possible on the other portions of the measure. It would not make a great deal of sense to destroy nuclear weapons and place into peaceful uses the fissionable materials obtained from them if both sides were still turning out vast quantities of fissionable material for use in weapons.

The United States has submitted to this Conference a working paper (ENDC/134) in which it has developed its verification concepts for a cut-off of fissionable materials produced for weapons purposes. With the permission of the Committee, I should like to emphasize the key elements of this approach as it would apply to the facilities that might be covered.

Facilities that would be declared and subject to inspection would be of three types — isotope separation plants, reactors, and chemical separation plants.

First, isotope separation plants would be either shut down or permitted to produce for purposes other than for use in weapons. The monitoring of a shut-down plant can be accomplished by access to the outside of the plant — including the ability to walk around the outside of the process buildings — and the ability to observe the power input to the plant. In the case of a plant which continues in production, it will also be necessary to observe the input of materials to the plant, and the output from the plant, including the residue.

Second, reactors would also be either shut down or continued in operation for the purpose of creating material not to be used in weapons. With respect to the shut-down reactors, we have worked out a method by which this can be verified merely by periodic inspection, without the necessity of having a permanent inspector resident at the shut-down plant. As for those reactors operated for power production or for production of nuclear materials for purposes other than use in weapons, International Atomic Energy Agency or equivalent safeguards would be applied to all non-military power reactors, starting with those rated above about 100 thermal megawatts.

Third, chemical separation plants would be subject to inspection procedures. Because of the nature of their operations, continued access to these plants would be required. These inspection procedures would be for the purpose of verifying the amounts of plutonium produced in power reactors as well as the amounts of fissionable materials utilized in other reactors.

The verification system that I have described applies to declared facilities. It is of course necessary to have a limited number of inspections of suspected undeclared facilities. These could be conducted under arrangements which would provide reasonable

assurance that no prohibited activities were occurring and which would protect any sensitive facility from unnecessary observation.

As part of this measure the United States proposes that, as I have indicated earlier, the 60,000 kg and 40,000 kg of weapons grade U-235 which the United States and the Soviet Union respectively would agree to transfer to peaceful purposes should come from the demonstrated destruction of nuclear weapons from the stockpiles of the two countries. This suggestion was first made last autumn (A/PV.1334, p.37) by Ambassador Goldberg, who, we should note, has been with us during our deliberations today. The United States was gratified at the very considerable interest shown by delegations at the United Nations in the United States proposal for destruction of nuclear weapons. In this Committee the representative of the United Arab Republic also welcomed, on 27 January (ENDC/PV.235, pp.39, 40), this United States proposal and expressed hope that we would develop it. Notwithstanding some rather discouraging observations which have been made about it earlier this morning — perhaps even because of those observations — I shall be happy to do so now, since my remarks may dispel some of the concern which has been expressed.

We have referred to this new United States proposal as the "demonstrated" destruction of nuclear weapons. By "demonstrated" we mean that the physical destruction of the nuclear weapons must be conducted in a manner providing assurances that the weapons really were destroyed, yet without in any way compromising design information affecting the national security of the participants and without disseminating any information which could lead to the proliferation of nuclear weapons technology. To accomplish this objective, the nuclear weapons to be destroyed would be transported to designated depots for disassembly, removal of the fissionable material, and destruction of the remaining components. Such depots could be on the territory of the nation owning the weapons. The destruction of these weapons would be demonstrated to nationals of both parties and to neutral observers.

The precise demonstration procedures to be used would of course have to be agreed upon in negotiations. Our present thinking is based on the concept of visual observation of the weapons introduced into the destruction area and upon an assay of the fissionable materials leaving the destruction area. Inspectors would not have access to the destruction area during the actual destruction process.

ENDC/PV.247 Sweden/Myrdal

10.3.66

pp.16-23

My colleagues need not fear, however, that I shall make a long discourse on detection and identification and other technical subjects. These aspects of the problem of test ban verification have been given their full share in previous statements by the Swedish delegation both in this Committee and in the United Nations. It also now seems to be generally accepted that for purposes of detection and identification, even of underground tests — that is, for recording seismic events and for attempting to separate those indicating man-made explosions from natural earth tremors — we are going to use national observation posts and national interpretation of the data obtained. To ensure that national authorities have a maximized amount of relevant data available, an attempt at organizing informal and voluntary international co-operation is being made.

The purpose of the so-called "detection club" is precisely to help achieve a more rapid exchange of such data, particularly from the technologically most advanced stations, sensitized to the teleseismic signals from continents far apart. Certain preliminary talks on this matter are now proceeding between a small number of non-nuclear weapon countries. In the future, the circle of participants in these talks ought to widen, with contributions also from the nuclear weapon States, with their

acknowledged high level of seismological capabilities.

Today I want to concentrate on another aspect, with a legal rather than a technical connotation. As matters have developed, it becomes essential for us to re-examine the scheme for verification of a comprehensive test ban outlined in the eight-nation memorandum of 16 April (ENDC/28), which is still, as far as I understand, the basic document.

The substitution of an informal exchange of detection data for the once contemplated international scientific commission that was to act as a kind of jury necessitates in itself rather fundamental changes. During the intervening years science has also improved the detection possibilities, so that the margin of uncertainty as to the nature of the source of a seismic event is considerably smaller and is continually being further reduced. Politically, also, the situation is incomparably more reassuring now than four years ago, as confidence in a treaty engagement being upheld has grown all over the world. This is without any doubt a result of the Moscow Treaty — and we should all salute with satisfaction and pride that evidence of what advantageous effects an agreement in the disarmament field can entail.

Consequently, we might now be able to envisage a fairly considerable attenuation of the whole process suggested in that memorandum, interposing some more opportunities for allaying suspicions of a breach of the agreement. My intention today is to discuss how far we can move ahead in order to secure adherence to the treaty, stopping short in my intervention just at that more and more distant point where the inspection issue might be resurrected — if, indeed, anybody would still be interested in doing so in a new situation when we might have succeeded in agreeing on a firm sequence for removing many of the uncertainties.

Without any doubt the question of inspections, which was formerly so vexatious, seems in more recent statements relating to the subject of a test ban to have acquired a less central character. We have also "lost" in the course of developments in the intervening years the international commission which could have acted as a "jury", as I have just said. Responsibility for the interpretation of data and the identification of seismic events will be upon national institutions and authorities. Their verdict will, however, be fortified exactly to the extent that there is unanimity in the scientific world — and the degree of such unanimity is easily established in our era of international communication. But now, as before, our endeavours must be to construe rules about right of withdrawal and about verification in such a way that they act as a deterrent both to any clandestine testing of nuclear weapons and to facile abrogation of the treaty.

The cardinal point remains that abrogation of the treaty is the only sanction available against a breach of the treaty. Thus the tenets of a viable treaty are that no party can be interested in making possible such abrogation on flimsy grounds. The unity of interest in keeping a treaty binding on all is and remains its strongest foundation. Legally, this interest in trammelling the right to cancel the agreement will probably be expressed by some clause similar to the one in the Moscow Treaty, and also employed in the draft treaties on non-proliferation of nuclear weapons (ENDC/152, 164), requiring for a party's right of renunciation that "extraordinary events, related to the subject matter of the treaty, have jeopardized the supreme interests of its country" (ENDC/100/Rev.1, p.3). The crux of the matter is: what will constitute such an "extraordinary event" that it establishes the right for a party to withdraw from the treaty obligations?

The simplest case would seem to be if scientific data indicate that a party has conducted nuclear test explosions and that party affirms that this is the correct interpretation. No further qualifications are needed if the case is not disputed. The other parties to the treaty are sovereign in their judgment as to whether an "extraordinary event jeopardizing supreme interests" has occurred.

Complications appear if a case is disputed. But there is a great difference in

degrees of suspicions. Let us first make a distinction between the different categories in which interpretation of the seismic data detected may fall. Some events will be interpreted as clearly due to earthquakes, and thus be written off by those concerned with the implementation of the test-ban Treaty, although affecting — and sometimes deeply — others concerned with the problems of earthquakes. But a residual category will remain which will not be so identified. In this category, however, we might distinguish between those which are simply "unclear events", unidentified as to their nature, and those which might be classified as "suspicious events" by the authorities in various countries responsible for such interpretations.

Let us try to imagine what the situation will be if rumours reverberate from this expert discussion that a party might have undertaken a test explosion. It seems to me that a primordial assumption should be that parties to the treaty would themselves be vitally interested in dispelling any doubts cast upon their principled adherence to the treaty. If scientific data made it highly probable that a nuclear test explosion had taken place — something that in these times would be bound to be widely publicized — then the standing of the suspected party in the international community would seem to make it imperative for him to vindicate his veracity if he claimed to be innocent. He would certainly hasten to offer explanations. If the accusations persisted, he might even take recourse to "inspection by invitation". This was foreseen in the joint memorandum of April 1962 — although its references to "the commission" are now outdated. In that document we read:

"All parties to the treaty should accept the obligation to furnish the Commission with the facts necessary to establish the nature of any suspicious and significant event. Pursuant to this obligation the parties to the treaty could invite the Commission to visit their territories and/or the site of the event the nature of which was in doubt." (ENDC/28, p.2)

That such invitations should be expected was also underlined in the following statement made by the representative of the Soviet Union, Mr. Kuznetsov, at our 71st meeting — and I am sorry that I shall repeatedly go as far back as 1962, but that was the period when we thoroughly aired all problems concerning a comprehensive test ban:

"...the nuclear Power concerned would have to weigh up what other States would think and how world public opinion would react to the specific case — whether the world at large would understand its refusal to invite the commission in that particular instance.

As you see, all these are very serious matters for any nuclear Power.

In the light of all these considerations, is it possible to come to the conclusion that the nuclear Powers will always refuse to invite the commission to visit their territory? Of course, it is impossible to come to such a conclusion; it would be quite unjustified. It is clear that any government will in each specific case approach the question with great care, taking all the circumstances into account.

Therefore, it appears that the formula of on-site inspection by invitation, while not providing for such inspection on an obligatory basis, nevertheless does not preclude the possibility of on-site inspection in specific cases. This is truly a compromise formula." (ENDC/PV.71, pp. 42, 43)

The memorandum of the non-aligned countries, generally speaking, as a matter of principle placed a greater burden of proof, onus probandi, on the accused or suspected party than is customary in the legal way of thinking. How wise this reliance on self-interest in exculpating oneself was, in comparison with a reliance on policing, has become more and more evident. The situation in regard to a test ban is rather extraordinary: it is technically so much easier to prove one's own innocence than to prove somebody else's guilt if there is a dispute as to the character of a "suspicious event" on

the territory of a State.

This has been clearly recognized from early on in the literature relating to test ban problems, where the value of obligatory inspections has often been doubted. I shall quote just one eminent United States expert, Dr. Robert Bowie, who dealt with this matter in the collective volume entitled "Arms Control, Disarmament, and National Security" which was published in 1961 [edited by Donald G. Brennan, New York: George Braziller]. I quote from pages 51 and 52 of that work:

"One method for facilitating inspection at all stages is to require the participants to prove their compliance with specific obligations. They may be in a position to produce convincing evidence of their action much more easily than inspectors could establish the facts without assistance."

And the author went on:

"The suspected party would then have a real interest in establishing innocence. And it will frequently be far simpler for him to offer persuasive proof that he is not in violation than for the inspectorate to prove the real state of facts."

I hope my colleagues will allow me to designate the situation so far described — in which the self-interest of all parties would be relied on to keep a treaty alive — as the normal case, without risk of my earning the appellation of an "innocent abroad". On the contrary, I believe we could get agreement from all sides up to this point.

Matters obviously become much more complicated if clarifying evidence is not voluntarily brought forward by the party on whose territory an obviously "suspicious event" has occurred. A machinery for accusation will then probably be set in motion, in the first instance by one or several parties directing a demand for clarification to the party suspected of having carried out a clandestine test. A process of questioning and answering may then be expected to follow, and to result in restoring confidence. Something of this kind actually lies within our historical experience. I am referring to the Soviet underground nuclear explosion of 15 January 1965, which "vented", releasing radioactivity into the atmosphere, and became the object of an important exchange of notes between the United States and the Soviet Union.

The designers of our forthcoming treaty text must, however, also deal with the possibility that such demands for clarification will not be heeded, or that the information offered will not be deemed to be satisfactory in the judgment of one or more parties to the treaty. To which procedure should these parties then have recourse? Just to stipulate their right to denounce the treaty does not seem to answer the requirement that withdrawal should be made difficult. Two considerations might help to forestall any rash decisions. First, there might be included in the withdrawal clause an obligation to notify not only all other parties three months in advance but also some international organ — for instance the United Nations Security Council — documenting the case for withdrawal by evidence that some "extraordinary event" had occurred. Secondly, the internationally-available opinion, basing itself on the published scientific material, could be counted upon to act as a corrective both on unwarranted accusations and on inconclusive denials.

Public discussion within the international community is an arbiter that can be expected to indicate which is more likely to be right: the party that voices suspicions that a violation has occurred, or the party that denies it. Both will presumably be very attentive to such judgments. But, of course, those cannot constitute any legally valid ground for justifying a notification of withdrawal. Such a decision must be taken on the political responsibility of the sovereign parties. But it ought to be self-evident that the possibility of abrogating the treaty would come to be exercised only when there was very strong circumstantial evidence that an event was truly "suspicious", while the great number of events which were just "unclear" would be left to pass, if they did not

accumulate in a pattern that would gain lead to strong suspicions.

This whole situation was succinctly presented by the Swedish permanent representative to the United Nations, who, when introducing the draft of resolution 2032 (XX) at the last session, said:

"We might well consider the fact that the ultimate sanction against a breach of an agreement of this kind is a retreat from the agreement by the party that considers its supreme national interest to be endangered. Indeed, if a State party to the treaty were to suspect an unidentified event to be an underground nuclear test, and if a request for clarification and verification were rejected or answered in a manner which international scientific opinion found unsatisfactory, that might constitute a right for the party concerned to reconsider its further participation in the agreement." (A/C.1/PV.1385, p.6)

That is a concise rendering of the position held by the Swedish Government from the outset of our negotiations about a test ban — a position that originated with a prominent authority on international law, our former Minister of Foreign Affairs, Mr. Undén.

Still, a further link in this sequence might have to be foreseen. Suppose a party to the treaty was deeply worried about what appeared to be strong indications that the treaty had been violated by another party, but was still hesitant to ask for its abrogation. Do we not have a common interest in making more rounds of procedure available? I am referring to the possibility that for purposes of verification some party might find it useful to challenge the suspected party to issue an invitation for inspection. If such a challenge, perhaps demanded by several parties, went unheeded — and particularly if it went unheeded on several occasions — the case for abrogating the treaty would seem to become particularly strong.

At this point I want to break my line of reasoning, because here we stand exactly at the cross-roads where the value of a still further step — that is, of obligatory inspection — must be weighed. Would such obligatory inspections really make the legal justification for withdrawing from the treaty so much stronger that the political encumbrance of the inspection issue would be balanced? This question must be referred to the main parties — the nuclear weapon States — which are the States actually concerned with testing.

This problem, however, also has a technical aspect on which greater clarification would be welcomed. The aim of inspection is supposed to be to bring forward not only answers in terms of probabilities of a test explosion having occurred — that is what we get from outside indications — but conclusive evidence: that is, concretely speaking, radioactive debris. Where does present-day technology stand in that respect? Has the verdict given by such an authority as Dr. Edward Teller now been rendered null and void? He has said, on page 127 of the publication from which I have just quoted: "Yet, these inspections, even if they were granted in sufficient numbers, would turn out to be difficult and possibly futile." To judge from the much later report by the committee headed by Dr. Jerome Wiesner, which I mentioned a while ago, the doubts as to the efficacy of inspections have not been assuaged. We read the following on page 11 of that report:

"New improvements in national detection systems might make it possible to accept a treaty in which inspection followed a challenge based upon the threat of withdrawal; ultimately any quota of inspections is no more dependable than such an arrangement would be."

To this should be added another question, to which we have devoted attention on an earlier occasion and which was also broached by our Mexican colleague at the last meeting (ENDC/PV.246, p.8): whether inspections in loco should be international or "adversary", as the old term read. I am afraid that, without an element of international

participation or checking of results, it might be difficult to get a consensus from all the many parties concerned as to whether a nuclear weapon test had been proven.

My statement today will end at this point, where the question-marks take over. The Swedish delegation does not want to pronounce itself further now on this matter of inspections. If agreement about them were reached, we might try to contribute some constructive formulae. But today I just wanted to probe how far our negotiations might move ahead towards a test ban treaty on this road of procedures described. It may be characterized as a system of "verification by challenge", to paraphrase a term recently used by Lord Chalfont (ENDC/PV.237, pp.7, 8). Admittedly it places considerable trust in what are usually called gentlemen's agreements.

ENDC/PV.248 USA/Fisher

15.3.66

pp.8-9

Our freeze proposal is designed to halt further increases in strategic armaments while we continue our efforts to achieve general and complete disarmament. It includes armaments in groupings which closely parallel the strategic armaments of both the USSR and the United States. All weapon systems in the strategic forces of both sides are included. This proposal would apply to strategic missiles and aircraft, within specified limits of range or weight, and would include anti-ballistic missiles and sea-based missiles.

The production of all affected armaments and specified assemblies for such armaments would be halted except for production required to cover natural attrition losses due to accident, and, in the case of missiles, agreed annual quotas of confidence and training firings. Production of replacements would be on a one-for-one basis only, and of the same type of armament.

The verification arrangements for the freeze would concentrate on monitoring critical production steps and replacements. It would also involve monitoring space launchings. Space launchings would of course be permitted under the freeze, but would be monitored for the purpose of ensuring that they were in fact space launchings. Existing levels of armaments would not be subject to verification under the freeze. Illustrative material on verification of the freeze was given to the Committee by Ambassador Timberlake on 27 August 1964. As he stated at that time, the inspection arrangement described —

"...would be much less intrusive than that required for general and complete disarmament and yet sufficient to afford the necessary level of assurance of compliance..." (ENDC/PV.211, p.11)

I think the close relationship of that proposal to the stage I provisions of the United States outline treaty for general and complete disarmament is clear. We believed in 1964, and we believe today, that agreement on this logical first step in the control of the growth of inventories of strategic nuclear delivery vehicles could lead to the subsequent reduction of such weapons and then to further progress towards general and complete disarmament.

ENDC/PV.248 Poland/Blusztajn

15.3.66

p.30

The proposals put forward by the Soviet Union deal adequately with the problem of verification and control over the implementation of the disarmament measures. They attempt to put into practice the principle of control over disarmament, while rejecting the Western approach, which seeks to establish a vast system of international control and inspection not only over compliance with the agreed disarmament steps but also

over the considerable military potential which, under the Western disarmament scheme, will remain at the disposal of the major Powers for possibly an indefinite period.

In the Soviet Union proposals, control is strictly and logically related to disarmament. The area and scope of control widen in proportion to the extent of disarmament. It becomes all-embracing with the achievement of general and complete disarmament. On the other hand, the Western Powers view control as an end in itself. They want to impose a system of wide control from the very outset of their disarmament plan, although their first stages entail relatively small reductions of armaments and although in such circumstances control could be misused for purposes contrary to the interests of international peace and security.

ENDC/PV.254 USA/Fisher

4.4.66

pp.16-22

This morning I should like to look at where this long road has taken us in relation to our technical problems, and where it can take us in a political sense. I should like to explain the technical rationale for the position of the United States on the necessity for an adequate system of verifying a comprehensive test ban. I should also like to describe the system of verification by on-site inspection proposed by the United States, and to show — I hope to the satisfaction of the delegations around this table — that this system injures no legitimate interest of any party to a comprehensive test-ban treaty, but rather serves as the foundation for a stable and lasting treaty.

We are all too familiar with where the difficulty lies in achieving agreement on a treaty banning underground nuclear weapon tests. The United States and the Soviet Union cannot agree on what is necessary adequately to verify such a treaty. Why is agreement so hard to reach? Both parties agree that a comprehensive test-ban treaty is so important to their respective security interests that it must be adequately verified. Both parties agree that the verification system for such a treaty should not be one which demands inspection for its own sake. Both parties agree that the requirements for verification should involve no more than is necessary to give reasonable assurance that the test ban is being observed. Yet this agreement on general principles disappears when we come to the specifics of monitoring a comprehensive test ban.

For its part, the United States believes that some on-site inspections are essential if the parties to a comprehensive test ban are to have reasonable assurance that other parties are fully complying with it. It has supplied the scientific evidence upon which it bases this opinion. It has invited its colleagues representing the Soviet Union to present any scientific data pointing to a contrary conclusion, if they have any. This invitation, unfortunately, has not been accepted. Instead, the Soviet Union has confined itself to flat assertions that national means of detecting nuclear explosions are enough for monitoring a comprehensive test ban. By this reference to "national means", I may point out, our Soviet colleagues are telling us that the seismic stations monitoring events within the Soviet Union will have to be outside the Soviet Union and hence quite remote from those events.

Last September (ENDC/PV.213, p.64) Mr. Foster described the effort being undertaken by the United States to develop a system for obtaining the greatest amount of information about seismic events in other countries by seismic stations remote from the events. He pointed out that the first problem faced by such a system is detection. Here the noise common to all seismic recordings must be filtered out. The next problem is location. This process requires good recordings of the event at a number of widely-spaced stations. The final problem is identification of the event, which can be accomplished only if the seismic signals make it clear that the event is an earthquake. I shall deal with this problem in somewhat greater detail in a moment. At present it is enough

to say that the ability to identify an event is directly related to the sensitivity of the seismic system.

The United States is making substantial progress in developing a seismic system far more sensitive than any which has previously existed. Last autumn, at Billings, Montana, the United States dedicated the first LASA — or large-aperture seismic array system — installed in the world. This is a large array of 525 seismometers spread over an area 200 kilometres in diameter. This array is now in operation, although still in the research stage. Nevertheless, we can expect that this array will lead to a substantial improvement over presently-existing seismic detection systems in the ability to detect at long range — or, in scientific language, at tele-seismic distances — low-magnitude seismic signals. Given a world-wide system of ten or twelve of these seismic arrays, we can hope to detect all natural seismic events of a seismic magnitude of four or greater.

What, we may ask, can we expect to learn from this system, particularly in so far as it relates to seismic events within the Soviet Union? We believe that this system will show that there will on average be 250 such seismic events a year in the Soviet Union. This means that there will be 250 seismic events a year of a seismic magnitude of four or greater. They will correspond in size to the seismic events created by underground nuclear explosions with yields ranging from a few kilotons to at least several hundred kilotons.

No seismic criteria are presently known to Western scientists which permit of the identification of any one of these events as explosions by seismic signals measured at remote locations — that is, the distances which would be involved with the "national" systems to which our Soviet colleagues have referred as adequate to monitor a comprehensive test ban. This is because it is a fact of nature that explosions do not produce signals which are unique to explosions and not also characteristic of some earthquakes. This is, I repeat, a fact of nature. We may not like that fact, we may be sorry that it is so, but it is. Even though our Soviet colleagues have frequently made statements to the contrary, they have never, despite our repeated requests, presented any data to alter this conclusion; and we have no basis for believing that such data exist.

On the other hand — looking at the other side of the coin, so to speak — it is true that many earthquakes produce seismic signals from which it can be determined that they were in fact earthquakes and not man-made explosions. If the analysis of the seismic data shows that the event occurred at a point far below the earth's surface, or that the seismic signal is sufficiently complex, or that the first motion of the seismic signals shows characteristics associated only with earthquakes, the event was probably an earthquake.

On this basis, and on the basis of the system of LASA seismic stations I have just mentioned, it will be possible to identify as earthquakes approximately 80 per cent of the 250 events to which I have referred. But even after we had eliminated all these events from the unidentified category, there would still remain around forty-five a year in the Soviet Union on which the seismic data would give no indication whatsoever as to whether they are earthquakes or explosions.

This is the cause of our difficulty. Unless some sort of reassurance by some on-site inspections can be obtained that these remaining events are not explosions, each one could become the source of suspicion that it might have been an underground test. A comprehensive test ban which depended solely for verification on seismic detection systems would therefore not be adequately verified. With this as the sole method of verification, it would be possible for a nation to conduct a certain number of clandestine underground nuclear test explosions each year which could not be distinguished, on the basis of seismic data alone, from naturally-occurring seismic events.

In considering a comprehensive test ban we are dealing with matters of vital security interest. Nuclear weapons are the crucial element of our strategic deterrent forces.

If we are to accept a measure which puts a real and final curb on development of this essential element of our deterrent system, there must be adequate verification that all parties are living up to it.

How do we achieve this? It is the considered technical judgement of the United States that some on-site inspections each year would, in conjunction with the modern developments in seismology and its related technology, offer an adequate verification system for a comprehensive test-ban agreement. The basis for this judgement is that the right to conduct some on-site inspections would provide an unambiguous demonstration of a violation and hence would serve to deter any possible violator.

In her interesting remarks at our meeting on 10 March the representative of Sweden, Mrs. Myrdal, suggested (ENDC/PV.247, p.22) as a possible alternative to on-site inspections a system of verification by challenge under which a State upon whose territory an unidentified event had taken place could be challenged to provide evidence that the event was natural in origin. She pointed out that several refusals on challenge to provide evidence that an unidentified event was natural in origin might well provide evidence of a violation of a test-ban agreement. She cast some doubt upon the effectiveness of on-site inspections, (*ibid.*, p.20) quoting a statement of a famous United States scientist which was made in 1960 as part of an argument against a comprehensive test ban. She raised the quite legitimate and interesting question whether an on-site inspection would provide evidence of a breach of a test-ban agreement which would be so much clearer than that provided by several refusals of a challenge as to justify the United States insistence upon on-site inspections in the face of the present Soviet refusal to agree to them.

In considering this interesting suggestion and this quite legitimate question, we should note that there is no scientific basis on which a particular unidentified event can be considered as more suspicious than any other by analysing the seismic data relating to it. The forty-five events a year that, on the average, remain unidentified in the Soviet Union represent the residue after all the seismic criteria have been applied. Those seismic criteria, as I pointed out earlier, make it possible to eliminate all but forty-five of the 250 events in the Soviet Union; but, I repeat, these forty-five events represent what remains after all the criteria have been applied. Therefore, the idea that a system of verification by challenge will reduce international tension because it merely affords a State the opportunity of clearing its name after its integrity has somehow been placed in doubt by seismic evidence does not, I submit, accurately reflect the present state of our scientific knowledge.

Under a system of verification by challenge, the integrity of the challenged party will not have been placed in doubt by seismic evidence because no seismic evidence will point to any one of these forty-five unidentified events as appreciably more suspicious than any other. It will be the challenge by the challenging party, not seismic data, that will cast the slur on the integrity of the challenged party. To put it very simply, a challenge represents an accusation; it represents an accusation that a particular seismic event was suspicious; it represents an accusation that a nation has possibly violated a solemn international treaty; it represents an accusation that a nation was possibly trying to upset the strategic balance through clandestine nuclear weapon development. A treaty which depends on such a procedure of accusations is not likely to reduce international tension.

Against this background, let us consider the probable reaction of the Soviet Union to a challenge. I think that we can make a pretty good estimate by analysing the dialogue which has been going on at this Conference regarding the necessity for on-site inspections. As I indicated earlier, the representatives of the United States have stated that some on-site inspections are necessary adequately to verify a test-ban treaty. They have time and time again presented the scientific information which has led them to

that conclusion. They have time and time again requested the Soviet Union to present any data which point to the contrary conclusion. These requests have never been answered; instead, they have been met with the flat denial of any need for on-site inspection to resolve the identity of a possible unidentified seismic event.

Under this circumstance, how much meaning is the concept of challenge inspections as a system of adequate verification likely to have? Such a challenge would, on the basis of the present position of the Soviet Union, simply be met by the reply that seismic means were sufficient for identification and no inspection or further information was necessary. Would this be a stable arrangement? Would this lead to a relaxation of tension?

The dialogue on the necessity for on-site inspections has been frustrating enough when carried on at this Conference as part of the negotiations for a comprehensive test ban. I submit that it would be worse than frustrating if it were carried out within the context of a system of challenge inspections, such as that contemplated by the representative of Sweden in her interesting observations. I submit that we must settle the differences which apparently exist concerning the necessity for verifying on-site inspections before the treaty is signed — not afterwards. I submit also that if a treaty were signed with these differences outstanding, it might be short-lived indeed.

Let me now describe what on-site inspection would involve, what it would demonstrate and why the United States believes that it would injure no legitimate interest of any party to a comprehensive test-ban treaty, but would rather serve as the foundation for a stable and lasting treaty.

If a particular unidentified seismic event were selected for inspection, the area to be inspected would have to be determined by the analysis of the seismic data. On-site inspection of the area would first indicate whether there was evidence of the high level of human activity associated with an underground nuclear test. An underground nuclear test involves the movement of large quantities of equipment and material. The evidence of this movement might include oil spots left by power generators, earth-moving machinery and various types of vehicles, as well as the tracks of those vehicles. Sites at which there had been considerable human activity would be expected to be more compacted than surrounding areas. Evidence of human activity might include such material as bits of electrical tape, wire, cable, nails and timber, and material of that kind.

It is, of course, true that if there had been a clandestine test an attempt would undoubtedly be made to conceal any such evidence. It is also true that similar evidence might be found in the vicinity of a mine or an oil well. However, the presence of such features indicating human activity would also indicate where the inspectors should concentrate their efforts in looking for explosion-generated effects. This area would be searched for possible surface effects, such as fissures in soil and cracks in rock, displacement of loose materials, and possible changes in vegetation. Such manifestations of an underground shock might, it is true, have been caused by either a nuclear test or an earthquake; but they could be expected to be much more pronounced in the case of an underground nuclear explosion than in the case of an earthquake of the same magnitude. Also, the pattern of surface effects is likely to be more symmetrical around the origin of an underground nuclear explosion than it would be in the vicinity of an earthquake.

The reason for this differentiation of surface phenomena between an earthquake and a nuclear explosion is that even "shallow" earthquakes are most likely to occur at greater depths than that at which an underground nuclear explosion would have been conducted. I might add that such surface effects and these characteristics have been noted for underground nuclear explosions conducted in the United States.

We must allow, of course, for the possibility that a violator might have taken steps to conceal or camouflage these characteristics. Here, we must also note that a more

determining and a unique characteristic of all nuclear explosions is the radioactivity produced by the burst. It is probable that the radioactive fission-product gases from an underground nuclear explosion will leak slowly upwards toward the surface, where with sensitive detectors some of these gases unique to a nuclear explosion could probably be discovered by the inspection. Only if the location were subject to on-site inspection would a violator have to consider seriously the possibility of such a leakage and the risk it would entail.

The scientific techniques for detecting and analysing these special gases have been worked out in the course of research conducted by the United States on on-site inspection. On-site inspectors would be equipped to take samples of surface, water and soil gases. Soil-gas samples would be obtained by drilling in suitable soils a shallow hole from which gases in the surrounding soil would be pumped out. Air or surface samples would be obtained by merely pumping a quantity of air taken in the vicinity of the unidentified seismic event. These samples of gas, taken from the soil, the air, and also any water in the vicinity, would be subject to chemical and radioactive analysis. The detection of these gases, which are unique to the explosion of a nuclear weapon, would certainly supply unambiguous evidence that an underground nuclear explosion had taken place.

Furthermore, these inspections, while serving as a deterrent to a possible violator, serve just as importantly to reassure all others that the treaty is being observed. There is then no question of "unclear" or "suspicious" events. On-site inspections will serve to reassure all that the "unidentified" seismic events may be seismically "unidentified" but nevertheless are simply naturally-occurring earthquakes and a threat to the security of no one.

Furthermore, obligatory inspections carried out as an integral part of the verification process should not and would not be considered as an antagonistic action or a battle of wits between inspectors and the country being inspected. We would hope, and indeed we would expect, that there would be co-operation. If the country having its territory inspected can simplify the task of the inspectors and help to establish the nature of the unidentified seismic event, so much the better. However, the fact that a nation can and should assist in and simplify the task of verification does not negate the need for obligatory on-site inspections.

ENDC/PV.256 Sweden/Myrdal

14.4.66

pp.4-9

The first clarification which seems to be necessary refers to the nature of the procedure which I called "verification by challenge" and which was really an extension of proposals contained in the Joint Memorandum of 16 April 1962 (ENDC/28) by the eight non-aligned members of the Eighteen-Nation Committee on Disarmament. A clear distinction should be made between the terms "verification by challenge" and "inspection by challenge", as the former concept, which I used on 10 March, is considerably wider than the latter. It does not per se raise any demand for inspections, but neither does it exclude them. It is thus not quite correct to assume, as Mr. Fisher did at the outset of his comments, that I have suggested "verification by challenge" in order to present it as an "alternative to on-site inspections" (ENDC/PV.254, p.19).

But it is true, of course, that all our endeavours in regard to a test ban, including the informal collaboration of certain national seismological observation stations, are directed towards reducing the need for controls of a direct, admittedly fairly obtrusive, kind. I shall return to the question of inspections in a little while; but, in order to understand better the general character of the procedure and the implications of our suggestions, some moments must be devoted to an exercise of imagination, trying to

picture rather concretely the whole range of hypothetical situations which might occur once we had a treaty prohibiting underground test explosions.

In a broad way the entire process which is unfolded if seismic recordings from different parts of the world seem to arouse suspicions that an underground nuclear test explosion might have occurred can be thought of as a continuance of "challenges". In the beginning it may consist of informal exchanges of views based on some teleseismic findings which it has not been possible to write off as clearly having been caused by natural earth tremors. Differences in scientific sophistication among different States interested in the upholding of a test-ban treaty may be of importance in this connexion. It is to be expected that in many cases informal questions will be met by spontaneous explanations, perhaps proffering close-in records from seismic stations in the neighbourhood of the event. For developments which have so far been made, no special formulae or prearranged procedures will be needed.

We might have to foresee, however, that sometimes doubts would not be cleared away in this informal manner. Mr. Fisher rightly pointed out that fairly great numbers of "unclear" events might not at our present level of knowledge be excluded from suspicion on purely seismic grounds. I venture to state, however, that in order to classify an event as "suspicious" rather than just "unclear" one would have recourse to several indications in addition to what the seismic signals *per se* contributed to such a judgement. Such an indication might be whether the location was one where tests would be likely or totally unlikely to occur. I would suggest that even if many unclear events occurred, for instance, in Iceland, nobody would be moved to voice suspicions of clandestine nuclear tests. And there are of course other even less tangible signs to go by.

Such a selection of "suspicious events" with the use of various guides for probability judgements would have to be resorted to, I submit, whether the next step contemplated were a request for inspections or, as I assume to be preferable, at least for this stage, a request, albeit in formal terms, for clarification. Such a request would constitute a formalized "challenge", and I think we would agree that the only body competent to make such a formal "challenge" should be a government party to the treaty — or several such governments. A quite considerable responsibility must be attached to the "challenger"; the "challenge" should be used only for obtaining information about seemingly important events. The challenging government which takes upon itself to voice suspicions should be expected also to furnish documentation for establishment of the event and explanation of its suspicions. The replies, which in turn would be expected to provide new documentary evidence, should in this way be matched by documented queries. A balance of responsibilities must be presupposed — and that is a feature that was not sufficiently clarified in my earlier presentation.

Finally, the "challenge" may be thought of as entering an ultimate stage: that is, when a party to the treaty is so dissatisfied that it is becoming prepared to give notice of withdrawal from the treaty obligations — such withdrawal in any case being the only sanction available against a breach of the treaty. As that party must base such a decision on its strong conviction that clandestine testing by another party has created the extraordinary event jeopardizing its national security (ENDC/100/Rev.1, p.3), it must also be ready to provide the documentation for these suspicions that should accompany its "explanatory memorandum" to the Security Council, in consequence of our proposal that such notification of intention of withdrawal should be made. It is that threat of withdrawal, amply supported by documentation, which should be considered as the decisive challenge that might induce an accused party to invite some inspection. I want to stress the severe character of such a challenge, and I can only express my regret if I was not sufficiently clear on this point in my earlier statement.

Let me hasten to add that the procedure which we have called "verification by challenge" would provide a useful foundation for a test ban treaty whether or not it

ended with a deterrent in the form of obligatory on-site inspections — the ultimate deterrent or sanction in any case being the risk that the treaty was being abrogated. And even if an obligatory inspection has been demanded in a certain case the earlier steps in such a consultation process as I have indicated will have their value for the challenged party. This process may, for instance, have led to enough clarification — for example, through close-in data — to reduce the size of the area to be inspected.

I may perhaps therefore be permitted to turn to the representative of the United States, who holds to this requirement of inspections, with the argument that an ordinance about on-site inspections could be introduced at the tail-end of what I have called the process of challenge. And, within parentheses, may I ask: What is a demand for inspection if not a challenge? How are the events to be inspected chosen if not by the same process of judging certain events to be more suspicious than others? And what is the sanction, in case an inspection should prove a party's guilt, if not the same withdrawal from the treaty as might follow a defiance of repeated challenges?

In the opposite case, if the agreed will of the parties were to forgo recourse to obligatory inspections, the process of challenging would be a feature that would evolve practically spontaneously. May I reiterate that I am not here taking a position in regard to such inspections, but just want to stress that the construction holds whether obligatory inspections are included or not? Turning in the case of this second possibility rather to the representative of the Soviet Union, may I assure him that any fear would be unfounded that through the concept of "verification by challenge" we might be introducing inspections by, so to speak, the back door if the front door of a treaty were closed to obligatory ones. If obligatory inspections are not included, the treaty need not even mention "inspections" at all. It might be sufficient to include in the withdrawal clause some such phrase as the following:

"If satisfactory explanations have not been forthcoming despite demands for them by a government party to the treaty, this government shall have the right to withdraw from the treaty if it decides that extraordinary events related to the subject matter of the treaty have jeopardized the supreme interests of its country. It shall give notice of such withdrawal to all other signatory and acceding States and to the United Nations Security Council three months in advance. Such notice shall include a statement of the extraordinary events it regards as having jeopardized its supreme interests."

That is actually a passage from a well-known treaty, with some slight changes. Under some such formula a government which would be averse to a demand for inspection, even an implicit one in terms of a more or less persistent "challenge", would be free to act according to its best judgement in casu. Another government might use invitation to inspection as one method by which to exculpate itself. Only practical experience need decide this point. No government would need to raise in advance obstacles to the very conclusion of such a treaty as long as it was willing to shoulder the constituent obligation: not to conduct underground nuclear test explosions.

Having tried to make clear the neutral character of the concept of "verification by challenge", I must be allowed to voice my own apprehension and that of many others that the great Powers are raising too many difficulties in the way of reaching an agreement on a comprehensive test ban — an agreement that is so definitely in the interests of all of us. May I quote a very unsophisticated proverb: "Where there's a will, there's a way"? It may not be the way which the Swedish delegation has tried to indicate; but some way might easily be found — provided, of course, that the obstacles are not political.

The Swedish delegation finds it necessary to raise a second point, which seems not to have been placed sufficiently in focus: that is, that an agreement to ban underground

tests is of great concern to many States, not to just a few. The ideas that are held particularly in relation to on-site inspections as the chief instrument for ensuring that such a treaty would be upheld seem still to treat the matter as if it were a question of just two sides, two "adversary" parties to the treaty. This thought-pattern obviously developed during an earlier period when the three-Power Conference — and the very name is indicative — was studying the test-ban issue. Now, however, we are in search of an institutional framework that takes into consideration a great number of parties to such a treaty.

The non-proliferation aspect of a comprehensive test ban calls for a reorientation. Our scheme of challenging suspected parties lends itself, I believe, quite well to application not only to the existing nuclear weapon countries but also to what are sometimes called would-be nuclear weapon countries. It also would create a right for them to voice suspicions that some Power might be changing the course of events by again stepping up the armaments race. How would a pattern relying only on obligatory inspections handle these cases? Should all signatories be exposed to the same number of inspections? Who should have the right to ask for them — should any and all parties to the treaty have such a right? And what about the right to conduct them — or should that responsibility be delegated only to some? We have to remind ourselves that we have, as I believe, given up the idea of having an international commission take on such responsibilities. Is it not then in everybody's interest to have a procedure such as challenging which would be of more general applicability than inspections in loco, to resort to as the more regular feature?

One third and final point. Having considered several varying possibilities of drawing up an agreement for prohibiting underground nuclear tests, I have been struck by the seemingly imperative necessity to have such a ban laid down in a treaty which is formerly separated from the Moscow Agreement on the partial test ban (ENDC/100/Rev.1). This springs to the foreground as soon as we recognize that withdrawal is the only sanction against possible violation. And we must all be desirous that, even if uncertainties should prevail regarding underground tests to such an extent that abrogation threatened, this should not be allowed to place the Moscow Agreement also in jeopardy, thus opening anew the whole gamut of testing possibilities. It has seemed to me necessary to draw attention to this problem at this early stage, as several delegations may be occupied in tentative drafting of the underground test ban.

ENDC/PV.256 USA/Foster

14.4.66

pp.13-16

Let me now describe the kinds of safeguards that the United States believes are appropriate to the significance of the cut-off, transfer, and weapons destruction proposal. In doing so, I shall not attempt to describe the complete system of safeguards. I shall rather give a few additional details regarding the kinds of inspection that our studies have shown to be adequate. We would emphasize that these descriptions are intended to stimulate discussion, and not to present a fixed position. We welcome further discussion on the topic of inspection for verification of this measure. We are certain that the capability of generating helpful ideas to provide adequate assurances that agreements are being honoured is not to be found exclusively in any one country.

Our technical specialists have studied, for example, the problem of verifying that plutonium production reactors shut down in compliance with either a production cut-off or reciprocal plant-by-plant reductions remain shut between visits of inspectors. Two alternatives have been investigated. In one case, access would be permitted to the working faces of the reactor itself. In the other, access would be permitted only to the exterior of the reactor building or buildings. When access is permitted to the reactor,

we believe that visits by inspectors to the reactor could be scheduled at intervals separated by several months, requiring perhaps a week for the initial visit and one or two days for subsequent visits.

The shutdown monitoring system they would utilize includes basically four simple concepts: First, target material is placed in a reactor core to become radioactive in the event of reactor operation. Second, a "safing tape" or wire fixes the location of the target material within the reactor so as to be subject to the reactor's neutron flux, if any. Third, the tape is so fabricated that it is unique, and hence any substitution of the tape can be detected. Fourth, an exterior seal at each end of the channel containing the tape provides the inspection team with assurance that the wire or tapes has remained in its fixed location between inspections.

The target material — for example, cobalt — is introduced into the "safing tape" and would be activated approximately linearly with exposure to neutrons. The resulting radioactivity, if any, could be read with standard radiation detection meters.

This system is described in further detail in a working paper which we are submitting today with the request that it be circulated as a document of the Eighteen-Nation Committee on Disarmament (ENDC/174). Again I would emphasize that it is not our intention to insist on this or any other inspection method or procedure at this time. We offer the paper so that the details of what we have been studying can be considered and commented on by others.

We have also studied possible alternative procedures where access might be limited to the exterior of the reactor buildings. Such a limit could possibly be the external fences surrounding the buildings, if such fences were within 100 or 200 metres of the buildings themselves. Under such circumstances, we believe there is a reasonable chance that a reactor could be monitored satisfactorily by granting near-continuous random access to the perimeter fence. Such access would have to be available on about one hour's notice at any time. The field inspectors would be equipped with neutron and gamma ray detectors as well as equipment sensitive to radiation in the infra-red portion of the spectrum. Each of these devices is of standard design and all are familiar to qualified electronic technicians the world over.

The inspection procedures we describe could be utilized by whatever inspection organization was charged with carrying out the inspection. The International Atomic Energy Agency has already developed some procedures for monitoring reactors in operation, and more needs to be done in this area. The Working Paper (ENDC/134) submitted by the United States in June 1964 outlines the procedures we believe to be necessary to monitor other facilities that would be involved in a cut-off of production of fissionable material for weapons. We are continuing to study these suggested methods in order to provide greater detail on some future occasion, and we hope that other nations are also giving careful consideration to these problems.

Our proposal to destroy nuclear weapons to obtain fissionable material for transfer to peaceful uses is another example that the procedures we have suggested for consideration are designed to take proper account of the need to protect the sensitive elements of the design of nuclear weapons. These suggested procedures have been outlined before; but let me describe in somewhat more detail the kind of demonstration process we have in mind. Again I would emphasize that the United States does not intend to prejudice future discussion of this subject by advocating any one method of demonstrated destruction. Rather it is our intention to encourage discussion by providing enough detail to focus attention on the kinds of problems that must be worked out if we are to reach agreements in which all parties can participate with confidence.

A facility for demonstrated destruction of nuclear weapons would probably consist of a receiving compound, buildings for weapons disassembly enclosed by a security fence, and an assay laboratory for verifying the actual amounts of fissionable materials

yielded by the destruction process. In this way, the total proposal — including cut-off, destruction, and transfer aspects — is keyed to the fissionable material.

Prior to the introduction of a batch of weapons for processing, inspection personnel would make a walk-through tour of the complete facility to observe that no weapon components or materials were inside. A batch of weapons would then be moved into the receiving compound and inspectors would be permitted visual access to the exterior of the weapons, affording an opportunity to count them, and perhaps also to weigh them.

At this point inspectors would retire beyond the security fence but would continue to have access to the perimeter, affording an opportunity to check all movements of material into and out of the external fences.

As a result of the disassembly and destruction process, fissionable material would be brought out through the security fence from time to time to an assay laboratory, where it would be carefully weighed, its isotope composition would be determined, and it would then be placed under International Atomic Energy Agency or equivalent international safeguards to assure its use for peaceful purposes only. Non-nuclear components would be reduced to a state of rubble that would not disclose classified information and would be shipped out of the facility for final disposal. Such disposal could, for example, consist of deep-ocean burial.

At the conclusion of the processing of a batch of weapons, inspectors would again be granted access to the inside of the entire facility to observe that no material had been withheld. This is a simple, straightforward procedure which allows no possibility for espionage, requires no visits to other sites or installations, and in fact protects that information properly classified in the interests of national security.

In conclusion, let me express the hope that by going into some detail about the operations of the type of inspection system which the United States would wish to have considered in connexion with measures to halt the arms race and reduce nuclear arsenals, we have made it clear that we are sincere in attempting to provide for only that verification which is necessary to meet the security needs of the participating countries. We apply this principle both to non-nuclear weapon States and to States possessing nuclear weapons.

The obligation of all of us to reach an accord that can reduce the nuclear threat requires compromise by all sides. We hope that our remarks today will be viewed in a spirit of accommodation which will result in the acceptance of reasonable safeguards by the nuclear weapon States. We further believe that the non-nuclear weapon States represented here will agree that such safeguards are in no way less appropriate than those we would seek to have accepted by them.

ENDC/PV.256 USSR/Roshchin

14.4.66

p.24

....The Soviet Union considers that an agreement to ban nuclear explosions underground would be carried out effectively, since there exists in many countries seismic equipment of such reliability and sensitivity that no State having agreed to refrain from carrying out underground nuclear tests would venture to carry out nuclear explosions underground in a secret and deceptive manner. The risk of being detected and caught red-handed is too great for anyone to venture to violate such an agreement. This was pointed out as far back as three years ago by some of the most prominent American scientists, including Professor Hans Bethe, Mr. David Inglis and Dr. Bernard Feld, who in a joint declaration published on 9 April 1963 stated:

"Even though a single small test might be concealed by being confused with an earthquake if the test were conducted in a region of frequent earthquake occurrences, any significant series of tests would be almost

impossible to conceal." (ENDC/85, p.3)

That was said almost three years ago. The risk has become even greater now that seismic equipment has been considerably improved.

At the meeting of this Committee on 4 April the United States representative, Mr. Fisher, in his statement devoted to the discontinuance of nuclear weapon tests, tried to convince us of the necessity of on-site inspection, without which, allegedly, an agreement on this question cannot be concluded and implemented (ENDC/PV.254, pp.16 et seq.). In insisting on the mandatory carrying out of inspection, the United States is guided by political considerations rather than by the desire to conclude an agreement on the prohibition of nuclear weapon tests underground. The United States cannot fail to know that there is no need for international inspection in order to detect underground nuclear explosions. Nevertheless it brings up this question, thus making it difficult to reach an agreement to ban all nuclear tests.

During the negotiations on the discontinuance of nuclear tests which were previously held in Geneva we, to our regret, were repeatedly convinced that the United States shows a tendency to approach the evaluation of scientific data exclusively from the point of view of its political interests, and to repudiate its own previous proposals and the decisions agreed with the other side if those decisions do not fit in with its political aims. That is how the United States acted in 1959 when, after publishing the well-known report of Dr. Berkner, it in fact repudiated the recommendations of the Geneva meeting of experts in July-August 1958, although it had taken part in agreeing them.

ENDC/PV.257 Bulgaria/Lukanov

19.4.66

pp.31-32

The Bulgarian delegation would also like to touch briefly on the proposal for a comprehensive agreement on the banning of nuclear tests: that is, the question of extending the scope of the Moscow Treaty (ENDC/100/Rev.1) to cover underground nuclear tests. It is hardly necessary to mention the urgency and necessity of solving this question. Resolution 2032 (XX) of the United Nations General Assembly (ENDC/161) calls upon us to achieve such a solution. Suffice it to say that the banning of all nuclear weapon tests would slow down the arms race and facilitate decisions on a number of measures aimed at nuclear disarmament. It would prevent the nuclear Powers from continuing to carry out extensive programmes aimed at the improvement of nuclear weapons, and would make it difficult if not impossible for the non-nuclear Powers which do not yet possess nuclear weapons to obtain such weapons through their own national production.

The discussion of this problem has shown clearly that its solution is blocked by the position of the Western Powers and especially the United States of America. For many years the United States has been insisting on the necessity of carrying out on-site inspection, which is said to be required in order to provide guarantees that a "suspicious event" was not in fact a secret nuclear test. That, in the opinion of the United States, is the cause of the main difficulty in reaching agreement on the banning of underground nuclear weapon tests. It appears that the improvement of seismic detection and identification capabilities brought about in recent years has not had the slightest effect on the United States position. The question of inspection is elevated by the United States to the position of an immutable principle, regardless of the undoubted progress achieved in the detection and identification of seismic phenomena by national monitoring systems which, in the opinion of eminent scientists, makes any on-site inspection absolutely unnecessary.

The statement of the representative of the United States at our meeting of 4 April was particularly revealing in this respect. Mr. Fisher tried once again with the aid of a

detailed technical analysis to justify the necessity of carrying out on-site inspection, and gave it to be understood quite categorically that the United States was not even disposed to hear about any other possibilities of solving this question (ENDC/PV.254, pp.16 et seq.). In the opinion of the United States representative — and this was quite definitely stressed in his statement — on-site inspection remains the only possibility for exercising control over compliance with the provisions of a treaty banning underground tests. Such an approach in discussing the question of banning underground nuclear weapon tests shows once again that the United States is unwilling to take into consideration the latest achievements of science or the need to seek for and reach agreement on possible solutions to this problem. We can only conclude that, under the pretext of the need for on-site inspection, the United States is in fact concealing the absence of any resolve on its part not to conduct nuclear weapon tests.

ENDC/PV.259 USA/Foster

26.4.66

pp.16-17

That brings me to the second issue which impedes progress on nuclear disarmament: that is, the provision — or lack of it — for adequate verification. The attitude of the communist nations toward verification reveals a basic dichotomy in their thinking about disarmament. On the one hand, when they are talking about reductions, they insist that radical steps are imperative. On the other, when it comes to arrangements to ensure that the purpose of disarmament is not evaded by concealment or new production of armaments, they refuse to consider even minimum steps. They appear to be capable of an enormous act of faith in their willingness to trust us not to evade an agreement; but this appearance of faith dissolves when they discuss the uses which they allege the West might make of minimum verification arrangements.

The stated Soviet approach to verification is that there should be "control over disarmament, not over armaments." Now if this were interpreted, as it could be, to mean that controls should be established for the purpose of ensuring that parties to a disarmament agreement actually reduce their arms to a certain level, or even that they do not increase their arms above a certain level, then the United States could agree. We have even proposed measures, such as the destruction of nuclear weapons in connexion with a cut-off of production of fissionable materials (ENDC/165), and the B-47/Tu-16 bomber bonfire (ENDC/PV.176) under which verification would simply ensure that armaments were reduced by agreed amounts.

But the Soviet Union insists on interpreting "control over disarmament" as involving only the certification of destruction of armaments — that is, until the process of disarmament is completed. It does make one exception: in the case of the "nuclear umbrella" proposal it would permit legally-retained missiles to be verified by control posts at the launching pads. But what about weapons illegally retained or produced?

Does anybody really believe that during most of the disarmament process we shall be concerned only with weapons that have already been destroyed and those declared as legally retained? Of course not. In the absence of adequate assurance against evasion, the farther we go down the road towards complete disarmament the more concerned we shall be with the possibility of clandestine armaments which can threaten our security. During the process of general and complete disarmament our confidence in the process, and our confidence that our security is not being jeopardized, must rest in large part on firm assurance that other participants are not maintaining forces larger than the agreement calls for.

Clearly the Soviet approach to disarmament is not the only way. Statements by the Soviet Union and its allies that "it is clear" or "it has been shown" that the Soviet plan would provide equal security for all, and that inspection is not necessary, are mere

unsupported assertions. It is not clear because it has not been shown. I suggest that, as long as our efforts continue to be frustrated by a refusal on the part of the Soviet Union to take even the most limited verified steps towards actual arms limitations, we cannot reasonably expect agreement on these radical changes in existing national security arrangements which the Soviet Union proposes as a first stage of general and complete disarmament.

ENDC/PV.259 UAR/Khallaf

26.4.66

pp.25-30

When the Treaty on the partial prohibition of nuclear tests was signed in Moscow in 1963, one wondered who would benefit from it: whether it would be in the interest of the United States or the Soviet Union. Apparently the answer was at that time, and still is, that the Treaty is in the interest of these two Powers and of all the countries of the world.

Furthermore, from that time onwards the question has arisen how long the Treaty would be respected by the signatory Powers. It must not be forgotten that at that time a sort of mistrust prevailed and it was feared that sooner or later the Treaty might cease to exist. Fortunately, however, confidence gradually overcame mistrust, and during the three years of its existence the Treaty has been respected by all the signatories. This is certainly a very favourable sign and should be regarded as an encouragement to take a further step towards the suspension of underground nuclear tests. This is all the more true since the 1963 Treaty did not preclude — and does not even now — all possibility of clandestine nuclear weapon tests in one or other of the three environments to which it applies.

Such clandestine tests, even if they have actually taken place, have not deprived the 1963 Treaty of its effectiveness or lessened its value. To be convinced of this it suffices to refer to the three following statements made in August 1963 before the Committee on Foreign Relations of the United States Senate concerning the banning of nuclear tests. On tests in the atmosphere Mr. McNamara said — I quote from page 106 of the original text:

"Over the USSR and communist China only very low-yield tests with quite limited objectives could have a good chance of escaping discovery. These tests, we believe, could not produce significant advantages".

On tests in outer space Mr. McNamara said, in reply to a question regarding the possibility of detecting Soviet explosions at a distance of 20,000 miles — I quote from page 112 of the original text:

"I think the strong possibility is that we could detect it ... but I cannot guarantee we could do so. If we could not detect it I would feel certain it would not be so significant as to alter the military balance between our nations."

Concerning underwater tests Mr. Seaborg said, in reply to a question whether an underwater test in Lake Baikal, in the Soviet Union, could be detected — I quote from page 241 of the original text:

"We do not have the means of detecting such a test by instrumentation, by the methods of detecting nuclear tests through physical means."

What I wanted to show is that the Moscow Treaty on the partial prohibition of nuclear tests was signed and applied although in the three environments to which it applies certain tests could be carried out which would escape detection. However, these tests were considered to be too insignificant to have any effect on the military balance between the United States and the Soviet Union. One wonders whether the same might apply to underground nuclear tests. We have been told that some of these tests cannot

be detected or identified but that they also seem to be very small or of low magnitude; and it is added that scientific progress now makes it possible to overcome many difficulties in this field.

In this connexion I should like to quote the last three lines of the conclusions of the special report drawn up by the United Kingdom Atomic Energy Authority on the detection and identification of underground explosions and kindly circulated by the United Kingdom delegation to the members of this Committee. They read as follows:

"...therefore there is and always will be an uncertainty about the ability to detect and identify an individual low-magnitude event at a particular place and time".

In this regard I should also like to quote from the New York Herald Tribune of Friday 22 April 1966:

"A British scientist has reported that seismic recordings from an American underground nuclear blast in the Aleutians last year were significantly different from natural geological disturbances in the area".

If these difficulties persist none the less at the present time and it is impossible for this reason to conclude an agreement prohibiting any kind of underground nuclear test, nothing in that case would prevent us from making a beginning with tests which can be fully detected and identified by national seismological stations. This would, of course, be only a partial solution of the problem, but the limited Treaty of 1963 on the prohibition of nuclear tests has already created a precedent in this direction and there is no reason for not following it up with another partial measure, especially as this is the only solution.

Allow me to mention that such a solution or solutions have been sought for and advocated by various delegations in this Committee, including that of my country. Ambassador Hassan, the former Head of the delegation of the United Arab Republic, submitted on Tuesday 17 August 1965 three leading ideas in this regard, as follows:

First, the proposal --

"...for the extension of the Moscow Treaty to cover underground tests above a seismic magnitude of 4.75, which the admitted capacities and capabilities of the existing national equipments are able to detect and identify..." (ENDC/PV.224, pp.9, 10)

Secondly:

"As a complementary measure to the preceding one ... there should be a voluntary moratorium by nuclear Powers under which they would refrain from any further testing pending agreement on the decision needed for a comprehensive test-ban treaty". (ibid., p.10)

Thirdly:

"...whatever the real obstacle may be, political or technical, we still believe as we have believed in the past that exchanging scientific and other information between the nuclear Powers, or continued improvement of detection and identification techniques, might help us to reach finally an agreement on a comprehensive test-ban treaty". (ibid.)

This proposal had the good fortune to be received favourably by several delegations in this Committee; thus the United Kingdom representative said on 9 September 1965:

"Now I must admit that the proposal has some obvious attractions; and I can assure the Committee that my Government will give it full and detailed consideration." (ENDC/PV.231, p.12)

The representative of the Soviet Union also said on 7 September 1965:

"As the proposal of the United Arab Republic relates to the banning of a part of underground nuclear tests precisely under such conditions, and to the establishment of a moratorium on all other underground nuclear tests,

the Soviet Union is prepared to meet the position of the United Arab Republic and to agree to the halting of underground nuclear weapon tests in that way". (ENDC/PV.230, p.9)

The representative of the Soviet Union had just said that the proposal by the Government of the United Arab Republic reflected "a realistic approach to a question which is ripe for solution". (ibid., p.9)

More particularly, and in respect of the idea of extending the Moscow Treaty to cover underground tests of a seismic magnitude of 4.75 and above, I should like to recall what has been said by other representatives in this Committee. Thus the representative of Ethiopia said on 23 February this year:

"We are happy to learn that modern technology has advanced to the point that it can identify underground explosions to the extent of a seismic magnitude of 4.75 and above. We anticipate, with hope, further acceleration of such studies..." (ENDC/PV.242, p.21)

In the same line of thought the representative of Mexico said on 8 March that the Committee should —

"...as we see it, examine the feasibility of extending the prohibitions of the Moscow Treaty to all underground tests which are known to lie beyond the present threshold of uncertainty and are, therefore, beyond all risk of contradiction, fully detectable and identifiable by national seismological stations". (ENDC/PV.246, p.10)

On the idea of a voluntary moratorium by the nuclear Powers, I should like to quote what was said by the representative of Ethiopia on 2 September 1965:

"The Ethiopian delegation supports the proposal made at our meeting of 17 August by the leader of the delegation of the United Arab Republic, Mr. Hassan, that there should be a voluntary moratorium by the nuclear Powers under which they would refrain from any further testing pending agreement on the decision needed for a comprehensive test-ban treaty". (ENDC/PV.229, p.16)

Lastly, on the exchange of scientific information proposed by Ambassador Hassan (ENDC/PV.224, p.10), I should like to stress that we have always expressed the opinion that the major nuclear Powers and all the States concerned should improve their techniques of detection and identification unilaterally, bilaterally and multilaterally by the exchange of scientific information and the promotion of scientific research.

In this connexion, let us note in the first place that the United States has constantly supported such an exchange. Thus on 2 September 1965 the representative of the United States said:

"We would welcome the ideas of any and all delegations about such problems as the detection and identification of earth tremors". (ENDC/PV.229, p.24)

In the same context I should like to quote what was said by the United Kingdom representative in his statement on 9 September 1965, in which he suggested that if the Soviet Union would be prepared to allow its scientists to take part with Western scientists in technical discussions, "perhaps we might yet find some common ground in the very valuable and constructive proposals put forward by the United Arab Republic". (ENDC/PV.231, p.13). On the other hand, on 15 February of this year the representative of India stated:

"India would like to see all countries agreeing to suspend all nuclear weapon tests. We can then consider what steps the international scientific community can take in mutual co-operation so that such suspension, and later a formal treaty, can be adequately observed". (ENDC/PV.240, p.9)

The ideas thus modestly put forward by our delegation are far from being the only

ones in this field. Other delegations have submitted some very interesting suggestions. We shall mention only the important suggestions of the Swedish delegation concerning the detection club (ENDC/PV.247, pp.16 et seq.) and "verification by challenge" (*ibid.*, p.23). In our opinion these two suggestions are in no way inconsistent with the ideas which Ambassador Hassan has already put forward and which I have just mentioned; on the contrary, these two kinds of proposals complement each other to some extent although there is not on that account any necessary link between them, nor are they interchangeable.

In this connexion, as we have already mentioned at the beginning of this statement, we have suggested the idea of a moratorium for certain underground nuclear tests, pending the conclusion of a comprehensive agreement (ENDC/PV.224, p.10). This position of ours was based on the fact that we are a non-nuclear and non-aligned country which adheres to the principle of the immediate suspension of all nuclear tests and that we believe in the sincerity of the two major nuclear Powers when they declare that it is in their interest to close this path, still open, in the nuclear arms race.

Lastly, we rely on the degree of responsibility of the two great Powers to ensure that such a moratorium will be effectively respected pending a formal agreement.

It may be asked now whether the application of the moratorium can be associated with the concept of "verification by challenge" which has been eloquently explained by Mrs. Myrdal. Such association could, in our opinion, give to the application of the moratorium the following additional advantages:

First, "verification by challenge" would give the two sides the opportunity of applying it to a doubtful case before setting out to revoke the moratorium; this would have the effect of consolidating the moratorium itself.

Secondly, the explanations which the two Powers would have the opportunity to provide in these doubtful cases would contribute to a fruitful exchange of scientific information, which would tend to narrow the difference of views existing at the present time and would facilitate at a later stage the conclusion of a comprehensive and formal agreement on underground tests. In other words, the stage of the moratorium, which could thus be associated with "verification by challenge", would serve as a trial period for the two sides to enable them to arrive at the most appropriate system for detecting and identifying the underground tests covered by the moratorium.

Thus, in the light of the results of this trial, an agreement concerning the nuclear tests banned by the moratorium might no longer have any need of "verification by challenge". In the meantime the improvement of the techniques of detection and identification of underground events on a national basis, and the prospect of international co-operation in this field, are factors which can help to bring us nearer to the comprehensive agreement which is desired by all of us.

ENDC/PV.259 USSR/Roshchin

26.4.66

pp.31-32

We should like to point out that the position described as ours by the United States representative is a misrepresentation of our policy and position on questions of control. In this connexion I might quote our formula, which fully corresponds with the agreement that was reached in 1961 in regard to the Agreed Principles for Disarmament. Here is what we say on the question of control:

"The States parties to the Treaty solemnly undertake to carry out all disarmament measures" — I underline: all disarmament measures — "from beginning to end, under strict international control, and to ensure the implementation in their territories of all control measures set forth in parts II, III and IV of the present Treaty." (ENDC/2, p.3)

Thus the position of the Soviet Union is that we consider it essential that all measures from beginning to end should be carried out under strict international control.

On the other hand, the position of the United States in the field of control is indeed creating real obstacles to our progress in disarmament matters. Indeed, just imagine, the United States proposes at the first stage — I am taking this as an example — to reduce nuclear delivery vehicles by 30 per cent, subdividing this stage into specific phases providing for control to be carried out upon the completion of a specific phase — let us say, after nuclear weapon delivery vehicles have been reduced by 10 per cent; I repeat, 10 per cent. But in order to establish that the 10 per cent reduction had been carried out it would be necessary to inspect all armaments. And only after all armaments had been inspected would it be said whether or not the delivery vehicles had been reduced by 10 per cent. Undoubtedly this position of the United States involves a direct threat to the security of countries that would accept such a proposal.

Indeed, where is the guarantee that the following would not happen: the United States inspects all our installations, all our nuclear weapon delivery vehicles and all our strategic delivery vehicles, and then it turns out that there will not be any disarmament? Thus, if we consider the position of the United States in the field of control in a strictly logical manner, we find this position to be that control must establish the state of armed forces; that is, it would be control over armaments. Whether or not there would be disarmament after that is, of course, a very big question. The whole system and all the proposals in the field of control undoubtedly involve a threat to the security of the countries that would agree to this proposal.

Moreover, this proposal is certainly contrary to the Agreed Principles, paragraph 5 of which reads:

"All measures of general and complete disarmament should be balanced so that at no stage of the implementation of the treaty could any State or group of States gain military advantage and that security is ensured equally for all." (ENDC/5, p.2)

Of course we cannot count on our security being ensured if all our armaments are inspected and afterwards it turns out that no disarmament will follow. Of course such a system of control, in the first place control over existing armaments, is unacceptable to us; it is contrary to the Agreed Principles, contrary to the object of not creating a threat to the security of any State. I merely wish to express here the idea that the United States has represented our position in such a way that we are made out to be against control and that we only agree to control taking place when the disarmament process has been completed. That, of course, entirely misrepresents and misinterprets our proposals and our position in regard to control.

ENDC/PV.269 India/Trivedi

30.6.66

p.10

The Indian delegation believes that it is possible to reach an agreement on the lines suggested by Ambassador Khallaf. In other words, there should be in the first instance a suspension of all tests. Secondly, the super-Powers should agree to a formal treaty prohibiting underground tests above an agreed threshold — say, that of a seismic magnitude of 4.75 or 4.8. Associated with the suspension of all weapon tests and the prohibited threshold, the treaty would include a withdrawal clause of the kind suggested by Mrs. Myrdal in our Committee on 14 April (ENDC/PV.256), so as to provide for verification by challenge. Thirdly, the constructive trend set in motion at the Stockholm Conference should be strengthened and supported so that the idea put forward in the United Nations resolution could find its full scientific application. Fourthly, the scientific developments in the field of identification should be pursued vigorously so that the

agreed threshold could be lowered and eventually eliminated, converting the de facto suspension into a de jure prohibition as early as possible.

ENDC/PV.269

Mexico/Gomez Robledo

30.6.66

pp.26-27

Being anxious to help the nuclear Powers to arrive at this compromise, which is in any case necessary and cannot be deferred, the delegations of the non-aligned countries have devised various methods and procedures for observation, control and verification the common denominator of which, as was stated in the joint memorandum of 16 April 1962, is reliance on "a purely scientific and non-political basis" (ENDC/28, para.3). In this document, in fact, the possibility is indicated of establishing an international commission "consisting of a limited number of highly qualified scientists, possibly from non-aligned countries, together with the appropriate staff..." (ibid., para.4). The commission thus constituted would be charged with analysing the data provided to it by the observation posts according to the co-ordination system agreed upon; and the following was added:

"All parties to the treaty should accept the obligation to furnish the Commission with the facts necessary to establish the nature of any suspicious and significant event." (ibid.)

Lastly, and complementing that very precise obligation, there was proposed a system of consultations between the Commission and the interested party for the purpose of agreeing on the subsequent clarification measures which might be necessary and which might possibly include on-site verification.

Although the specific idea of a scientific commission has not made any progress so far, we continue to believe that the memorandum of the Eight Powers is a perfectly coherent and balanced document, since it tried to co-ordinate intelligently a number of measures directed towards the essential objective: the elucidation of the event itself. Nor did it exclude — although it did not impose it as a Diktat — on-site verification, which, after all, is merely one possible means among others of achieving the indicated objective: the elucidation of whatever was doubtful or uncertain.

It was no doubt for this reason, and because at least the spirit of that document still survives among us, that the Swedish representative was able to say (ENDC/PV.256, p.4) that this is simply an "extension" of the proposals contained therein, the procedure which she herself so aptly described as "verification by challenge". Bringing into play very subtly and perspicaciously the psychological resources of self-persuasion and the sense of honour, the Swedish proposal is designed to achieve what, according to all that we have seen up to the present, is very difficult if not impossible to attain by compulsion.

For our part we look upon that proposal with great favour and, in our opinion, not the least of its merits is certainly the highly intelligent manner in which its distinguished author has linked it to the clause dealing with denunciation of the treaty. How would it be possible, in the last resort, not to agree to verification which the previous procedures showed to be absolutely necessary, when the objecting party could this time legally withdraw from the treaty? Moreover, the denunciation clause of the Swedish proposal (ibid., p.7) is in itself much better than that contained in article IV of the Moscow Treaty; since, besides introducing the new requirement of giving three months' notice to the Security Council, which will thus have time to study the situation, it bases in fact the right of withdrawal on violation of the treaty by the other party or, as we have already said, on something which no one has questioned; the exceptio non adimpleti contractus.

In the same spirit as that which inspired the memorandum of the neutral countries

concerning scientific and international verification, my delegation put forward at the meeting of 8 March a suggestion (ENDC/PV.246, p.9) for the establishment of a list of possible inspectors comprising the names of the most eminent personalities in seismology and related sciences, who because of their recognized integrity would be above all suspicion. We added that the list could be deposited with the Secretary-General of the United Nations, so that the parties could if necessary have recourse to this select team and choose inspectors who offered them every guarantee of trustworthiness and competence. Clearly the proposal was simply intended to help to make possible voluntary and non-compulsory verification. Since we put forward our suggestion we have compared this list with the other list of possible judicial arbitrators which is deposited in the Netherlands Ministry of Foreign Affairs and constituted the Permanent Court of Arbitration, whose jurisdiction is entirely voluntary and never compulsory.

ENDC/PV.271 USSR/Roshchin

7.7.66

pp. 22, 24

The Soviet Union has stated time and again that for the prohibition of underground nuclear tests, national means of detecting and identifying underground seismic events are sufficient. I should like to stress once again that precisely national means of detection, and not international on-site inspections, are the effective key that will enable us to achieve our aim of prohibiting completely all nuclear weapon tests. Hence the Soviet Union is prepared to reach an agreement on the cessation of all underground nuclear weapon tests on the basis of the use of national means of detection for verifying the fulfilment of the commitments in respect of the cessation of underground nuclear explosions.

Unfortunately the United States and its partners in Western alliances have taken a different stand on the question of putting an end to underground tests. They have continued up to now to demand as a necessity the establishment of international control over the observance of an agreement in this regard. In making this demand the United States is creating an artificial obstacle in the way of the achievement of the agreement which we seek.

We have already stated that the Soviet Union is prepared to settle the question of the prohibition of underground nuclear tests on the basis of the proposal made by the United Arab Republic (ENDC/PV.259). We are referring to the proposal to prohibit underground nuclear explosions above a certain threshold of magnitude, and to declare a moratorium on nuclear explosions below that threshold. The proposals set forth in the Committee by the Swedish delegation merit attention. They provide for the establishment of a "detection club" and also for the right of parties to a treaty on the prohibition of underground tests to withdraw from the treaty in certain circumstances (ENDC/154). In this connexion we should like to point out that the author of these proposals, the representative of Sweden, Mrs. Myrdal, rightly considers that -

"...for purposes of detection and identification, even of underground tests — that is, for recording seismic events and for attempting to separate those indicating man-made explosions from natural earth tremors — we are going to use national observation posts and national interpretation of the data obtained" (ENDC/PV.247, p.16).

It should be pointed out that in the remarks of the United States representatives on the prohibition of underground nuclear weapon tests the desirability of an early cessation of underground tests and of the achievement of an appropriate agreement is stressed in words, but in fact the United States rejects constructive proposals prohibiting underground tests. If the United States really desires a comprehensive agreement

prohibiting all nuclear weapon tests, it must reconsider its position and agree to a solution of this question on the basis of the use of national means for the detection and identification of underground events.

ENDC/PV.271 USA/Foster

7.7.66

pp.26-31

As we all know, the reason we have not succeeded in banning underground tests after all the years of trying to do so is that there are differences concerning verification, to which the Soviet representative referred this morning. I say "verification", rather than "on-site inspection", advisedly. We do not ask for inspection for the sake of inspection. We ask for verification because we believe it essential to our security that, having concluded a treaty, we have confidence that any potential adversary is observing faithfully the same solemn undertakings affecting the development of new nuclear weapon systems as those we ourselves observe; and we would offer any potential adversary equal opportunity to verify our observance of those undertakings.

We do not seek inspection of seismic events which do not require inspection. The United States proposed, negotiated, signed and ratified a treaty (ENDC/100/Rev.1) which bans by far the most important kind of testing but provides for no on-site inspections at all. In that case, after considerable research, we concluded that on-site inspection was not necessary to verify whether the reciprocal restraints of the treaty were being observed by both sides.

Some now contend that one should not ask for on-site inspections for underground tests. While there have been generalizations about the adequacy of national systems, few seriously contend that such systems can identify every seismic event as either an earthquake or an explosion. Rather the contention is that the United States and other countries should accept the risk of cheating because the Soviet Union is prepared to do so.

However, are the situations existing in the United States and in the Soviet Union the same? The Soviet Union knows that United States underground tests in violation of a publicly-proclaimed international treaty could not be concealed from a free press in a free country. The United States has no similar assurance with regard to the Soviet Union.

The difference between the two societies in the providing of information about underground tests is evident even in the absence of a treaty banning such tests. As permitted by the limited test-ban Treaty, the United States is conducting a programme of underground tests. We have disclosed this programme to the world. One can read about it in our newspapers, and it is no secret. The Soviet Union, on the other hand, does not announce its underground tests. It is, we believe, conducting an active underground nuclear-testing programme. For example, on 29 June, about a week ago, the United States recorded seismic signals which we suspect were not caused by natural phenomena. They were from the Soviet nuclear-testing area.

We do not conclude, because of an active underground test programme which is permitted by the limited test-ban Treaty, that the Soviet Union desires to torpedo negotiation of a comprehensive test ban. That charge was made by the Soviet Union against the United States on 14 June (ENDC/PV.264, p.21) and once more this morning. However, I think the Soviet representative might confirm the existence of a Soviet testing programme if he expects others to trust the Soviet Union's representations about its own nuclear testing. In any event, I hope he will no longer speak of underground testing as an activity being conducted solely by the United States.

In an area so affecting our national security as nuclear weapon development, no one can rely solely on trust. In the period since the Second World War, nuclear weapons

have played a central role in maintaining in the world a military balance which, so far at least, has been more stable than at some other periods in history. We regret as deeply as anyone that such particularly deadly weapons have had to play that role; but we all know they have. Until our efforts can be successful, let us hope the balance will continue to be a stable one.

The United States does not propose to take risks with that balance. In any area so closely affecting our security as nuclear weapon development, we intend to move with prudence and caution. That does not mean that we oppose banning all nuclear tests, if such a ban can be verified. On the contrary, the United States has sought for many years, and continues actively to seek, a comprehensive test ban. In July 1965 President Johnson told our Committee that "a truly comprehensive test-ban Treaty" was one of the objectives he had instructed our delegation to pursue "with all the determination and wisdom they can command" (ENDC/150). As we reconvened here in January, he said that the United States:

"...persists in its belief that the perils of proliferation would be materially reduced by an extension of the limited test ban treaty to cover underground nuclear tests" (ENDC/165, p.2).

Those instructions continue to guide the United States delegation. Indeed, if we really did not want an underground ban, we could easily avoid making progress toward one by taking extreme positions on inspection and making no effort to find an acceptable compromise. But we have not insisted on perfection, and we have continually made new suggestions to ease the inspection problem.

At our 229th and 232nd meetings last summer I described the results of the extensive research the United States has carried out so that increased reliance on national systems would be possible. We have not sought inspections for seismic events which could be identified by such systems.

At our meeting of 4 April Mr. Fisher described the results of research designed to make inspections as simple as possible (ENDC/PV.254, pp.21, 22). We have found that radioactive fission-product gases will probably leak slowly towards the surface from underground nuclear explosions. Therefore we have worked out new scientific techniques for detecting, collecting and analysing those gases.

At earlier meetings my delegation has made a number of other proposals to ease the inspection problem. We have said that a country being inspected could institute all the safeguards it considered necessary to prevent inspectors from looking at sensitive defence installations, subject only to the condition that the inspection team arrive promptly at the area to be inspected (ENDC/78, p.3). Thus we have said that the receiving country could use its own aircraft and pilots to carry the inspection team. We have said that it could seal off windows to prevent the team from looking at the territory en route. We have even said that the inspected country could ask that sensitive defence installations which happened to be in the requested inspection area should not be inspected. Such installations would then not be inspected.

These proposals are hardly the work of a country which does not want a comprehensive test ban. However, they have not been enough to dispel the unfounded apprehensions of the Soviet Union. As the representative of Canada observed at our meeting on 19 April last, the Soviet Union has accomplished "great scientific feats in the exploration of outer space" (ENDC/PV.257, p.9). It has displayed daring, creative initiative and tremendous effort. Unfortunately, that has certainly not been true of its policies regarding verification to make possible arms control agreements, such as the one I have been describing. I do not say that that shows lack of interest in a comprehensive test ban. However, if we wish to bridge the gap between us, there must be some efforts on both sides. If the Soviet Union is now ready to do so, it could easily contribute to bridging that gap.

The Soviet Union has maintained that "the use of national means of detecting nuclear explosions" is "quite adequate for monitoring" a ban on all underground nuclear weapon tests (ENDC/PV.230, p.9). The United States has devoted major efforts to improving seismic detection and identification techniques, but we are unable to achieve the confidence implied by the Soviet statements. Many times in the past we have suggested that, if the Soviet Government has information on how to detect and identify all underground events by using distant instrumentation, it should supply that information to other governments. That suggestion has been met with a wall of silence.

Our sole concern today, as in the past, is to produce a comprehensive test-ban treaty which will give the world confidence that it is being observed by all parties. Accordingly, again we invite the Soviet Union and any and all delegations here to submit any data or research results which may be helpful in attaining that end.

I wish to turn now to the interesting proposals which were made here last week for dealing with underground tests. Mr. Gomez Robledo called our attention to the provisions of the April 1962 eight-nation joint memorandum on cessation of nuclear weapon tests (ENDC/28). He also renewed his suggestion for a panel of qualified scientists from non-aligned countries who would be available to assist with on-site inspections (ENDC/PV.269, p.26). In our opinion, both the joint memorandum and the additional suggestion regarding non-aligned inspectors contain helpful features. I should now like to discuss several of those features.

Paragraph 3 of the joint memorandum suggests the establishment of a system for continuous observation and effective control on a purely scientific and non-political basis. It also suggests that such a system might be built upon already-existing national networks. It recognizes that improvements could no doubt be achieved by furnishing observation posts in existing national networks with more advanced instrumentation. We believe that constructive possibilities do exist in the area of building upon existing national networks and furnishing posts with more advanced instrumentation.

The fourth paragraph of the joint memorandum raises the possibility of establishing an international commission which might process data and report on any nuclear explosion or suspicious event on the basis of thorough and objective examination of all the available data. That paragraph also refers to an "obligation" by all the parties to furnish the commission with the facts necessary to establish the nature of any suspicious and significant event.

We have long believed that an international commission suitably constituted could provide a framework which would be helpful in monitoring the observance of test-ban obligations. In the proposal of the United States and the United Kingdom (ENDC/78) of 1 April 1963 an important role was contemplated for an international commission. It was our intention to simplify the role of the commission as much as possible so as to facilitate reaching agreement on such elements as the composition of the commission. This is clearly a matter which might well be seriously considered here.

Finally, paragraph 5 of the joint memorandum provides that, if the commission cannot reach a conclusion on the nature of a significant event, it might seek clarification from the party concerned. Consultations would take place concerning measures of clarification, "including verification in loco" (ENDC/28, p.2). It is clear that such verification would be part of the obligation of each party to furnish the commission with the facts necessary to establish the nature of any unidentified event in those few cases where no other facts would suffice. Paragraph 4, which sets forth the obligation to provide the necessary facts, also says that one way of satisfying that obligation is by a visit to the territory of the country where the unidentified event took place "and/or the site of the event ..." (ibid.).

The joint memorandum, as we are all aware, does not specify any particular number or quota of on-site inspections. However, it does seem helpful in that it recognizes the

appropriateness and usefulness of such inspections.

At our meeting last Thursday, 30 June, Mr. Gomez Robledo also renewed the Mexican delegations's suggestion that a panel of qualified experts from non-aligned countries could be available to assist in on-site inspection (ENDC/PV.269, p.26). The Anglo-American memorandum of 1 April 1963 stated that an inspection team could consist partly of persons from the international staff of the commission and partly of persons from the nuclear-weapon State desiring the inspection. That would provide effective participation by both. There is, of course, a definite relationship between the extent to which reliance is placed on adversary, or reciprocal, inspection and the extent to which inspection procedures and commission regulations can be simplified. Clearly, if adversary, or reciprocal, inspection forms a major element, a nuclear side requesting an inspection may be more willing to accept simplified procedures.

I should like now to make some brief comments on the statement of the representative of India at our meeting of 30 June. He proposed that, in the first instance, there be a suspension of all tests (ibid., p.25). Since no inspection procedures were suggested for that initial suspension, we suppose that it means an unverified moratorium on all tests that cannot be verified by existing means. We oppose such a moratorium because of our unwillingness to accept on trust the observance by others of restrictions which significantly affect our security.

Mr. Trivedi also renewed recommendations for international co-operation in the field of exchanging seismological data, recommendations which are quite similar to those given unanimous voice by the eight in their joint memoranda of 14 September 1964 (ENDC/145) and 15 September 1965 (ENDC/159). Recommendations of that sort have had our strong support.

Whether or not the United States agrees with every suggestion put forth, it does nevertheless welcome all serious proposals designed to advance our negotiations. Non-aligned delegations clearly have made proposals of such a character in the important area of reaching agreement on a comprehensive test ban. My delegation has also attempted to advance our work by describing the results of extensive research in the field of seismology and by suggesting simplified inspection procedures (ENDC/PV.254).

ENDC/PV.272 Canada/Burns

12.7.66

p.7

The Canadian delegation has those suggestions under continuing study and may have further comments to offer at a later date. At this stage, however, I should like to make several remarks concerning the Swedish proposal on verification by challenge put forward by Mrs. Myrdal on 10 March (ENDC/PV.247) and elaborated at the meeting of 14 April (ENDC/PV.256). The representative of Sweden has clarified a number of previously hazy concepts which we have had in mind from time to time and has sorted them out into a coherent pattern which should provide a useful basis for discussion. It does seem to us that any comprehensive treaty will have to contain a step-by-step approach in cases where events require clarification, so that many potential conflicts might be resolved at an early stage in the process. We also agree that a treaty on underground tests should be a separate document from the existing partial test-ban Treaty of 1963 (ENDC/100/Rev.1). I am sure we all recognize that a treaty prohibiting underground tests might be less stable than the partial ban and that the latter must not be weakened by events not directly related to it.

There may be some problems to overcome in such an approach, as our Swedish colleague will doubtless agree. We feel, however, that that pattern could ultimately form the initial steps of a verification system in a test-ban treaty. In this connexion we have noted Mrs. Myrdal's explanation that verification by challenge is not presented as

an alternative to on-site inspection. As Mrs. Myrdal said: "It" — that is, verification by challenge — "does not per se raise any demands for inspections, but neither does it exclude them." (ENDC/PV.256, p.4). On that basis, there seems to the Canadian delegation no reason why we should not pursue discussion of that concept, develop it, modify it as required and work it into the framework of an eventual underground test-ban treaty.

ENDC/PV.272 Czechoslovakia/Cernik 12.7.66 pp.15-16

There is no doubt that such a situation emphasizes the urgency of the demand for the prohibition of underground explosions as well. Moreover, it must be stressed that a solution of this problem does not encounter any objective obstacles. The carrying out of underground tests could be banned immediately, on the same basis as that on which the Moscow Treaty was signed. The only obstacle continues to be the obstinacy of the United States, which demands on-site inspection, basing this demand on the assertion that without such inspection the prohibition of underground tests would threaten the security of the United States.

But such an assertion does not stand up to criticism. First of all, the present level of scientific and technological knowledge makes it possible to exercise reliable control over the prohibition of underground tests by the use of national means of detection. To this must be added a number of other facts. It is obvious that if an agreement on the prohibition of underground tests were concluded, it would correspond to the interests of all the signatory States. Therefore all States would be interested in its implementation and would refrain from anything that might serve any government as a pretext for withdrawing from the treaty.

It must also be borne in mind that the risk involved in a possible secret attempt to bypass the treaty would be absolutely disproportionate to the results that could be expected from it. Even if, for the sake of argument, one were to admit the possibility of the secret carrying-out of an individual underground explosion, it is obvious that such an isolated test would have no practical significance and could not threaten the security of any party to the treaty. Only a series of tests could have more real importance. But such a series cannot be concealed. Moreover, the extremely serious international consequences for any State of the detection of an attempt to violate the treaty secretly would be an effective deterrent against such attempts.

In these circumstances the continuing insistence on on-site inspection is obviously meant to justify the unwillingness of the United States to take a political decision in principle on the question of prohibiting all nuclear tests. The crux of the matter is that the United States intends to continue improving nuclear weapons, and the complete prohibition of tests would hinder implementation of the United States programme. The validity of this conclusion is confirmed both by the large number of underground tests carried out by the United States in recent years and by reports that in the United States a large-scale programme of underground tests, to be carried out over the next few years, has been worked out and approved.

ENDC/PV.277 USA/Fisher 28.7.66 pp.4-6

For the past few meetings we have been discussing a non-proliferation agreement. While, according to the order of work adopted at our 272nd meeting, the present meeting is to be devoted to the discussion of other collateral measures, I should like to continue briefly to discuss one aspect of non-proliferation and to talk today about the

subject of safeguards over nuclear materials and the important role they play in preventing proliferation. I should like to do so because of the importance my Government attaches to securing the widest application of a workable system of safeguards over peaceful nuclear activities, both through a non-proliferation treaty and through efforts outside it.

The position of the United States was stated clearly by President Johnson in his message to this Conference on 27 January, when he said:

"...through a non-proliferation treaty and through efforts outside such a treaty, we must continue to secure application of International Atomic Energy Agency or equivalent international safeguards over peaceful nuclear activities." (ENDC/165, p.2)

I should like at this time to indicate what actions the United States believes must be taken in order to establish a system of international safeguards which will be truly effective in preventing the proliferation of nuclear weapons. Such a system will of course involve an undertaking by all to co-operate actively in facilitating the application of International Atomic Energy Agency (IAEA) safeguards or equivalent international safeguards to all peaceful nuclear activities.

To be somewhat more specific, such a system will involve an undertaking by the non-nuclear-weapon States to accept IAEA safeguards or equivalent international safeguards on all their peaceful activities. It will also involve an undertaking by all States not to provide source or fissionable material, or specialized equipment or non-nuclear material for processing or use of source or fissionable material or for the production of fissionable material, to any other State for peaceful purposes unless such material and equipment are subject to IAEA or equivalent international safeguards. That obligation should apply to the peaceful programmes of all States, whether they be nuclear-weapon States or non-nuclear-weapon States.

In arriving at a decision to recommend such a system of safeguards — one which is not only effective but workable — the United States examined a variety of possibilities. The first and perhaps the most obvious was a safeguard system which would apply to all peaceful activities of all States, those with weapon programmes as well as those without. That would have the virtue of an apparent balance; the system would apply to all States alike.

But the application of a system of safeguards to all the peaceful activities of existing nuclear-weapon Powers would involve a tremendous strain on the safeguard system. A strict inspection of the peaceful nuclear activities of existing nuclear-weapon Powers when there is no restriction on their increasing their large nuclear stockpiles might well be described as straining at gnats while swallowing camels. It flies in the face of logic to argue that such a solution is essential to the objectives of non-proliferation. That type of inspection would become relevant when we have followed a non-proliferation treaty with other measures which would prevent the nuclear-weapon Powers from increasing their stockpiles.

Another possibility was to apply safeguards to the peaceful activities of the non-nuclear-weapon Powers alone. While that might appear to follow logically from a rejection of the first alternative which I have described, it would contain certain elements of partiality to which the non-nuclear-weapon Powers have objected.

We may well differ with the evaluation of the burdens of international safeguards that underlies that objection. Two nuclear-weapon States, the United States and the United Kingdom, and many other States do not believe those international safeguards to be burdensome, and they have backed that conviction with action. They have submitted portions of their own peaceful programmes to international safeguards and have found these quite workable. Yet one cannot avoid taking into account the possible objections to a system of safeguards which by its terms applies solely to non-nuclear-weapon

powers.

In the view of the United States, the proper solution must be found between those two alternatives. It is for that reason that the United States is recommending a solution which involves the system of safeguards which I described earlier in my remarks. This is a solution which will provide adequate assurance that the provisions of a non-proliferation treaty are being carried out. It is a solution that would be truly workable in that its inspection provisions would not be so extensive as to be beyond the practical capabilities of the international safeguard system; nor would it be directed in large part to areas not related to non-proliferation. It would at the same time avoid discrimination against the non-nuclear-weapon Powers in the area where they might properly feel it most keenly: that is, the area of international commerce.

That solution, as I have indicated earlier in my remarks, would involve a system under which the non-nuclear-weapon States undertook to accept IAEA or equivalent international safeguards on all their peaceful activities. Such international safeguards would effectively provide clear evidence to the non-nuclear-weapon States that other non-nuclear-weapon States were not developing nuclear weapons under the guise of peaceful application of nuclear energy. Such reassurance would of course be essential to the continuing stability of the non-proliferation treaty and the permanent realization of its objectives.

The solution, as I have previously pointed out, also involves a system under which parties to the treaty would undertake not to provide source or fissionable material, or specialized equipment or non-nuclear material for processing or use of source or fissionable material or for the production of fissionable material, to any other State for peaceful purposes unless such material and equipment were subject to IAEA or equivalent international safeguards. I should like to emphasize again that this obligation should apply to the peaceful programmes of all States, whether they be nuclear-weapon States or non-nuclear-weapon States. Thus, in the transfer of such materials and equipment between States for peaceful purposes, all States would be treated alike.

The undertakings in the safeguard system I have described represent a balance of conflicting values. They represent a compromise, a balance of interests. Adjustment and balance of interest are essential to all negotiation. We are seeking realizable solutions which will be recognized as equitable by all participants and which will at the same time help us stop nuclear proliferation. However, in arriving at that balance we must always keep in mind the importance of our objective.

ENDC/PV.277 Burma/U Maung Maung

28.7.66

pp.13-14

An interesting suggestion submitted by the delegation of the United Arab Republic (ENDC/PV.224, pp.9, 10) calls for the extension of the Moscow Treaty to cover events above a seismic magnitude of 4.75, this to be coupled with a voluntary moratorium on all tests, pending agreement on a comprehensive test-ban treaty. A later suggestion by the delegation of the United Arab Republic (ENDC/PV.259, pp.29, 30), supplementary to that proposal, calls for the application of the Swedish proposal for "verification by challenge" (ENDC/PV.247, pp.16 *et seq.*; PV.256, pp.4 *et seq.*; ENDC/154) to the voluntary test suspension, which should remove the taint of an unconditional moratorium which is considered unacceptable by one side. The suggestion made by Mrs. Myrdal, the representative of Sweden, for concluding a treaty on underground tests on the basis of the concept of "verification by challenge" should be an acceptable compromise on verification, as it attempts to find a middle ground between the positions of the United States and the Soviet Union.

The idea embodied in the formula submitted by the representative of Sweden is that

any party or parties to the treaty, in the case of a suspicious event, could challenge the responsible party or parties in a step-by-step process of challenge and response which, albeit non-obligatory, does not exclude an invitation to carry out inspection. Together with the withdrawal clause stipulating the right of withdrawal by any party to the treaty if its demands for explanations are not adequately met, that provides a juridical assurance that should meet the recognized need for adequate verification.

We feel also that the Swedish idea of a "detection club" (ENDC/154), which calls for a free international exchange of seismological data and of observations on seismological recordings, could be utilized so that the "club" could act as an informal international court of opinion, which is an essential prerequisite to the concept of inspection by challenge, with particular reference to assessing unidentified seismic events.

We believe that our objective is to find an acceptable formula so that we can achieve a formal agreement to ban all underground tests. However, if for the time being this is not possible, then we should explore the idea of an agreement prohibiting underground tests above a certain threshold, coupled with the suspension of all underground tests, to which the "verification by challenge" concept could be applied. The operation of such an interim arrangement should build up the mutual confidence required; and this, together with further improvements in detection and identification methods, should assure all parties of the practical feasibility of completely banning nuclear-weapon tests in all media under adequate verification arrangements.

ENDC/PV.279 UK/Lord Chalfont

4.8.66

p.15

If I might make a suggestion in respect of a difficulty which Mrs. Myrdal herself has recognized, it is that we should avoid the use of the phrase "verification by challenge" because of its rather hostile overtones. I might suggest that "verification by consent" would be a suitable substitute.

My delegation believes that it would be well worthwhile to pursue and examine those ideas further, in the hope that eventually we may be able to work out a compromise proposal acceptable to all parties. I think we must face one difficulty quite clearly: it is that such a formulation by itself would not provide the same degree of assurance that the treaty was being observed by all parties as would a treaty incorporating the right to even a very small number of on-site inspections. With provision for inspection as of right, refusal to allow an inspection would show up as a guilty party the government which refused. No government would lightly contemplate being put in such a position. However, under formulations of the kind suggested at Scarborough, and of the kind I have outlined this morning, the dialogue which I have been discussing might never even begin if one of the governments concerned refused to co-operate in it.

It seems to my delegation that it would be of considerable help to this Conference if the representative of the Soviet Union would give some indication of the circumstances in which his Government would be prepared to take part in a dialogue of the kind I have outlined this morning. Unless we have some idea of what Soviet policy might be in such circumstances, it will be difficult, if not impossible, to develop these ideas any further.

Before concluding, I should like to remark briefly on another subject. In his speech of 26 July (ENDC/PV.276) the representative of the United States suggested certain modifications to article III of the United States draft non-proliferation treaty (ENDC/152 and Add.1). They were designed to strengthen the safeguard provisions of that treaty. Her Majesty's Government has already shown that it is very ready to co-operate with and assist the International Atomic Energy Agency in its work. We believe that the extension of international safeguards has a vital part to play in the field of non-

proliferation. My delegation welcomes that constructive contribution to our consideration of this question. We shall be giving those interesting United States suggestions careful study and shall make our considered comments in due course. I sincerely hope that other Governments represented here will do the same.

ENDC/PV.281 Sweden/Myrdal

11.8.66

pp.5-8

The most intricate problems to tackle refer here, as always, to verification. Fortunately, in regard to the measure of a cut-off we have an agreed foundation to start from: the International Atomic Energy Agency (IAEA) safeguards, to the usefulness of which we know both sides subscribe. They belong to a living system, one being continuously extended, to which the verification needs in connexion with a cut-off agreement, which evidently would have to be applied in a more obligatory fashion, could be linked. Difficulties relating to the pace of extension ought not to be insurmountable.

In this connexion it is interesting to review the suggestions made by the representative of the United States, Mr. Fisher, at our 277th meeting, although they were tied to negotiations for a non-proliferation rather than a cut-off treaty, thus aiming at stopping the ominous production of fissionable materials for weapons in countries which have not started it but not in those which have. We realize how important is the offer that the nuclear-weapon Powers also submit to control of their trade in nuclear material for peaceful purposes, an offer which I know has already been put into practice in some recently-concluded agreements for co-operation on civil uses of atomic energy. It certainly must be a burden involving considerable inconvenience to the great Powers. On the other hand, of course, it does not contribute to any curtailment, still less to any reversal, of the present arms race. Therefore allow me to point out how greatly an international agreement to cut off production for weapon purposes would simplify the situation, as there would then exist no activities to shield from control.

In order to be quite realistic, I believe, we should discuss a time-table for the entry into force of various types of obligations, taking into account the necessity for a gradual phasing-out plan, as I have just mentioned, but taking into account also what has been called the "balance of mutual responsibilities and obligations", (A/RES/2028(XX); ENDC/161) which the non-nuclear-weapon States are interested to see observed. I could well imagine that a reasonable and equitable plan for introducing controls, entailing a series of steps which might follow one another at predetermined but rather protracted intervals, would amount to something like the following: first, controls on all transfers of source or special fissionable materials and principal nuclear facilities between all countries and for all purposes; secondly, control extended also to all new facilities, including not least those capable of producing weapon-grade materials, again in all countries; thirdly and finally, control also of already-existing production facilities.

That is a suggestion which I hope will be seriously examined. It is offered in a desire to be helpful. My Government, as well as others, I am sure, will keep an open mind also for other possible modalities which might grow out of our continued negotiations. Let me simply point out that the first step is very similar to one part of Mr. Fisher's recent proposal envisaging —

"...an undertaking by all States not to provide source or fissionable material, or specialized equipment or non-nuclear material for processing or use of source or fissionable material or for the production of fissionable material, to any other State ... unless such material and equipment are subject to IAEA or equivalent international safeguards" (ENDC/PV.277, pp.4, 5).

The main difference lies in the dots representing three words which I omitted from the quotation: "for peaceful purposes". We would say "for all purposes". The alteration is self-explanatory: Mr. Fisher's formula refers to the situation of today, when production for weapon purposes is not forbidden; mine to a situation when a cut-off treaty would make such production non-existent.

On this subject I might raise a few additional points, although they refer more to details than to the general merit of an agreement.

One is a question, again directed to the United States proposals just mentioned, concerning a control system which might rely either on the IAEA or on, as it was put, equivalent international safeguards. My question is: what safeguards can really be considered equivalent? If that is meant to refer to various kinds of bilateral arrangements or regional systems, my delegation must beg to differ.

We have to be more stringent when looking to a future when the cut-off of fissionable material production for weapon purposes should be fully implemented. From a less technical and more political point of view, we — and, I believe, also other nations that are outsiders — could hardly accept verification which takes place inside a closed system as being "equivalent" to IAEA safeguards, at least if there could not be established some adequate co-operative arrangements for verification purposes between the IAEA and the so-called "equivalent" system. By "international safeguards" we must mean a system open to the observance of all of us. Only a system under such public, international control can really satisfy all the signatories to a treaty.

As a second observation, I should like to touch briefly on the point made by Mr. Fisher at our last meeting (ENDC/PV.280, pp.13 et seq.): that not only explosions for weapon testing but all nuclear test explosions should be prohibited. If a test ban, made truly comprehensive in that way, were combined with a cut-off agreement, there would be no new explosives to use even for such peaceful projects as may become permitted under international control. Thus any such undertakings would have to utilize fissionable material already manufactured, thus reducing the stockpiles already produced for weapon purposes.

The third of my marginal comments refers to the fact that if one such agreement is reached it will have beneficial effects also in other directions. Thus a cut-off treaty with control of all transfers from as well as to signatories would to a certain extent hamper independent production even in countries which had not signed the treaty. An example of such indirect effects relates to the application of the Moscow Treaty, if a rigid interpretation is given in Article I(2), which prohibits participation in any way, even indirectly, in testing by another party. The article states:

"Each of the Parties to this Treaty undertakes furthermore to refrain from causing, encouraging, or in any way participating in, the carrying out of any nuclear weapon test explosion, or any other nuclear explosion, anywhere which would take place in any of the environments described ..." (ENDC/100/Rev.1, p.2).

As is well known, the conducting of tests is a large enterprise, involving various kinds of research and development preparation, logistic support and, what is most important in the present connexion, also supplies of fissionable materials. If the obligations of the Moscow Treaty are scrupulously applied, it can make the conducting of tests by other nations more difficult, the development work more time-consuming, and the whole activity more expensive. If that is a potential effect of the Moscow agreement, it is unquestionably true that a cut-off treaty with verification procedures of the kind I have indicated would have far stronger and more universal effects.

My fourth and final observation on matters of detail is parallel to one I made in my recent statement referring to the test ban: that, generally speaking, the verification requirements seem to undergo an evolution towards attenuation (ENDC/PV.279, p.7).

The IAEA system itself is being reformed so as to be less complicated and cumbersome. The working papers on the matter of control of fissionable material which have been presented by the United Kingdom (ENDC/60) and the United States (ENDC/134, 174) have also moved the requirements in the direction of making verification more automatic and less intrusive. That nourishes our hope that agreement to stop further production of fissionable materials for weapon purposes will soon be feasible.

ENDC/PV.286 USSR/Roshchin

25.8.66

p.9

The Soviet Union, as we have already stated, is prepared to reach agreement on the prohibition of underground nuclear tests on the basis of the proposal of the United Arab Republic to prohibit the carrying out of underground tests above a certain threshold and the proclamation of a moratorium on tests of lesser magnitude (ENDC/PV.259, pp.27 et seq.). On this basis it would long ago have been possible to put an end to underground tests of nuclear weapons if the other side had been willing to do so. But the representatives of the Western Powers in the Committee do not wish to take this proposal of the United Arab Republic into account. We are also prepared to consider positively the question of international co-operation in exchanging seismological data with a view to creating a better basis for the assessment of seismic events, provided that by this means it will be possible to arrive at the conclusion of a treaty banning underground nuclear explosions.

We are convinced that the problem of banning underground tests will be solved if the United States of America gives priority to its solution over the military considerations and plans which at present predominate in its attitude towards the question of such tests. That is why, in answer to the calls which have been made in the Committee for a study by scientific experts of the problem of detecting and identifying seismic events, we wish to emphasize that the delay in solving the question of banning underground tests is due not to reasons of a scientific nature but to the political and military considerations of the United States.

Our position of principle is that no international inspection is needed in order to verify the observance of an agreement to discontinue underground nuclear tests. The proposal to exercise control over the banning of such tests on the basis of "inspection by challenge or invitation" is absolutely unacceptable to the Soviet Union, as it is aimed at pushing through in a disguised form the idea of international inspections.

ENDC/PV.287 Mexico/Garcia Robles

21.2.67

pp.26-27

68. Concerning organization: "In order to ensure compliance with the obligations" of the Treaty, Articles 7 to 11 provide for the establishment of a Latin-American autonomous organization to be known as the "Agency for the Prohibition of Nuclear Weapons in Latin America". The Agency's headquarters will be in Mexico City and it will have three principal organs: the General Conference, the supreme organ, which will hold regular sessions every two years and may also hold special sessions whenever the Treaty so provides or the circumstances so require; the Council, composed of five members elected by the General Conference; and the Secretariat, headed by the General Secretary, who, like the rest of the staff, will have an exclusively international position.

69. For the purpose of verifying compliance with the obligations entered into under the Treaty, Article 12 establishes a control system which is defined at length in Articles 13 to 18. In the system's application a pre-eminent role is assigned to the International

Atomic Energy Agency and its system of safeguards. Provision is also made for the submission of periodic and special reports by the Contracting Parties for special inspections in certain events, and for the transmission of reports on the results to the Security Council and the General Assembly of the United Nations.

ENDC/PV.289 Bulgaria/Christov 28.2.67 p.14

41. We believe that, in accordance with the General Assembly resolution which stresses the importance of seismology, and bearing in mind also the actual scientific realities relating to national means of detection and verification that are available to States, the Committee has at its disposal all the necessary elements for reaching an agreement on the banning of underground nuclear tests on the basis of control carried out by national means.

ENDC/PV.293 Brazil/Azeredo da Silveira 14.3.67 p.15

35. Brazil is fully and unequivocally committed to banning nuclear weapons in its territory. At the same time, Brazil maintains with no less firmness its right to use nuclear energy for peaceful purposes, in particular for its economic development and social progress. These two stands are embodied in the Latin American Treaty, the relevant provisions of which spell out in detail the obligations of the contracting parties with respect to the first, and explicitly acknowledge the latter. The determination of the countries of Latin America that nothing in the Treaty shall prejudice their right, as contracting parties, to use nuclear energy for peaceful purposes is expressed in article 17; by the same token, article 18 permits the contracting parties to the Treaty to carry out explosions of nuclear devices for peaceful purposes — including explosions which involve devices similar to those used in nuclear weapons — or to collaborate with third parties for the same purpose.

36. As representatives know, this permission is accorded subject to a thorough system of control; article 18 itself and other provisions of the Treaty, particularly articles 1 and 5, establish the conditions to be fulfilled by the contracting parties to carry out such explosions, and stipulate elaborate procedures which include advance notification to the Agency for the Prohibition of Nuclear Weapons in Latin America and the International Atomic Energy Agency; supply of detailed information on the planned explosion; and physical observation of the preparations and of the explosion itself by those two agencies in order to ascertain whether the device and the procedures followed during the explosion are in conformity with the Treaty.

37. As we have seen, the Treaty draws a clear-cut distinction between peaceful nuclear explosions and explosions for nuclear-weapon purposes. It leaves no room for confusion between one and the other. Peaceful nuclear explosions clearly pertain to the domain of nuclear technology for pursuits of peace, and to this extent are of interest to both developing countries and non-nuclear countries.

ENDC/PV.294 UAR/Khallaf 16.3.67 pp.7, 11

(b) The treaty must contain provisions clearly stipulating compulsory and uniform application of the single system of safeguards of the International Atomic Energy Agency to all non-nuclear States parties to the treaty. Moreover, the control system must be extended to the transfer of nuclear

material and to all nuclear activities, past and present.

15. In such a treaty the only inspection system acceptable in this respect is compulsory and not voluntary, international and not regional, effective and not fictitious.

(c) In order that the treaty may achieve a real advance over the present situation in a field so dangerous to peace, it must constitute an effective and permanent brake on the dissemination of nuclear weapons.

16. That is why we support the principle of the indefinite duration of the treaty. However, that principle will be weakened if each party is allowed discretionary and too absolute power to withdraw from the treaty if it considers that its higher interests are threatened. In our view repudiation of such a treaty must depend on a non-fulfilment of its obligations agreed on by either nuclear or non-nuclear contracting Powers, or on an act of dissemination committed by a third party.

17. Furthermore, the treaty must provide that any case of violation shall be referred to the competent organs of the United Nations, which is held to be responsible for international peace and security.

18. Provisions which took account of all these considerations would represent a considerable advance over the present situation because they would contribute to the stability of the treaty and obviate any facile temptation to set the world going along the disastrous path of the nuclear arms race through a rash and irresponsible act by any State. Such an act might well set off a chain reaction in many other States, thus inciting them to free themselves in their turn from the treaty even if perhaps they did not wish to do so. There would then be a political escalation towards successive nuclear claims which might profoundly affect the treaty.

32. In regard to the use of nuclear explosives for peaceful purposes, the delegation of the United Arab Republic proposes that this question be settled in the following manner. The non-proliferation treaty must —

(a) Empower the International Atomic Energy Agency to deal with this question in order to ensure, under its control and on a non-discriminatory and objective basis, the use of nuclear explosives for the development of the non-nuclear States;

(b) Require the nuclear States to supply these explosives without political conditions to non-nuclear States which request them and to do so through the Vienna Agency.

ENDC/PV.295 Burma/U Maung Maung

21.3.67

pp.22-23

63. There should be no impediment to obtaining nuclear technology for really peaceful purposes as more advanced technological progress is achieved. Arrangements for making such knowledge available should be truly international — that is, freely and easily accessible to all nations. It may not be practicable to embody specific guarantees concerning such arrangements in the non-proliferation treaty; but the relevant provisions should be formulated in such a way as to give confidence to all nations in this matter. It would be appropriate to ensure that industrial and commercial interests of non-nuclear weapon countries do not suffer as a result of their renunciation of nuclear weapons. If in the future a technological breakthrough of great dimensions is achieved which might necessitate revision of the provisions of the treaty on non-proliferation, one would expect that such revision would follow as a matter of course.

64. I should like to say a word now about the control system to ensure compliance with the obligations of the treaty. This is related to principle (d) of resolution 2028(XX). My delegation fully shares the view that the control system for a multilateral international

treaty, such as the non-proliferation treaty, must be truly multilateral and international, and that its application should be uniform and compulsory for all non-nuclear States parties to the treaty. It is our firm belief that inspections conducted for the efficient application of the treaty by organs or agencies other than the International Atomic Energy Agency would seriously undermine the treaty. We understand that satisfactory inspections could be conducted without infringing the secrecy of commercial processes.

65. For my delegation this preoccupation with secrecy and restrictive practices, especially in the field of the peaceful application of nuclear energy, is a matter for serious concern. Our belief may be briefly set out in the following way. Since the advent of nuclear weapons the aim of all human endeavour should be not only to prevent those weapons from being used by nations against nations, but also to tame this immense power of destruction. Steps to internationalize this great technology and direct it towards peaceful purposes only are to us the greatest political challenge in the history of mankind, equalled only by efforts to establish an international order that would eliminate war. Therefore insistence on the monopoly of nuclear technology and knowledge, such as is suggested by resistance to international inspection, is as much an element of destruction as its use for warfare.

ENDC/PV.300 Sweden/Myrdal

30.5.67

pp.7-11

13. Many bilateral arrangements recently have been or are in the process of being replaced by International Atomic Energy Agency (IAEA) safeguards, thus providing in effect a certain amount of streamlining. This by the way refers to my country, as the Swedish Government has expressed itself in favour of placing all its present nuclear activities — those hitherto governed by bilateral safeguards agreements and those hitherto not covered — under IAEA control. The increasing use of IAEA safeguards is an important element when it comes to choosing the method of control, because it should be beyond discussion that the application of one system of safeguards to the activities of all countries would be the perfect solution. The interests of disarmament and, at the same time, fair and equal opportunities would thus be simultaneously protected.

14. When the control measures for a treaty on non-proliferation are to be prescribed one must bear in mind at least three very different situations which might entail rather stark imperfections — as some of them already do. This of course amounts to saying that we are confronted with at least three types of challenges to be surmounted. The most dangerous and intractable one is, of course, that of non-signatory States, where there is a latent risk that they might turn towards nuclear-weapon production and a probably more definite risk that they would profit in the commercial field by not being tied to common rules. A second category is that of nuclear-weapon States, which would, if not bound by the same obligations as others, evidently be free not to participate in the disarmament undertaking and also left to continue only voluntarily to apply safeguard rules to their exports. The third situation is met with in regard to closed regional should continue to consist of inspection by themselves of the peaceful nuclear activities within their countries and if the universal system of control obligations should not be specifically prescribed for their exports. Since each of these groups comprises the technologically and commercially strongest nations in regard to nuclear activities, the problems confronting us are of no small dimensions.

15. The emphasis has here been on control through a safeguard system. In addition, however, supplier nations in the nuclear field have applied a variety of policies in order to diminish the consequences of possible non-compliance with agreed obligations. Stipulations as to a first option for buying back surplus plutonium produced with fuel supplied, and further, requests for specifications of any project involved before a fuel

delivery is approved, and reservations as to approval beforehand of any resale of fuel supplied and equipment to third countries are some examples of these policies.

16. It seems reasonable to assume that these policies will continue as part of the trade treaty structure even after a non-proliferation treaty has been signed. But after the conclusion of a treaty, with its general prohibition of the use of nuclear material for weapons production and its special control rules, the need for rigidity in applying rules of this other kind would decrease.

17. The question of safeguards should, of course, not be confused with this question of other restrictive policies by supplier nations. The fears of commercial discrimination under a non-proliferation treaty expressed in the public debate seem to a large extent to have been connected with these policies rather than with the question of safeguards as such. On the other hand, it must be admitted that the present confused situation with regard to various safeguards systems may also be detrimental to trade in the nuclear field. In fact, commercial policy-makers now appear to be postponing further action in the hope that the Committee will provide a streamlined framework for international safeguards by using the agency set up inter alia for this purpose, the International Atomic Energy Agency.

18. When arriving at the stage where we should be formulating the principles on controls, the work must be governed by four criteria: effectiveness of coverage, credibility of safeguards; balance of obligations and commercial equity. I shall deal briefly with some alternatives of control formulae, trying to show how these criteria would work out in practice. I should have liked to do this in the tabular form or graphic form, but I have had to do it in words, although it is quite complicated. There is indeed a wide difference in value and hence in acceptability between the top and the bottom in such a list of formulae of decreasing ambition.

(1) The most effective and the most balanced solution would be a universal and obligatory submission to safeguards of all nuclear industry of all parties to a treaty and of all transfers of nuclear material, principal nuclear facilities and certain specialized equipment for all purposes from, to and between all parties.

19. The effectiveness of the measure where accepted is striking. It would mean a real cut-off, thus showing the interrelation existing between horizontal and vertical proliferation and also the inherent value of safeguards as a tool for disarmament. This formula would further assure equity in relation to industrial development and commercial opportunities. The only remaining inequity would be caused by the existence of non-signatories. However, they also would have to accept some control, unless they preferred completely to avoid imports from the treaty area.

(2) A second but weaker formula would be the compulsory submission to safeguards of all peaceful nuclear activities — I stress: only the peaceful activities — of all parties and of all transfers from, to and between all parties.

20. This formula of control would mean a complete stop to all horizontal proliferation, including additions from abroad to nuclear weapon Powers. Their weapon manufacture would be isolated from foreign supply and from any connexion with peaceful activities. The formula would, however, have no disarmament effect on the independent production of nuclear weapons among those countries which engage in such production. Balance would be achieved as far as the controls are concerned with the exception — which I have just mentioned — of military activities. The formula would assure complete commercial equity except in relation to transfers to non-signatories in cases of competition between a signatory and a non-signatory State. That would of course constitute a serious disadvantage.

(3) If in a third example the specific provision for safeguards on all

peaceful nuclear activities within the nuclear-weapon countries is dropped from this last formula, controls will still remain on all their activities relying on foreign supplies because all transfers will be controlled. The complete stop for all horizontal proliferation will, as in the previous alternative, remain unchanged. A not inconsiderable amount of imbalance would however be introduced, creating in addition to the imbalance in relation to disarmament also the possibility of discrimination in regard to commercial markets within the nuclear weapon States between domestic and foreign suppliers. In addition, the deficiencies in regard to non-signatories would remain as in earlier examples.

(4) I now come to possibility No. 4. At our meeting on 11 August 1966 my delegation proposed -- as the earliest and easiest step on an agreed three-rung ladder towards a cut-off agreement -- the application of safeguards initially simplified so as to cover, not all activities within countries, but all transfers for all purposes between all States (ENDC/PV.281, pp.5-6). We continue to regard that as an important and urgent measure, but would, it goes without saying, prefer those mentioned earlier. This later formula, of course, enters as an element in all of them. It is in a way a balanced measure, but is clearly somewhat deficient in effectiveness with regard to disarmament. It would leave only partly covered some States which are self-supporting both in uranium and in nuclear technology. That same effect on the nuclear weapon States was already accounted for in my formula No. 3. But it would strike at and stop all foreign supply for co-operation in the manufacture of nuclear weapons.

21. Any limitation of this measure to transfers for peaceful activities only cannot be accepted, as it would provide an opportunity for unsound discrimination within the market of countries producing nuclear weapons. A nuclear-weapon country could then assign any project as a military one, thus avoiding controls on it.

(5) The current debate has also provided us with some completely unbalanced formulae -- for instance the one whereby safeguards would be applied to all peaceful nuclear activities of non-nuclear weapon States only, and to all transfers to those States only. Such a formula is very unsatisfactory. It is unbalanced in all respects. From a commercial point of view it does not even fit the actual situation in the world, where many important suppliers request safeguards also on exports to nuclear weapon States. Whether safeguards on such transfers are stipulated in a treaty or not, suppliers who want to avoid any military utilization of their products would of course be free to continue, voluntarily and unilaterally, to request safeguards on those transfers, or use other prohibitory policies including safeguards on the sale of natural uranium to States producing nuclear weapons. But that policy will probably put them in an awkward position of commercial discrimination, making precisely those States which are the most ambitious in terms of disarmament also the most discriminated against commercially.

(6) Finally, we must complete the list of alternatives by mentioning the zero formula: no safeguards clause at all. If recourse were had to that solution as the outcome of the work of the Eighteen-Nation Committee on Disarmament on a non-proliferation treaty the credibility of adherence to the treaty would be severely damaged. In addition, such a treaty would then inherit the present complicated structure of control systems with all the risks for commercial compromise and discrimination at the expense of

disarmament interests and with inequities between countries which would become more glaring as technological and industrial development proceeds in the nuclear field. We hope that such will not be the outcome of our endeavours.

22. Thus reviewing the existing situation and the various possibilities to satisfy the demands, first of disarmament, but also of equity and balance between nations in regard to prospects of development in the nuclear energy field, we can only come to the conclusion that a very strong code of ethics, applicable to all States, has to be built into the control clause of a non-proliferation treaty. Such a reliable and durable system of control has to be implemented through one single safeguard system, universally accepted and universally applicable, as is that of the International Atomic Energy Agency. I have, however, already argued for some leeway in regard to time-limited transitional arrangements. But the sooner the International Atomic Energy Agency is given the over-all responsibility for verification the better — both for the sake of equity and, first and foremost, for the sake of credibility of non-proliferation pledges.

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13. There are two features about these joint proposals — cut-off and reconversion, or cut-off and transfer — which the Canadian delegation finds particularly attractive, apart from their intrinsic value as arms control measures.

14. First, the rest of the world would benefit from the distribution of a large quantity of reconverted highly enriched uranium. Canada has had a certain amount of experience in the field of assistance to developing countries, including assistance in the civil nuclear field. We are therefore aware of the benefits which nuclear energy can bring in the sphere of economic and social development.

15. Secondly, the verification procedures which have been worked out by the United States for initiating the cut-off are relatively simple and unobtrusive. I do not propose to discuss in detail the various systems of control for the destruction of weapons and the monitoring of shut-down nuclear reactors and other facilities involved in the cut-off. The details can be found in documents ENDC/134, 172, 174 and 176. These systems appear to us to be quite adequate while, at the same time, minimizing any possibility of inspection being used to the detriment of a country's security. There would be only three kinds of inspection:

- (a) to detect resumption of activity in a shut-down plant;
- (b) to detect production over the agreed amounts at declared plants; and
- (c) to prevent clandestine production at undeclared plants.

There would be three types of plants inspected:

- (a) U-235 separation plants;
- (b) reactors also producing fissionable material;
- (c) chemical separation plants.

16. Despite the possibilities which many delegations feel to be inherent in these proposals for progress towards disarmament and a better and more prosperous world, the Soviet Union's reaction, unfortunately, has consistently been negative. Soviet Union representatives have in the past characterized these proposals as "control without disarmament" and objected to aspects of the plans which would require revealing the location of plants producing fissionable material and opening them for inspection. They have also argued that these measures will not result in a significant reduction of nuclear arsenals. On this latter point, we share the view of the representative of the United States, Mr. Fisher, who made the following comment on 8 March 1966:

"The proposition that this does not involve real reduction in armaments

seems to me to be doubtful as a question of mathematics and, even more so, as a question of nuclear physics. The weapons are destroyed, the materials from them are put to peaceful uses, and the grim factories that might manufacture replacements for those materials are either stilled or converted to producing material which would not be used in weapons. Of course, we know that even after a reduction of this magnitude in nuclear stockpiles the amounts remaining will still be very large; but we shall have made a substantial start in reducing them". (ENDC/PV.246, p.34)

17. The Canadian delegation can also subscribe to Mr. Foster's remarks on 21 April 1966, when he said:

"Most delegations here have acknowledged the importance of the cut-off and weapons destruction measure: but some delegations have voiced opinions that would seem to deny that what we are proposing is significant. To assert that the cut-off, transfer, and weapons destructions proposal 'has nothing in common with disarmament' amounts to stating that slowing down has nothing to do with stopping. Had the cut-off of production of fissionable materials been negotiated when it was first proposed, the United States arsenal of weapons today would have been a fraction of its present size. Without a halt in the near future, nuclear stockpiles are bound to grow ever larger, adding to the vast amounts of potential death and destruction." (ENDC/PV.256, p.12)

18. We hope it will be possible for the Soviet Union to examine anew the objection it has been raising to this measure, which we see as one possibility for slowing down the arms race. It seems to the Canadian delegation to be most important that this Committee should devote itself to finding first or partial steps like the cut-off and transfer which will start us on the road to nuclear disarmament, the most important element of general and complete disarmament.

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21. Some United States experience with the British so-called "complexity" method of identification from long distances indicates that in the system with inspection sufficient deterrence should be attainable with only one inspection in two years. Similarly, experience with another method, elaborated in the United States and requiring local or regional data such as might be obtained through a data exchange, indicates equal effectiveness. If both methods were combined, a further increase in effectiveness would result. Finally, still somewhat incomplete data on another British identification method, involving measurements of both long and short period waves, holds promise of still greater effectiveness.

22. These identification methods are indeed so effective that it now seems to have become meaningful to discuss verification without on-site inspection. In this second case the full guarantee against mistakes in the final evaluation of suspicious events, which in the first case was provided by inspection, would not exist; it is replaced by a procedure providing an extremely low statistical probability of mistaking an earthquake for an explosion. It can be shown that also in this non-inspection case the identification methods referred to earlier would provide sufficient deterrence: earthquakes would be mistaken for explosions only once in fifteen or more years.

23. These results of our study may seem optimistic. They may have to be adjusted when more extensive observational data are made available. But even with this reservation we are convinced that the situation is ripe for a renewed and thorough discussion of the political sufficiency of the seismological verification potential now at hand.

15. Later in her statement the Swedish representative cited verification methods which she said would provide sufficient deterrence in that earthquakes would be mistaken for explosions only once in fifteen or more years (*ibid.*, para.22). This, too, is an important requirement. A comprehensive test ban, to be stable, should prevent situations giving rise to unwarranted suspicions which might lead to a breakdown of the agreement. Since we last made a detailed presentation on the subject a little more than a year ago (ENDC/PV.254), we have continued to make improvements in our instrumentation and analytical techniques for the seismic detection and identification of underground events. Since then, in addition to improving our ability to determine the depth at which the seismic event occurs, we have developed instruments and analytical methods for increasing our capability to differentiate between earthquakes and underground explosions by observation of the long-period surface waves.

16. However, despite these improvements, the exploitation of which is still going forward, there still occur each year in many countries which have the potential for nuclear testing natural seismic events that are indistinguishable from explosions. No data that we have or have ever seen presented support anything like the small number of only one earthquake being mistaken for an explosion every fifteen years which was referred to by Mrs. Myrdal. Only by supplementing seismic methods with on-site inspections can we hope to reduce the number of unidentified events to such a level. We should therefore be particularly interested in studying the data on which Mrs. Myrdal's statement is based.

17. This problem, however, should not be confused with another -- in fact reverse -- problem which is more vital to the national security of the parties. That reverse problem is the question of how likely it is that an underground nuclear explosion will be indistinguishable from an earthquake, and thus pass unnoticed. We should be interested to know how this was considered by the Swedish scientists in reaching their conclusions about the sufficiency of deterrence afforded by particular verification methods. Obviously, if a verification system affords a potential violator sufficient probability that his nuclear explosion will be mistaken abroad for an earthquake -- and thus pass unnoticed -- that system must remain unacceptable.

8. The second question deals with the sufficiency of deterrence afforded by particular verification methods. Here I wish to emphasize that the purpose of the control system, as we see it, should be to deter from violations of the treaty. Its purpose would not be to provide intelligence facts. We hope that our document contains a satisfactory description of how we came to consider the particular deterrence level of 10 per cent to be sufficient. I wish to refer to page 4, outlining our evaluation on this point. I may add that, to our knowledge, the same percentage figure has been used in the past in corresponding calculations by United States scientists.

9. The third question deals with the inspection case. Mr. Foster questioned our statement that the British "complexity" method of identification from long distance could reduce the need for inspections to one in two years. Once again, this was the result of the calculations made by using the method that we have tried to describe in general terms in our memorandum.

10. We have also in our document explained how we arrived at the particular level of on-site inspection efficiency used in our calculations (page 5). In this connexion we look

forward to the further technical information of the event location problems connected with this issue which was promised by Mr. Foster in his statement.

11. Finally, in answer to the question on the magnitude of seismic events considered, we hope that it has been made clear in our document how this particular point was treated (page 3).

12. Let me add as a further explanation to readers of our memorandum that our assessment of the control capabilities depends, of course, on the data used and on the political requirements we put into our calculations. Other investigators might well want to use another set of political requirements on deterrence against violations and assurance against mistakes about earthquakes. These would in turn lead to other results.

ENDC/PV.319 UK/Mulley

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8. On the political side the aim of the British Government remains unchanged. My Government continues to support all efforts to reach a comprehensive test-ban treaty, which we would sign with the greatest satisfaction once agreement on its terms were reached. Such a treaty would be an important step on the road to nuclear disarmament, would help to damp down the race to develop more and more sophisticated weapons, and would contribute to the security of all States in the world. But I should point out at the outset of my remarks that, for such a treaty to last and to achieve those effects, it must be of such a kind that each signatory can be confident that it is being observed by all the others.

9. The technical problems involved in verifying that a complete ban on nuclear tests is being observed depend first on the ability to detect all seismic events above a certain magnitude. The range of events capable of detection must include all militarily important underground tests. How large an underground explosion must be to be considered militarily important is of course a matter on which there may be differences of opinion. In what follows I shall deal only with events above the detection threshold, which is at present, I believe, at about magnitude 4, and only with seismic means of detection and identification.

10. After detection, there is the problem of identification of the events recorded on the seismograph. It is customary to divide this second problem into two parts, as the Swedish delegation has done in its treatment of the question. First, what proportion of earthquakes can we identify? Second, is it possible to identify militarily significant underground nuclear tests, and, if so, with what degree of certainty? Those two problems are of course interrelated; and indeed, if it were possible to solve the first completely, the second would be solved as well. If it were possible, that is, to detect and identify all earthquakes above a certain size as such, then any other underground events could be identified, by a process of elimination, as being underground explosions. However, to be able to be sure of identifying 100 per cent of all earthquakes would be to attain perfection, a rare achievement in applied science. We have certainly not reached that point yet.

11. According to expert advice available to my Government, the present scientific position seems to be as follows. Identification of earthquakes can be done by a combination of criteria such as depth of focus, first motion and, particularly, complexity. In addition, the technique of surface wave analysis has recently shown new promise for the positive identification of underground tests. We believe that, through careful deployment of improved long-period seismometers for recording surface waves, we should expect to reduce the level of discrimination from seismic magnitude 5 to about 4.5. However, even if that expectation were fulfilled, we should still be left with some unidentified events of a seismic magnitude that would fall within the limits that

we should seek to include in a comprehensive test-ban treaty.

12. On technical grounds at least, that suggests that the cause of some seismic events could not be fully established by long-range seismic recording alone. Representatives will recall the report of the British Atomic Weapons Research Establishment published in November 1965 on detection and recognition of underground explosions, which was circulated to the Committee. That informal report brings out the fact that the number of earthquakes producing less complex and sharp signals which might be mistaken for underground explosions is highly variable within any year. The conclusion of that report, taking one area as an example, is that between 80 and 85 per cent of earthquakes above magnitude 4 are now identifiable. The number should rise to 90 per cent as techniques improve.

13. I should now like to comment briefly on the Swedish memorandum itself in the light of what I have just said. It does not seem to introduce any new basic criteria or data collection method into the situation. It seems to suggest that by processing the data in a particular way, by application of the decision theory, it may be possible to demonstrate that the data now obtainable and the criteria now available are sufficient to give a certain degree of deterrence. That would amount to a 10 per cent probability of uncovering violations if they occurred at a rate of one per year, with a small chance of false identification. That is an interesting approach and one which we should be glad to examine further when more details are available.

14. My delegation is also interested in the references in Mrs. Myrdal's speech to regional or local seismological data (ENDC/PV.309, para.21), and would be very pleased to have further details on that subject. The valuable work already begun by the "nuclear detection club" is highly relevant here. We hope that its activities can be further expanded. The more countries that develop an advanced seismographic capacity the better, for a number of reasons. One reason is that it is not possible, I am told, to detect and analyse surface waves at such distances as are possible with other techniques. But I do not believe that a treaty whose control system depended on data supplied unchecked by individual signatory States would be viable. That would be self-inspection -- something which members of this Committee have argued is unacceptable in the context of a non-proliferation treaty; and indeed in this context no one has suggested that the treaty should depend on purely national control systems.

15. The Swedish memorandum deals with the probability factor in the case of a treaty with provision for on-site inspection, and in the opposite case where on-site inspection would not be included. I think we should be very careful in making comparisons between the probability factors in each of these cases. Whatever value one may attach to the probability of a particular on-site inspection identifying an underground explosion, the fact is that, once inspectors on the ground have positively identified an illicit explosion, considerations of probability go out of the window. The State which has violated the treaty, the inspection team and the government or governments providing it, and the rest of the world -- at least the scientific world -- are confronted not with a probability but with a certainty. The treaty has been violated. Concrete evidence, such as radioactive debris, has been discovered. Given, say, one clandestine explosion a year, the probability of one of the small number of inspections allowed for in a treaty hitting the nail on the head may be quite small. However, from the point of view of a State calculating the risk of being caught violating the treaty, the deterrent value is still very great.

16. If there is no provision for on-site inspections the situation is entirely different, since that ultimate certainty is lacking. That point is touched upon in the Swedish memorandum, which reads:

"In the case of control without on-site inspections, the guarantee given by the inspections against mistaking in the final assessment earthquakes for

explosions does not exist and has to be replaced by an extremely low probability for making such mistakes." (ENDC/191, p.5)

The memorandum goes on to consider how that probability is measured and what degree of probability would be needed for a treaty.

17. But that seems to me to miss two important points. The first is that, not only can earthquakes be mistaken for explosions, but explosions can be mistaken for earthquakes. In his speech on 11 July the representative of the United States referred to this problem, which he described as the problem dealt with in the Swedish paper in reverse and as being "more vital to the national security of the parties" (ENDC/PV.312, para.17). I notice that in your speech of 20 July (ENDC/PV.315), Mr Chairman, you did not reply to that part of Mr. Foster's statement.

18. The second point which seems to me to be omitted from the Swedish analysis is the question of what happens in a treaty without inspections if it appears to the scientific community that it is extremely probable from an examination of all the seismographic criteria that a particular seismic event was an underground explosion. I say "probable", not "certain". Supposing the degree of probability is estimated at 95 per cent, what happens next? There would be those who would say that the State suspected of a violation should be given the benefit of the doubt so that the treaty itself would not be jeopardized. It might be that those holding such an opinion would be so numerous or so influential in international affairs that a considerable degree of odium would fall on a State which decided to withdraw from the treaty on the ground that a violation had almost certainly occurred. Such a withdrawal might be made more likely if that State had unpublishable but conclusive evidence from intelligence sources that a violation had in fact occurred. We might be left with the treaty destroyed and the atmosphere of international confidence worse than if it had never been signed.

19. I hope you will not think me too pessimistic in setting these considerations before the Committee; but it seems to me that we are up against a serious problem here: that of positively identifying underground explosions as such without any shadow of doubt. As long as it appears that such a doubt, however small, is likely to persist in every case, it is difficult to see how a satisfactory degree of deterrence against a State's secretly violating a treaty can be achieved, even with considerable further advances in seismographic techniques, without some additional factor being added to the equation.

20. It may be relevant here to recall that during the 1966 session of this Conference, in a speech on 4 August, Mrs. Myrdal tried to deal with the political problems of verification by postulating a system of challenge, or verification by consent (ENDC/PV.279, p.9). At that time my delegation welcomed that attempt to solve the central difficulty of the test-ban treaty by superimposing a political procedure on the technical situation. It is a pity that the representative of the Soviet Union, after a short delay, expressed a firmly negative response to the concept. That may be one reason why the Swedish delegation has not returned to it in its recent exposé of the technical aspects of the problem; but I believe that we should still bear it in mind. It may be that with further technological progress scientific techniques alone may provide the answer, even without on-site inspections. However, I think it will be clear from what I have said today that my Government does not believe that that point has yet been reached.

21. I should like to conclude with a few more general remarks. It has often been argued that political factors will be decisive in reaching agreement on a comprehensive test ban. There is of course some truth in that. As long as nations regard each other's policies with a certain degree of suspicion, as long as nations find it impossible for reasons of national security to opt out of the race to develop more and more sophisticated weapons of offence and defence, it will be hard for governments to tolerate even a very small risk that provisions for verification in a treaty may prove

inadequate and may allow others to carry out militarily-significant research which could not be completed without a small number of clandestine explosions. Furthermore, one cannot ignore the fact that, with the same system of verification, the risk may be different for different States because of the varying degree of secrecy which it is possible to impose in each State. As the representative of the United States said on 11 July:

"...one of two parties cannot be expected to cease an activity in which both are engaged and which is an important factor in their strategic relationship unless it is convinced that the other party also is ending that activity." (ENDC/PV.312, para.10)

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31. We also note that an essential part of the treaty will be that those countries signatories of it which do not possess nuclear weapons accept inspection or control of their nuclear installations by the International Atomic Energy Agency (IAEA). This is for the purpose of seeing that plutonium or other explosive fissile material is not diverted, allowing nuclear weapons to be made from it. It is quite clearly necessary that the countries which do not possess nuclear weapons should accept such a provision. However, so far it does not appear that the nuclear Powers themselves are also willing to accept IAEA control. Canada is of the opinion that this particular kind of discrimination is not necessary in the treaty and that the nuclear Powers, as well as the nuclearly-unarmed States, should accept control over their peaceful nuclear activities.

32. The nuclear Powers have told the States which do not possess nuclear weapons that inspection by IAEA will not inhibit their development of nuclear energy or expose them to the possibility of commercial espionage. If they take this stand, why do they reject such safeguards for themselves? We have heard it stated that inspection of the kind that is contemplated for a non-proliferation treaty, and indeed for other measures we have been discussing, holds such danger of military espionage that it should be rejected. Members of the Committee may recall that at our meeting on 20 June last I argued against such a concept (ENDC/PV.306, paras.21 et seq.). Is it alleged that such danger of military espionage would be attached to inspection by IAEA of the peaceful nuclear activities of all the signatories of the treaty? The Canadian delegation does not believe that there would be any real danger to the national security of any State if such inspection were accepted.

33. We have heard a great deal about "peaceful nuclear explosions" and the desire of those countries which have a developing nuclear industry to preserve the right to be able to make use of the technology of nuclear explosions for civil engineering and other purposes when and if it becomes practicable and safe. The studies and experiments relating to such use of nuclear explosives have not been developed to the point where a practicable and economical technology exists. However, it is expected that some day practical means of using such nuclear explosives may become available. Canada, among other countries, wishes to be assured that if that happens it will not be handicapped in their use because it has signed a non-proliferation treaty. We have repeatedly made it clear, however, that there is no difference between a nuclear explosion for peaceful purposes and a nuclear explosion for war purposes. We contend that the solution to this problem is that there should be a firm commitment on the part of the nuclear Powers to act, so to speak, as contractors for nuclear explosions and to provide at low cost the nuclear explosive devices -- which are really weapons -- which would be required for use in civil engineering or for other peaceful purposes.

34. We recall that in his statement at our meeting on 13 July the representative of the

Soviet Union said the following:

"We consider that this problem, including the procedure and conditions for carrying out nuclear explosions for peaceful purposes, could be settled on the basis of a separate international agreement. Thus the question of nuclear explosions for peaceful purposes should not be an obstacle to the achievement of an agreement on the non-proliferation of nuclear weapons." (ENDC/PV.313, para.13)

That was an elaboration of a previous statement of the same sort made by Mr. Roshchin at the meeting of 18 May (ENDC/PV.297, para.21). At the meeting of 8 June Mr. Foster commented on that statement as follows:

"...we would envisage, as suggested by Mr. Roshchin at our meeting of 18 May, that the conditions for carrying out nuclear explosions could be resolved through separate international agreement" (ENDC/PV.303, para.15).

35. It seems, therefore, that there is agreement among the great nuclear Powers that this right to participate in the technology of peaceful nuclear explosions for engineering purposes and the like could be ensured in a separate agreement. Canada would like to see some reference to this undertaking contained in the draft treaty; and we should also like to see a draft of a convention or declaration of the nuclear Powers which would commit them to supplying nuclear explosive devices for this purpose. Of course, any such arrangements should be under proper international safeguards. It might be advisable for the whole procedure to be carried out under the direction and control of the International Atomic Energy Agency, unless it should be found better to set up some other international agency for that specific purpose.

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50. Today I should like to comment further on the subject of a comprehensive ban on nuclear weapon tests. As we have stated repeatedly, the United States Government believes that an adequately-verified treaty in this area would enhance the security of all nations. As far as my Government is concerned, the prime obstacle preventing the achievement of a treaty is lack of agreement concerning what constitutes adequate verification. On the basis of information available to us, we have concluded that national means by themselves would not provide effective assurance that treaty obligations were being observed. We should, of course, welcome any data which indicated that national means are effective or which pointed out a possibly rewarding line of research.

51. We welcome particularly the document (ENDC/191) and statements (ENDC/PV.309, 315) recently presented by the Swedish delegation as a significant contribution to our discussion. Our study of this material continues. We agree in principle that the approach outlined by the Swedish delegation is a useful one. We are also pleased that the representative of the Soviet Union has apparently endorsed this general method of analysis (ENDC/PV.313, paras.17 et seq.), since we too believe that the problem of determining the required number of on-site inspections is one that is susceptible of technical analysis.

52. However, as Mr. Edelstam noted (ENDC/PV.315, para.12), the conclusions which he reached concerning verification requirements depend upon the numerical values which are assigned to the parameters appearing in the formula. Other investigators might assign other values which would lead to other results. For example, the question of whether a 10 per cent chance of detection provides a sufficient deterrent to a violator will be dependent on the gains which might accrue from the tests and the penalties for

being apprehended in a violation. Moreover, we might assign different values to the parameters describing the number of tests and yields which might provide a violator with an important improvement in his strategic capabilities.

53. I should now like to comment in some detail on the memorandum submitted by the Swedish delegation on 19 July 1967 and on the report to which it refers, entitled Approaches to some test ban control problems (National Defence Research Institute, Stockholm, Report C 4286 - 20(23) 1967). One conclusion of the Swedish scientists was that the utility of the so-called complexity criterion was sufficient to indicate the possibility of a control system with no more than one on-site inspection in two years. For the "no inspection" case it was suggested that the data on identification by complexity indicated the possibility of an inspection-free control system with the required 10 per cent deterrence level and limiting mistakes concerning earthquakes to once in fifteen years.

54. The theory developed in the Swedish papers requires the use of "Two statistical quantities ... to describe ... identification methods" (ENDC/191, p.3). In order to be applicable, any of the identification criteria, in this case the complexity, must have a statistical distribution independent of the location of the event. In other words, an event of given magnitude which occurs in one area should have the same probability of having a given complexity as would an event of the same magnitude which occurs in any other area. We have studied the complexity of the seismic signals from tens of explosions and hundreds of earthquakes. Clearly the complexity of seismic signals from explosions is dependent on the location of the explosion.

55. In order to demonstrate the problem which this presents in trying to apply this Swedish theory of verification of the comprehensive test ban, we note that during recent years three large seismic events have occurred in the vicinity of Novaya Zemlya. The Soviet Union has provided information that one of those events, that of 27 October 1966, was an underground nuclear explosion. While we cannot confirm that the other two events -- that is, those of 18 September 1964 and 25 October 1964 -- were nuclear explosions, it may nevertheless be presumed that they were, since that is a Soviet nuclear test site and an area in which natural earthquakes are exceptionally rare. The complexity values measured for all these Novaya Zemlya events were larger than almost half the shallow earthquakes in that magnitude range which occurred in the Soviet Union. In such a situation the methodology and conclusions of the Swedish report are invalid, and the number of on-site inspections required must be determined by some other method.

56. What this means is that we already know of one area in the Soviet Union, and that happens to be a well-established Soviet testing area, in which all explosions will provide signals more complex than a significant fraction of the earthquakes with which they will be compared. Every single contained underground explosion conducted in that area would be mis-identified as an earthquake if complexity were used as a criterion in the manner proposed in the Swedish report. There would, under those conditions, be no deterrent to unlimited violations. Furthermore, it is virtually certain that Novaya Zemlya is not unique in that respect. Thus there will be other areas in addition to that known test site at which all explosions would be mis-identified by that complexity criterion. If the complexity criteria were changed in order to identify correctly those explosions as explosions, then there would be many tens of earthquakes each year mis-identified as being suspicious, not one in every fifteen years as stated by our Swedish colleagues.

57. An additional point on complexity should be mentioned. Available data show clearly that the complexity values for earthquakes and explosions decrease with decreasing magnitude and that small earthquakes have simpler signatures than do larger explosions. Therefore, a useful definition of the complexity criterion at magnitude 4 requires a capability to record such small events as improved signal-to-noise levels.

58. Moreover, there is very little information on the effectiveness of any of the identification criteria at magnitudes as low as magnitude 4, which is considered by the Swedish delegation to be the threshold for magnitudes of interest. Our current studies of various criteria indicate that they are effective at teleseismic distances at magnitude 4.5 and above; but, as also noted by Mr. Mulley at our meeting on 3 August (ENDC/PV.319, para.11), their effectiveness decreases below magnitude 4.5. In the region between magnitude 4 and 4.5, studies of the identification criteria are sharply inhibited because of the low signal-to-noise levels on teleseismic recordings of events in this magnitude range. The problem is further compounded by the number of earthquakes; and the number of events requiring identification increases sharply with decreasing magnitude. The prime reason why we are devoting an extensive effort to the construction of large seismometer arrays is to provide ourselves with high signal-to-noise data at low magnitudes. It then will be possible to determine the efficacy of the various identification criteria when they are applied to events with magnitudes of 4 or less.

59. We agree with our Swedish colleagues that regional or national data could be of considerable assistance in assessing the nature of events. The question here is one of how many regional stations would be available and what their quality and reliability would be. The United States data indicating the utility of regional stations were obtained from an extensive network of high-quality facilities. If a comprehensive treaty were achieved we should, on a regular basis, be willing to make our regional data available to other parties. We should like to hear from others concerning the quantity and quality of data which they would make available, and the arrangements they are willing to make to ensure that the data are reliable as well as freely and promptly available.

60. I should like to conclude by reiterating that the United States is applying large scientific and economic resources to the solution of the verification problem. We have repeated the results of our research to this Conference on many occasions and also published them in scientific reports. If it appears that progress is slow, it should be clear that this is not because of lack of effort. Slow progress results from the difficulty of the problem combined with the vital need that verification requirements and capabilities be assessed accurately. We are continuing to expand our research and data collection and analysis activities.

ENDC/PV.323 Sweden/Myrdal

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6. Mr. Foster at the meeting of 8 August said:

"In order to be applicable, any of the identification criteria, in this case the complexity, must have a statistical distribution independent of the location of the event." (ENDC/PV.320, para.54)

He referred also to a striking example where that was not the case: three specified events in Novaya Zemlya, in the Soviet Union. However, in that specific case we have an area where very few or no earthquakes are expected. A test could not be hidden among earthquakes there, and an event there would certainly be suspicious enough to justify further action by the observing party.

7. Despite that aspect of the particular example, however, Mr. Foster has pointed out a serious general weakness of the seismological control method: for most places in the world we do not know what the seismological signature of an explosion will be. But neither can we expect to obtain complete empirical knowledge; for nobody, I think, would suggest that one should proceed to a calibration by nuclear explosions of all possible test sites over the globe. We shall have to be content with limited empirical

knowledge about some places and with what theoretical inference can contribute as regards all other locations. This general weakness of the seismological control method is, however, reduced by the fact -- which is very important in our system -- that neither will a prospective violator have that knowledge.

8. Both Mr. Foster and Mr. Mulley referred to the diminished effectiveness of identification criteria applied to events in the magnitude range just above 4. We think that effective application of the array technique to long-period as well as short-period waves should be quite helpful and that the simultaneous use of several identification methods would further increase effectiveness.

9. Mr. Mulley also raised the point of how a suspicious user of foreign regional data can be convinced that they are trustworthy. That could, of course, be done by using safeguarded regional stations, so-called "black boxes"; but I think that those of us around this table who remember the difficulties connected with that issue will agree with me that one should in the first instance try other approaches. One fitting our "detection club" concept would be that larger States would undertake to run, on a round-the-clock basis, regional networks of seismological stations of specified minimum standards on agreed locations in their territories. Data from such networks could be checked to some extent if the amount of data available for any time were large enough to provide redundancy in coverage. In any case the parties have reason to use very similar networks to deal properly with the problems of predicting earthquake damage. That would further enhance the trustworthiness of the data because of the involvement of the scientific integrity of the research institutes responsible for the networks.

10. Both Mr. Foster (ENDC/PV.320, paras.55, 56) and Mr. Mulley (ENDC/PV.319, para.17) raised questions relating to the consequences of mistaking explosions for earthquakes, a problem referred to by Mr. Foster as the problem dealt with in the Swedish paper in reverse (ENDC/PV.312, para.17), since our paper centred mainly on mistaking earthquakes for explosions. My explanation of this question will take us into the central part of our suggestion that control may be based on deterrence created by a risk of disclosure for the violator rather than on a supposed certainty about the nature of all underground events.

11. I wish to start with the problem situation facing an observer looking at seismograms of events from a specified area -- and I hope my pedagogical talents will be sufficient for the task of explaining this intricate matter. The observer will analyse a flow of seismic events. He will apply certain identification criteria to them, and some of them will look more like explosions than others. The problem for the party to a treaty then is to find such rules for his own actions on that information from the observer that any prospective violator will feel deterred from introducing real nuclear explosions into that flow of events. Such rules are provided by decision theory.

12. For that purpose it must be decided above what level of explosion-likeness or suspiciousness a party will take such action as the treaty may permit. This decision level, which will have to be stated in numerical terms, tells him how to act in a predetermined fashion in all cases: when to act as if a violation had occurred, and when to act as if an earthquake had occurred. The actions are then initiated, independently of whether or not a violation has really occurred. Thus, doubts do not arise about how to act, even if doubts could arise about what really happened. That is really the central point. If the deterrence exercised in that way by the observers is high enough to be efficient, then their security problem is solved. The probability -- to which Mr. Mulley referred -- of mistaking explosions for earthquakes when using a certain decision level has been an important element already in the calculations that determine what an observing party would choose as his decision level, but after that it does not enter into the decision-making process.

13. The other possibility -- that of mistaking earthquakes for explosions -- has also been

used in the basic calculations. Its role is particularly relevant in determining the expected number of unwarranted initiations of political action in the case of control without obligatory inspections.

14. In our evaluation of lately-published identification methods we have found that the data permit a system of deterrent control through obligatory inspection at a very low rate. The data also indicate the possibility of a system of deterrent control without such inspection; but then one would have to accept the risk of having unwarranted but infrequent political action on some earthquakes. In our previous statements we did not, however, deal with the remaining problem of possible follow-up action; and I will now turn to that problem.

15. In his speech Mr. Mulley referred to our idea of verification by challenge, calling it "superimposing a political procedure on the technical situation" (ENDC/PV.319, para.20); and he asked why the Swedish delegation had not returned to that idea in our recent exposés of the technical aspects of the control problem. The reason was simply one of time economy. We wanted to limit our earlier interventions this year to the more technical aspects of the control question. We have by no means abandoned that idea of verification by challenge; on the contrary, we think that it will become a very important part of a treaty banning underground tests if the deterrence system of control is adopted in the form of control without obligatory inspection.

16. Against that background one could easily visualize, I think, a comprehensive control system containing several stages. The parties to a test-ban treaty would, to begin with, undertake to co-operate in good faith in an effective international exchange of seismological data in order to facilitate the detection, location and identification of underground events. Such an obligation would correspond to the proposal for a "detection club" which we have put forward on several occasions in recent years in the Eighteen-Nation Committee on Disarmament and which has been endorsed repeatedly by the United Nations General Assembly.

17. It may be fitting to recall here what the representative of the Soviet Union, Mr. Roshchin, said on this matter at the General Assembly last year:

"The Soviet delegation has also indicated that it considers the Swedish proposal of a 'detection club' worthy of attention, if this would contribute to the reaching of an agreement on the prohibition of underground nuclear-weapons tests without inspection." (A/C.1/PV.1463, p.21)

At that time it had still to be shown that data accumulated by exchange through a "detection club" would permit clarification of the overwhelming majority of events. I hope we have managed to demonstrate this by our previous statements, in which we have drawn so much from recent developments in seismological science and technology.

18. To continue my description of the outlines of the control system we have in mind: the next part of the system would be an undertaking by all parties to the treaty to co-operate in good faith also for the clarification of any seismic event. The parties would thus have the right to make enquiries and to receive information and additional data as a result of such enquiries. Further, the parties would be able to invite inspection on their territories, the inspection to be carried out in the manner prescribed by the inviting party. Finally, if it found the information available or made available under some or all of the earlier-mentioned procedures to be inadequate, a party could make proposals for other suitable methods of clarification. It thus becomes obvious that it is inherent in the procedure we have outlined that a party might directly propose inspection on another party's territory. If such a proposal were not accepted, the party would have to determine, in the light of that negative reaction and all available evidence, what conclusions should be drawn and what course of action should be followed.

19. That procedure and those proposals amount to what has been labelled the verification-by-challenge method. However, it has been claimed that this method is unworkable and would soon lead to a collapse of the whole treaty because it would only postpone the solution of the problem of on-site inspection to a rather remote future (ENDC/PV.254, p.20) and because some countries might risk being challenged almost continuously. But if the idea were accepted that deterrence should be the basis for the trustworthiness of a comprehensive test ban, we are convinced that, with the present possibilities of seismic identification and with the help of the "detection club", any test-ban signatory would be supplied with seismic data rapidly enough and in sufficient number for analysis as regards the origin of a specific event. Therefore, an erroneous challenge carried to such a stage as to endanger the treaty would be a rare occurrence indeed.

20. We are convinced that recent studies justify the opinion that seismological observations by national stations circulated through the "detection club", plus further refined methods of analysis and, in addition, the verification-by-challenge procedure, would together form a comprehensive control system for a comprehensive test ban. Therefore we have refrained on purpose from discussing whether a right to make use of a certain number of on-site inspections should be provided. That is a matter left open. However, even if such a right were to be provided, the verification-by-challenge procedure might well prove to be useful in certain situations.

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...The Soviet Union bases itself firmly on the premise that in order to keep watch on the fulfilment of the treaty effective international control should be established, which would provide reliable guarantees of the consistent implementation of this international agreement. We consider that such control should serve exclusively the purpose of verifying the fulfilment of the obligations assumed by States under the treaty to renounce the manufacture of nuclear weapons without interference in the internal affairs of States. The Soviet Union has exerted and will continue to exert efforts to ensure, as stated in the preamble to the treaty, the establishment of international control through the International Atomic [Energy] Agency, whose safeguards system is universally recognized and accepted by the overwhelming majority of States.

48. The Soviet Union also attaches great importance to the question of security guarantees for the non-nuclear countries which will assume under the non-proliferation treaty the obligation not to manufacture and not to acquire nuclear weapons. It is well known that as long ago as 1966 the USSR proposed to include in the treaty a provision to the effect that the nuclear Powers should undertake not to use nuclear weapons against the non-nuclear States which have no nuclear weapons on their territories (ENDC/167, p.3). In submitting the draft treaty the Soviet delegation bases itself on the understanding reached between the co-Chairmen to continue the exchange of views on security guarantees for the non-nuclear countries in order to find a positive solution to this urgent and important problem.

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18. The position of my delegation on the question of control is known. We consider that control should be international and reliable. It should be entrusted to the International Atomic Energy Agency, which is the only competent and authoritative body able to perform the task. The Agency has a membership of nearly a hundred States and has

acquired experience in safeguarding peaceful nuclear activities. It applies a safeguard system which is generally accepted. Under the non-proliferation treaty, the Agency's system should be obligatory upon all the non-nuclear-weapon parties to the treaty, without exception or exemption for any such nation or group of nations.

19. Finally, principle (e) of the same resolution 2028 (XX), enunciating the right of States to conclude regional treaties in order to ensure the total absence of nuclear weapons in their respective territories, has been incorporated in the draft non-proliferation treaty in full. The reaffirmation of the need for and the usefulness of nuclear-free zones in a treaty on non-proliferation is not just a casual remark. The establishment of denuclearized zones by the withdrawal of nuclear weapons from the territories of the non-nuclear-weapon States in which they are stationed, or as a preventive measure in those areas where they are not stationed, would be a logical follow-up to the treaty prohibiting the spread of nuclear weapons. The sense of security of non-nuclear-weapon countries belonging to such zones would be reinforced if the nuclear Powers undertook never to use nuclear weapons against them.

20. Apart from the principles which were specifically endorsed and recommended by the United Nations, yet another principle has been elaborated in the draft treaty: that of the peaceful uses of nuclear energy. The right of parties to develop research, production and use of nuclear energy for peaceful purposes without discrimination and in conformity with the basic provisions of the treaty is ensured in article IV.

21. However, the treaty goes even further than that. The nuclear Powers have actually committed themselves to sharing with the non-nuclear-weapon States the benefits of peaceful application of nuclear technology, including the so-called spin-off, providing scientific information and making available their services in the peaceful uses of nuclear explosive devices. That pledge of international co-operation, added to the intrinsic value of non-proliferation, is a welcome innovation in disarmament agreements and constitutes a valuable precedent.

ENDC/PV.327 Sweden/Myrdal

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22. The Swedish text to which I have just referred, which is available to delegations here today, is naturally closely connected with the two main articles, I and II, of the draft text put forward by the United States and the Soviet Union. I think that it also represents fairly closely the thinking of those two delegations with regard to the control measures necessary for verifying in a proper way the full observation by all parties of the obligations contained in the main articles. Only in one respect, to which I shall shortly revert, does our proposal contain an additional element, and that is aimed at promoting further the cause of nuclear disarmament, albeit by a modest beginning.

23. I will now give a brief description of our proposal as contained in document ENDC/195. Its main feature is the general application of one universal safeguard system, that of IAEA in Vienna. Nothing but such an equitable and non-discriminatory system would be tenable in the long run and in all relations between States in different parts of the world. For practical reasons, however, we suggest that there should be a transitional period -- perhaps up to three years, to choose as an example a figure previously mentioned -- to allow for the integration of existing bilateral as well as regional safeguard arrangements into the uniform system of IAEA. I reiterate that this suggestion is justified on practical grounds: my own country has bilateral control arrangements which cannot be altered overnight.

24. Our proposal further contains a unilateral obligation on the part of the non-nuclear-weapon States to accept safeguards on all their nuclear-energy activities, whereas, as you will see, the nuclear-weapon States would be allowed to be their own judges con-

cerning when to apply safeguards to their peaceful nuclear activities. This asymmetry is a concession on our part, hesitatingly made, in order to facilitate the political acceptance of our proposal.

25. In one respect, however, we suggest that international controls should be symmetrically applicable to all parties. This concerns transfers of special nuclear material from one State to another. All such transfers should thus be safeguarded in the same manner for all States parties to the treaty, intended as they should be for use in peaceful activities only. This suggestion may seem to go somewhat beyond what has been suggested up to now in the bilateral and regional discussions on a control article, namely that international controls will apply to material which is imported not only by non-nuclear-weapon States but by all parties to the treaty. This provision is, however, in full conformity with the general principle behind articles I and II of the draft treaty, aiming at stopping transfers of nuclear weapons and assistance and encouragement in producing them. That is a salient feature of our proposal.

26. I wish to emphasize what should be self-evident: that it is of the utmost importance and in conformity with the whole spirit of the proposed treaty that States which renounce the possibility of manufacturing their own nuclear weapons should not contribute to the development of nuclear-weapon arsenals in other countries. Outright exclusion of such a possibility, in the form we suggest in the article on international controls, would in addition be of practical importance as an obstacle to deliveries of special nuclear material to such nuclear-weapon States as may not subscribe to the treaty.

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41. The drafts with which the Committee was presented at our 325th meeting do not contain a formulation of the article on international control to be exercised under the non-proliferation treaty. The major part of the significant statement made just before mine by the representative of Sweden was devoted to this important problem. I listened with the greatest care to the statement made by Mrs. Myrdal, for we have always attached great importance to the contributions of the Swedish delegation to disarmament negotiations. I am sure that nobody would expect me to comment now on the important and interesting statement just made by the representative of Sweden or, in particular, on the draft text (ENDC/195) submitted by her. Undoubtedly that draft needs and deserves careful study. My delegation will of course give it the utmost attention.

42. As far as the control issue is concerned, my delegation has made its position clear in previous statements. Therefore at the present juncture I should like only to reiterate that we stand for such control being exercised through the International Atomic Energy Agency by the application of that Agency's system of safeguards, which has been accepted generally throughout the world and is already applied in a number of States. Practice has tested its effectiveness and has proved also that it does not affect in any way the internal affairs of the States in which the safeguards have been applied; nor does it endanger their justified interests. Experience shows also that this system of safeguards could be put into operation with respect to the non-proliferation treaty immediately and without any delay. In that regard we have also the most qualified and expert opinion and assurances of the responsible officials of the Agency. For those reasons we expect that the relevant provisions of the treaty will be worked out in accordance with the preamble to the draft before us, which underlines the role of the Agency concerning the guarantees in connexion with the activities of States in the field of the peaceful uses of nuclear energy.

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61. Thus the Nigerian delegation does not see any reason whatsoever why the nuclear-weapon Powers cannot agree to stop the quantitative and qualitative development of more weapons for, say, ten years — that is, only half the period by which, according to our Polish colleague, they are ahead of newly emerged nuclear-weapon States — during which period they would devote their energies to the task of reducing international tension and achieving universal nuclear disarmament. In this connexion the Nigerian delegation has carefully studied the statements made by the representatives of Sweden, the United States and the United Kingdom on the verification of the observance of a comprehensive test ban treaty, and it believes that the problem can be solved by a combination of measures. First the Swedish idea of a "nuclear detection club" (ENDC/154) should be given a trial; secondly, an agreement should be reached to ban underground tests of all magnitudes that all sides agree are detectable by national seismographic stations; and thirdly, there should be a moratorium for at least one year on underground tests of lower magnitudes, automatically renewed at the end of every year unless one party believed the agreement had been violated.

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5. Canada finds that the key articles of the treaty, articles I and II, are satisfactory for the accomplishment of the main purpose of the treaty: the prevention of the acquisition of nuclear weapons by States other than the existing five nuclear Powers. At the same time, we find nothing in these articles which would inhibit the right of parties to participate in collective defence arrangements; nor would they impede movement towards regional arrangements for political union.

6. The Canadian delegation has long considered that there must be an effective safeguards article as an essential element in the treaty. The main purpose of such an article should be to ensure that source or special fissionable material intended for peaceful purposes is not diverted to the production of nuclear weapons or other nuclear explosive devices.

7. Wide acceptance of a recognized international safeguard system, such as that of IAEA, as a vital element in the non-proliferation treaty would in our view contribute to the security of non-nuclear signatories by providing assurance that other non-nuclear signatories could not embark on clandestine production of nuclear arms without grave risk of exposure. We have also suggested that a safeguard provision which applied in some measure to all signatories would contribute to the establishment of a reasonable balance of obligations between nuclear and non-nuclear signatories, facilitate negotiation of the treaty, and strengthen the international safeguard system (ENDC/PV.289, para.48; PV.299, para.42). The recent proposal by the Swedish delegation (ENDC/195) is an interesting and useful attempt to blend two principles of effectiveness and equity.

8. However, it is often difficult to retain unqualified principles in agreements between States with a wide range of different and sometimes conflicting interests. It is hardly likely that general agreement on article III will be possible without a certain amount of give and take on all sides in its negotiation. For that reason the Canadian delegation proposes to adopt a flexible position on article III pending submission of proposals by the co-Chairmen. We are keeping an open mind as regards the precise formula.

9. In studying the question of safeguards, the co-Chairmen are undoubtedly giving thought to the real problem of harmonizing the IAEA system with a regional system which has been functioning effectively for some time. It appears to the Canadian

delegation that all the trained specialist personnel available to the IAEA safeguards are to be effectively enforced. Moreover, if in addressing themselves to the question nuclear Powers find it impossible to accept the binding obligations of a treaty article on safeguards, we should ask them to consider undertaking specific safeguard obligations voluntarily, outside the framework of the treaty. We cannot believe that there would be any real objection to their accepting some safeguards on their civil nuclear activities. Indeed, certain nuclear Powers have already indicated willingness to move in that direction. At all events we would urge the co-Chairmen to apply themselves diligently to working out a safeguard formula that will take account of the interests of all signatories and be generally acceptable to the majority.

ENDC/PV.331 Mexico/Castaneda

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23. In conclusion, I should like to say a few words on the still pending problem of the control or supervision of compliance with the obligations of the treaty. We believe that, if the future treaty is to function satisfactorily, an international control system will be required which offers the maximum guarantees of efficiency and absolute impartiality. The formula proposed by Sweden for article III (ENDC/195) seems to us highly attractive. We hope it will provide useful points for the negotiations now being conducted by the two co-Chairmen and the other countries concerned. We also believe that, as Mr. Burns has pointed out (ENDC/PV.329, para.8), it will be difficult to arrive at an agreement on article III without a certain amount of give and take on all sides. Accordingly we shall maintain a flexible position on this question pending submission of proposals to us by our two co-Chairmen.

24. It might perhaps be useful to recall briefly some aspects of the control system for verifying compliance with the obligations entered into by the Parties to the Treaty for the Prohibition of Nuclear Weapons in Latin America. Article 7 of the Treaty provides for the establishment of an international organization which shall be generally responsible for ensuring compliance with the obligations arising from the Treaty. This agency will commence its work when the Treaty has entered into force for eleven States. Furthermore, article 13 provides that

"Each Contracting Party shall negotiate multilateral or bilateral agreements with the International Atomic Energy Agency for the application of its safeguards to its nuclear activities".

25. The problem of the period which may elapse between the ratification by a State and application of the IAEA safeguards is solved by article 13 in the following manner:

"Each Contracting Party shall initiate negotiations within a period of 180 days after the date of the deposit of its instrument of ratification of this Treaty. These agreements shall enter into force, for each Party, not later than eighteen months after the date of the initiation of such negotiations except in case of unforeseen circumstances or force majeure."

26. It only remains for me to add that I have handed to the Secretariat a working paper [circulated as document ENDC/196] which summarizes the suggestions I have made in this statement.

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3. In the meantime there are other subjects on which we might utilize the interval granted to speak; and today I propose to make a brief statement on the question of the cessation of nuclear weapon tests and to comment on some of the views expressed on

that subject in statements by the delegations of Sweden, the United Kingdom and the United States. Much of the discussion was on the scientific aspects of the problem of detecting and identifying underground nuclear explosions. I shall be able to lay before the Committee some of the views of Canadian seismologists and other Canadian scientists who have been working on that problem.

4. I will first quote two paragraphs of resolution 2163 (XXI) of the United Nations General Assembly, as follows:

"3. Expresses the hope that States will contribute to an effective international exchange of seismic data;

4. Requests the Conference of the Eighteen-Nation Committee on Disarmament to elaborate without any further delay a treaty banning underground nuclear weapon tests." (ENDC/185)

5. As everyone knows, the Committee has been giving priority attention to the production of a treaty on non-proliferation; and that has precluded a thorough-going discussion and debate on the other disarmament subjects which were recommended by the General Assembly for our urgent attention. Nevertheless, as I have said, there have been some important statements in regard to the problem of verifying that obligations not to conduct underground nuclear tests are being observed.

6. Furthermore, we have heard many delegations state their view that an extension of the Moscow Treaty (ENDC/100/Rev.1) which would prohibit underground nuclear testing as well as testing in the elements covered by the existing Treaty would be a logical measure to follow an agreement on non-proliferation. We have also heard the representatives of the nuclear Powers in this Committee state that they are in favour of arriving at an agreement to prohibit nuclear testing underground, provided that agreement can be reached on what constitutes adequate verification.

7. Mrs. Myrdal, the representative of Sweden, stated more precisely what was preventing progress on such a measure. She said:

"The obstacle is proclaimed to lie in the issue of control -- or, more precisely, in a lack of agreement among the nuclear-weapon Powers on the verification system needed for monitoring such a treaty. One side is upholding the thesis that on-site inspections are necessary to ensure that no violations occur; while the other side reiterates that national means of detection and verification are satisfactory and that no on-site inspections should be prescribed." (ENDC/PV.309, para.15)

8. We should like to say at this point that Canada is very much in sympathy with the approach to this problem which our Swedish colleagues have been pursuing for some time now; and we have made that clear on many occasions. We agree especially that at the present time progress seems most likely to be achieved through an extension of the scientific study of the problem of detection and identification of underground nuclear explosions. Prospects would be hopeful if all countries with developed seismological science, particularly those represented on this Committee, could carry out research on the problem, sharing the results of their investigations freely in a spirit of open co-operation. Canada has supported the "nuclear detection club" idea, and we hope it will be possible to develop it more actively before long.

9. After the Swedish representative had made the statement concerning obstacles to the conclusion of the agreement to prohibit nuclear testing, she proceeded to give the Swedish views on how the difficulty might be overcome and on the present state of the science and art of detecting and identifying underground nuclear explosions. Her statement was based on the results of scientific investigation and analysis of the problems, carried out in Sweden. As we know, that analysis relies to some extent on mathematical methods which for most of us here, including myself, are somewhat esoteric in nature. However, one statement made by the representative of Sweden excited great interest

and was later disputed by the representatives of the United States and the United Kingdom. That particular statement was the following:

"...identification methods are indeed so effective that it now seems to have become meaningful to discuss verification without on-site inspection." (ibid., para.22)

10. In a statement at our meeting on 11 July Mr. Foster, representative of the United States, challenged the conclusions which the Swedish experts had drawn from their investigations of the subject and said the following:

"No data that we have or have ever seen presented support anything like the small number of only one earthquake being mistaken for an explosion every fifteen years which was referred to by Mrs. Myrdal. Only by supplementing seismic methods with on-site inspections can we hope to reduce the number of unidentified events to such a level." (ENDC/PV.312, para.16)

11. At our meeting of 20 July (ENDC/PV.315) Mr. Edelstam replied to Mr. Foster and also submitted a document entitled "Memorandum on the control of an underground test ban treaty" (ENDC/191).

12. Then at our meeting on 3 August we had a statement from Mr. Mulley, representative of the United Kingdom, in which he gave the opinions of the United Kingdom scientists who had been working on the problem. His statement included the following words:

"That ... report" --

the report of the British Atomic Weapons Research Establishment published in November 1965 --

"brings out the fact that the number of earthquakes producing less complex and sharp signals which might be mistaken for underground explosions is highly variable within any year. The conclusion of that report, taking one area as an example, is that between 80 and 85 per cent of earthquakes above magnitude 4 are now identifiable. The number should rise to 90 per cent as techniques improve." (ENDC/PV.319, para.12)

13. Mr. Mulley referred with approval to the Swedish proposals of last year which have become known as "inspection by challenge", and hoped that Sweden was still holding to that approach for the solution of the problem. In a later statement Mrs. Myrdal assured the United Kingdom delegation that Sweden was indeed maintaining its "challenge" proposal and gave an outline of how it might be expected to work, in conjunction with Sweden's current assessment of the possibilities of identifying underground nuclear explosions (ENDC/PV.323, paras.15 et seq.).

14. The views of the United Kingdom authorities on the problem and the Swedish propositions advanced in statements at the 309th and 315th meetings appear to be summed up in the following two sentences in Mr. Mulley's statement:

"It may be that with further technological progress scientific techniques alone may provide the answer, even without on-site inspections. However, I think it will be clear from what I have said today that my Government does not believe that that point has yet been reached." (ENDC/PV.319, para.20)

15. Mr. Foster, the representative of the United States, announced at our meeting of 8 August further criticism of the Swedish memorandum (ENDC/191) and the scientific paper on which it was based, the report of the National Defence Research Institute of Stockholm entitled Approaches to some test ban control problems. In concluding his statement Mr. Foster said the following:

"Thus I believe that the United States has shown that it takes seriously its responsibilities for attempting to solve the verification problems attendant on the achievement of a comprehensive test ban. Reports such

as those recently submitted by the Swedish delegation, and the ensuing technical discussions, contribute substantially to our mutual understanding of the problem. Other work carried out and reported on by our United Kingdom colleagues has also been of crucial importance. If all parties conducting work in this area from whom we have not yet heard discussion of the technical issues were to make available their conclusions, we might reach more rapidly our goal of an adequately-verified comprehensive test-ban treaty." (ENDC/PV.320, para.62)

In view of that last sentence the Canadian delegation thinks it appropriate to lay before the Committee some comments and observations by the Canadian scientists who have been working on this problem, in the hope that they may contribute to progress.

16. The Canadian contribution has been to study signal processing from a medium-aperture array, to clarify detection probabilities, to obtain estimates of location accuracy as an aid in screening effectively the very large number of natural earthquakes, and to study identification criteria based initially on teleseismic array observations. A small group is at work in this field, and we are putting any results obtained into the open scientific literature. We believe that other countries should do the same.

17. Canadian scientists welcome the Swedish contribution to this discussion but differ in their interpretation of the effectiveness of the present techniques. Seismic verification of a comprehensive test ban needs adequate consideration of the detection and identification problem as a function of magnitude of explosion yield. Teleseismic methods have been studied in Canada using one well-sited medium-aperture array. Results to date show that, although there is a 90 per cent probability of the detection of an underground explosion equivalent to seismic magnitude 4.5 at distances between 3,000 and 10,000 kilometres from the array, the probability of detection falls to 50 per cent at magnitude 4.0. The two magnitude figures correspond to explosion yields of ten kilotons and one kiloton respectively in hard rock. This rapidly worsening detection capability can become even more of a limitation if decoupling possibilities are considered or if explosions are detonated in unconsolidated material.

18. It is important also to demonstrate that adequate teleseismic coverage of all possible test sites exists. Very simple arguments indicate the need for a number of arrays which is certainly larger than the present number deployed nationally. We would estimate on very simple grounds that one needs at least ten medium-aperture arrays for complete world-wide coverage, possibly supported by a few large-aperture units.

19. Independent Canadian research does not support the Swedish claims for the effectiveness of the teleseismic complexity criteria for the identification of nuclear explosions. Our studies indicate that, if the results from several arrays are available, the United Kingdom estimate of between 5 and 20 per cent of the earthquakes in a large sample showing characteristics usually used to identify explosions is a reliable one. Independently a test has been made on 2000 earthquakes distributed throughout the world, using the results from one array in Canada. Approximately 7 per cent of the earthquakes had some aspects of bomb-like characteristics, using that one criterion.

20. Obviously a great deal more research is needed in this field, and there is only very limited experience in Canada in the application of other possible criteria. At the moment, however, no method is known to us which can reduce the minimum ambiguity below about 5 per cent, at least for low magnitudes in the 4.5 to 4.0 range.

21. Certain Canadian studies using some of the parameters adopted by Swedish scientists have led to a figure of between five and six inspections per year for a 10 per cent chance of detecting one clandestine explosion only in an area with 200 earthquakes or more per annum occurring. That probability figure improves rapidly with a clandestine series of tests. That estimate uses the best quantitative complexity criterion yet developed by the Canadian scientists for a quick assessment of the results from one

array. Undoubtedly progress can be made in reducing that inspection figure, but it seems unlikely to decrease by a factor of ten without a major scientific break-through, which is not yet in sight.

22. The Canadian scientists are concerned at the apparent neglect of the difficulty of accurate location. That is one of the parameters important in establishing an inspection model. We are quite certain that intense international co-operation is essential to locate positions to accuracies of a few tens of kilometres; and we know from Canadian work that approximate locations based on one array are ten times less accurate. This is not an unimportant matter, since the Swedish memorandum assumes that the probability that an on-site inspection of an explosion would prove it to be an explosion is 0.5. That figure must assume a location accuracy about which there can be very reasonable doubt. Those are the views of Canadian scientists.

23. To conclude, the Canadian delegation agrees with Mrs. Myrdal that a mutual understanding of scientific means of monitoring a comprehensive test ban is an essential part of the process leading to such an agreement. As I have mentioned, it is the Canadian position that research in the field of seismic detection and identification must be continued and that the information so obtained should be shared internationally. Indeed, such an interchange of information and ideas could well contribute to the spirit of mutual trust and understanding necessary to facilitate agreement on the political aspects of a comprehensive test ban. With that in mind, Canada will continue to undertake research in this field and to co-operate in sharing the resulting information.

ENDC/PV.333 UAR/Khallaf

26.9.67

pp.6-9

12. I should now like to speak of the provision on international control to be inserted in article III in the new draft treaty. Whereas the preamble to the treaty has devoted two paragraphs to this subject providing for the application of International Atomic Energy Agency (IAEA) safeguards to peaceful nuclear activities, the two drafts have left article III blank. The two co-Chairmen have promised to go on working in order to reach agreement on the contents of that article. We await with great interest the result of their efforts.

13. Pending the presentation of that text, the delegation of the United Arab Republic would like to take this opportunity to reiterate its fundamental position in that connexion. Without an appropriate article on control, the treaty would not make any great change in the existing state of affairs. In my intervention on 16 March I stated;

"(b) The treaty must contain provisions clearly stipulating compulsory and uniform application of the single system of safeguards of the International Atomic Energy Agency to all non-nuclear-States parties to the treaty. Moreover, the control system must be extended to the transfer of nuclear material and to all nuclear activities, past and present." (ENDC/PV.294, para.14)

I added:

"In such a treaty the only inspection system acceptable in this respect is compulsory and not voluntary, international and not regional, effective and not fictitious." (ibid., para.15)

14. That principle must be expressly stipulated in the treaty right from the start. However, if in certain cases the total application of the Vienna safeguards would require some time in order completely to replace certain bilateral or multilateral control arrangements which are in force, it would perhaps be possible to lay down the time which is strictly necessary to permit the total application of the Vienna control system to all the parties to the treaty.

15. I now come to the draft article III submitted by the Swedish delegation (ENDC/195). Here I should like to congratulate the Swedish delegation most warmly on the contribution it has made in submitting a draft of this article with the object of bringing about an exchange of views which might lead us to an acceptable text. Indeed, several aspects of the draft of article III as formulated by Sweden reflect the wishes and the points of view expressed by my delegation.

16. One of the most interesting aspects of the Swedish draft is the way in which it has attempted in its paragraphs 1 and 3 to extend the Vienna safeguards to nuclear-weapon States. My delegation would like to hear the views of the nuclear Powers on this point. Though we regard the Swedish draft as a useful starting-point for a formulation of article III, we consider a transitional period of three years too long. In any case my delegation wishes to reserve its right to speak on this subject when the two co-Chairmen present their text of article III.

17. In vigorously stressing the principle of a general application of the Vienna control system, we do not mean to oppose any particular system of regional co-operation in the use of atomic energy; we merely wish to set up a control system capable of protecting the international community against any diversion of fissile material for military purposes. In our view the very nature of nuclear weapons, not subjective considerations or political or commercial expediency, call for this measure.

18. Before leaving the question of control, we deem it appropriate to mention that the fifth paragraph of the preamble to the new draft treaty reads:

"Expressing their support for research, development and other efforts to further the application, within the framework of the International Atomic Energy Agency safeguards system, of the principle of safeguarding effectively the flow of source and special fissionable materials by use of instruments and other techniques at certain strategic points" (ENDC/192, 193, p.1).

My delegation would be grateful to the two sponsors of the draft if they would give us some explanations and clarifications of this text, so as to enlighten us about its true meaning, its reasons and its implications.

19. The United Arab Republic, together with the other non-nuclear-weapon countries, attaches paramount importance to the free, untrammelled and non-discriminatory development of atomic energy for peaceful purposes. Thus the United Arab Republic considers that the insertion of article IV in the treaty makes considerable progress towards the establishment of a solid basis of confidence and mutual co-operation between the non-nuclear-weapon countries and the nuclear-weapon countries.

20. However, I must say quite frankly that this positive step must be supplemented by two others, the purport of which I am glad to observe is already reflected in the preamble to the draft treaty. The first relates to the desire to have article IV strengthened so as to establish in a more positive manner the obligations of the nuclear-weapon States towards the non-nuclear-weapon States in respect of their scientific and technical contributions to the peaceful utilization of nuclear energy. On this point my delegation appreciates the initiative and arguments of the representative of Mexico in his recent statement made on 19 September (ENDC/PV.331, para.6 *et seq.*), with which my delegation is in full agreement. We consider that the ideas contained in article IV of the Mexican working paper (ENDC/196) form a solid basis for the achievement of this aim.

21. The second step which my delegation would like the Conference to take for this purpose relates to the peaceful uses of nuclear explosions. We have noted with satisfaction that the actual principle of such uses is now laid down in the preamble to the draft treaty. However, in common with other delegations we do not quite see the reasons which led the two sponsors of the draft treaty to present this principle in the form of a

declaration of intention instead of including it as a formal obligation in the actual provisions of the treaty.

22. In fact, my delegation considers that the obligation of the non-nuclear-weapon States unequivocally to renounce the production of nuclear explosives for peaceful purposes should be counterbalanced by another obligation, equally legal and categorical, requiring the nuclear-weapon States to make available to the non-nuclear-weapon countries on a non-discriminatory and objective basis, and without any political or other conditions, all the advantages of such explosives.

23. My delegation has therefore studied with very special attention the remarks made in this Conference by the delegation of Canada at our 329th meeting concerning the conclusion outside the treaty of a convention or agreement regulating peaceful nuclear explosions, and the various provisions which it should contain. The delegation of the United Arab Republic realizes the convenience of dealing with this question in detail in an independent international instrument. At the same time, however, it considers that the treaty should also spell out the actual principle of the obligation of the nuclear-weapon States to enable the non-nuclear-weapon States to enjoy the benefits of such explosions. I suggest that that could be done on the lines of the Mexican proposal contained in article IV-A of document ENDC/196. The United Arab Republic would then be glad to see the International Atomic Energy Agency in Vienna placed in control of this activity.

ENDC/PV.334 India/Trivedi

28.9.67

pp.13-15

34. I should now like to refer to the two missing articles of the treaty, one relating to control and the other relating to obligations towards nuclear disarmament. The delegations of Sweden (ENDC/195) and Mexico (ENDC/196) have already taken welcome initiatives to fill in those gaps.

35. An article on control in a treaty on arms control and disarmament is a corollary to the basic articles of that treaty. An appropriate system of control in a treaty on non-proliferation of nuclear weapons should be related, therefore, to the twin facets of dissemination and manufacture of nuclear weapons — that is, to the provisions of articles I and II.

36. There is much talk these days of loop-holes in a treaty on non-proliferation — and that, curiously enough, in the context of peaceful development of nuclear energy by non-nuclear-weapon nations. There will in fact be a real and dangerous loop-hole if there is no satisfactory control to ensure observance of the provisions in the present draft that the nuclear-weapon Powers should not transfer nuclear weapons or control over such weapons directly or indirectly, and that non-nuclear-weapon Powers should not receive such weapons or assistance in their manufacture. The situation becomes particularly dangerous when it is universally known that one nuclear-weapon Power believes that it is desirable and even necessary for a large number of countries to possess nuclear weapons, and describes those weapons as providing "encouragement to all the revolutionary peoples of the world who are now engaged in heroic struggles".

37. When there is so much talk of loop-holes and of stringent provisions of control of manufacture of weapons, and that also in a discriminatory manner, it is worth remembering that there is equal, if not greater, justification for effective provisions to ensure that there is no dissemination of weapons or weapon technology from a nuclear-weapon Power to any other country. The concern of the Indian delegation is all the greater in that respect as the People's Republic of China has already expressed its complete opposition to signing any treaty on non-proliferation of nuclear weapons. While the other nuclear-weapon Powers are against the actual transfer of nuclear weapons to

other nations as well as against the training of personnel belonging to non-nuclear-weapon States in the use of these weapons as such, the same cannot be said of the People's Republic of China. To a country like India, that is vital.

38. Then there is the question of control over the production of nuclear weapons. The basic provision in an appropriate treaty will stipulate that all States undertake henceforth not to manufacture nuclear weapons. That will entail control over weapon-grade fissile material and the facilities which fabricate weapon-grade fissile material.

39. The Indian delegation believes, therefore, that the control provisions should deal with the transfer and receipt of fissile material, the transfer and receipt of weapons and weapon technology, and the facilities for production of weapon-grade fissile material. This should be adequate and should provide a reasonable solution to the problem of control. It has been pointed out that uranium mines, plants for fabrication of fuel elements and the reactors are not in themselves a military danger. They do not promote any military purpose unless they are coupled with plants and facilities for the fabrication of the fissile material into weapons. It is the gaseous-diffusion plants, the chemical-separation plants and the centrifuge plants, if any nation is developing them, which have to be controlled.

40. The fundamental requirement that the Indian delegation puts forward in this context is that control should be universal, objective and non-discriminatory. The extent of the comprehensiveness or coverage of control provisions depends upon the mistrust and suspicion the negotiators have in regard to the parties to a treaty. Normally it is unreasonable and unprofitable to base an international instrument on the extreme threshold of unmitigated suspicion. There is, however, no cure for suspicion or mistrust. If it is generally proposed that control should be more comprehensive than what I have just outlined, India will have no objection, as long as it is universal and objective and applies in a non-discriminatory manner to all nations, big and small, nuclear and non-nuclear. It would be entirely unjustified to direct the suspicions only towards the weak, the unarmed and the unpossessed. If there are to be any suspicions at all, it is the proclivities of the powerful, the armed and the possessors of weapons which should evoke greater suspicion. The control provisions should also cover all aspects of the problem and not only those which cause concern to the nuclear-weapon Powers and their allies.

ENDC/PV.356 USSR/Roshchin

14.12.67

pp.7-8

14. In speaking of the important work done by the Committee in its examination, discussion and preparation of a draft treaty on non-proliferation, reference must be made to the difficulties which we encountered in this connexion and which compel us to admit that, despite lengthy negotiations connected with the examination and discussion of the non-proliferation problem in the Committee, we still do not have a complete draft of a non-proliferation treaty. One important reason for this situation is, as you know, the lack of agreement and understanding on the question of control over the implementation of such a treaty. In the time during which this question has been under discussion, a satisfactory agreement could long since have been reached and an agreed text of an article on control submitted to the Committee. Unfortunately, the solution of this problem is being impeded by the negative position adopted by certain circles which, in connexion with the article on control, are laying down conditions essentially intended to hamper and prevent a solution of the problem of the non-proliferation of nuclear weapons and the conclusion of a treaty on the subject, the draft of which is being prepared here in the Committee. The negative effects of the opposition of certain circles to the adoption of an appropriate system of control over the implementation of

the treaty on the non-proliferation of nuclear weapons are, of course, obvious.

15. In referring to the problem of control, we would re-emphasize that the Soviet side firmly insists that there should be a single system of control for all non-nuclear States parties to the non-proliferation treaty. The Soviet Union, as we have already repeatedly stated, believes that control over the implementation of the treaty should be exercised by the International Atomic Energy Agency (IAEA), whose system of guarantees is generally recognized, has been tested by time, and works in practice. All the non-nuclear States which, under the non-proliferation treaty, would undertake not to manufacture nuclear weapons or to receive them from anyone whatsoever must be placed on an equal footing; in this matter there should be no privileges for some non-nuclear countries.

16. We note with satisfaction that, during the discussion in the Committee, many delegations expressed themselves in favour of establishing a single system of IAEA guarantees for control over the implementation of the treaty in order to prevent the diversion of nuclear energy from peaceful purposes to the production of nuclear weapons and other nuclear explosive devices. Outside this Committee, a clear majority of the countries of the world also support this particular solution to the problem of control. We consider that agreement on this matter is vital and must be achieved if progress is to be made towards the conclusion of a treaty on the non-proliferation of nuclear weapons.

17. The Soviet delegation would like to express the hope that the obstacles being raised to the preparation of acceptable provisions for a clause on control over the non-proliferation treaty will eventually be removed, and that a satisfactory solution will be found to this problem in the near future.

ENDC/PV.357 USA/Fisher

18.1.68

pp.15-17

48. As we all recall, the draft non-proliferation treaty text submitted by my delegation on 24 August 1967 omitted temporarily the text of article III -- the article intended to contain the important provisions on international safeguards. As we also all know, complex and difficult negotiations between the co-Chairmen continued, in which we sought to draft a practical and effective safeguards article which would take into account the interests of all countries desiring to adhere to the treaty. I think it is fair to say that in those negotiations we were greatly encouraged, and our progress was significantly accelerated, by the many statements made to this Conference in support of such a safeguards article. Our negotiations have been successful, and I am pleased to state that the revised treaty text submitted today does include a draft of article III.

49. I should like to present now a brief explanation of the provisions of article III. The first of its four paragraphs prescribes the application of treaty safeguards to all source or special fissionable material employed in peaceful nuclear activities of non-nuclear-weapon parties. Furthermore, it provides that the safeguards are intended solely to verify the fulfilment of obligations assumed under the treaty and that the safeguards shall be as set forth in an agreement negotiated and concluded with IAEA in accordance with the Statute of the International Atomic Energy Agency (IAEA) and with the IAEA safeguards system.

50. I should like to note at this point that the reference to the Agency's safeguards system in this first paragraph should not be construed as incorporating the present IAEA safeguards system documents in the treaty in the sense that a treaty amendment would be required to revise the IAEA safeguards documents. This interpretation is reinforced by the preambular expression of support for research and development on safeguards within the general framework of the IAEA safeguards system, which itself provides for

periodic review in the light of further experience as well as of technological developments.

51. The second paragraph prohibits the provision by any of the parties of (a) source or special fissionable material or (b) equipment or material especially designed or prepared for the processing, use or production of special fissionable material to any non-nuclear-weapon State for peaceful purposes, unless the source or special fissionable material shall be subject to the treaty safeguards.

52. The third paragraph prescribes that the treaty safeguards be implemented so as to comply with article IV of the treaty — that is the article dealing with co-operation in peaceful uses — and to avoid hampering the economic or technological development of the parties or international co-operation in the field of peaceful nuclear activities.

53. In the final paragraph of article III the first sentence provides:

"Non-nuclear-weapon States Party to the Treaty shall conclude agreements with the International Atomic Energy Agency to meet the requirements of this Article either individually or together with other States in accordance with the Statute of the International Atomic Energy Agency".
(ENDC/192/Rev.1, p.3)

This provision permits the IAEA to enter into an agreement concerning the safeguards obligations of the parties with another international organization the work of which is related to IAEA and the membership of which includes the parties concerned.

54. The remainder of the final paragraph provides schedules for the commencing of negotiations of safeguards agreements, as well as for their entry into force.

55. In formulating the draft article III which we are presenting today, we have been guided by several principles regarding treaty safeguards and safeguards agreements. I should like to enumerate these principles for you:

1. For all non-nuclear-weapon parties there should be safeguards of such a nature that all parties can have confidence in their effectiveness. Therefore safeguards established by an agreement negotiated and concluded with the IAEA in accordance with the Statute of the IAEA and the Agency's safeguards system must enable the IAEA to carry out its responsibility of providing assurance that no diversion is taking place.

2. In discharging their obligations under article III, non-nuclear-weapon parties may negotiate safeguards agreements with the IAEA individually or together with other parties; and, specifically, an agreement covering such obligations may be entered into between the IAEA and another international organization the work of which is related to the IAEA and the membership of which includes the parties concerned.

3. In order to avoid unnecessary duplication, the IAEA should make appropriate use of existing records and safeguards, provided that under such mutually-agreed arrangements IAEA can satisfy itself that nuclear material is not diverted to nuclear weapons or other nuclear explosive devices.

56. The United States attaches great importance to the inclusion of effective safeguards in the non-proliferation treaty. This was strikingly underlined by President Johnson when he announced on 2 December (ENDC/206, pp.3, 4) the intention of the United States to accept IAEA safeguards — when such safeguards come into effect under the non-proliferation treaty — on all its nuclear activities, excluding only those having direct national security significance. This offer demonstrates the confidence of the United States that safeguards will not impose industrial, economic or any other burdens on treaty signatories.

57. I believe that the safeguards article we are presenting today serves two major and beneficial purposes. First, it will verify important treaty obligations and thereby serve as an important instrument for reducing tensions and increasing trust. Second, the extensive application of treaty safeguards will reduce concern about providing source

and special fissionable material, specialized equipment and information to non-nuclear-weapon States. It will thus provide a significant impetus for accelerated co-operation among all parties in the development of peaceful nuclear research and industry.

ENDC/PV.358 UK/Mulley

23.1.68

pp.6-7

12. We believe that the present safeguards article will permit IAEA to negotiate agreements that take account of the fact that some of the parties are members of a regional organization that has its own safeguards system. What is important is that the safeguards established by the various agreements should achieve the same result, that they should inspire equal confidence that all the parties to the treaty are fulfilling its obligations. The details of the agreement will necessarily differ to take account of the circumstances of each case; but it is clear that IAEA must be enabled on a continuing basis to take appropriate measures to ensure that the safeguards are fully effective in every case.

13. In this connexion my Government noted with approval the interpretation made by the representative of the United States, Mr. Fisher, when he said, in introducing the draft text of article III at our last meeting:

"...the reference to the Agency's safeguards system in that first paragraph should not be construed as incorporating the present IAEA safeguards system documents in the treaty in the sense that a treaty amendment would be required to revise the IAEA safeguards documents."
(ENDC/PV.357, para.50)

As Mr. Fisher rightly said, that interpretation is reinforced by the paragraph in the preamble to the treaty supporting the development of improved techniques within the framework of the IAEA safeguards system. We believe that that reference to the IAEA system should not, and indeed does not, have the effect of freezing the existing safeguards system. This system is bound to develop in the light of experience, and clearly amendments to the non-proliferation treaty are not required whenever it is thought right to introduce improved procedures in IAEA safeguards systems.

14. If we are agreed that safeguards must be effective, we must also know what they are for. The first paragraph of article III of the new draft clearly states that the exclusive purpose of the safeguards to be applied under the treaty is "...verification of the fulfilment of its obligations assumed under this Treaty with a view to preventing diversion of nuclear energy from peaceful uses to nuclear weapons or other nuclear explosive devices". The draft also makes it clear that safeguards must be applied to all "source or special fissionable material in all peaceful nuclear activities" of the non-nuclear-weapon States parties to the treaty.

15. The words "source and special fissionable material" are specialized terms drawn from the Statute of IAEA; but the general meaning of the obligation is clear even to the layman. The purpose of non-proliferation safeguards is to assure all parties to the treaty that nuclear materials are not illegally diverted to the manufacture of nuclear weapons. The purpose is not to poke and pry into the peaceful nuclear activities of the non-nuclear-weapon States; still less is it to provide opportunities for commercial espionage or to hamper the development of new civil nuclear techniques by unnecessarily costly and time-wasting checks, which could give a commercial advantage to those who remain safeguard-free. I am confident that in negotiating the safeguards agreements IAEA will bear that exclusive purpose firmly in mind. Indeed the United Kingdom, as a member of IAEA, will do its best to ensure that that will be so.

16. Finally, while still on the subject of safeguards, I should like to say a word about discrimination. The draft now before us would apply compulsory safeguards only to the

non-nuclear-weapon States; and indeed, bearing in mind the purpose which I have just outlined — to prevent the diversion of nuclear materials to weapon purposes — it would, logically, be absurd to apply this criterion to the nuclear-weapon States, which are not forbidden by the treaty to manufacture nuclear weapons. Nevertheless, my Government fully recognizes the justification of the claim that, even though safeguards will not be intrusive or burdensome or open the way to industrial espionage, it is still important to do what we can to eliminate discrimination in all aspects of the treaty. It is for that reason that we have made the safeguarding offer which was described to this Committee on 5 December 1967 (ENDC/207; PV.353, para.6). I think the Committee will recognize that offer as a serious and useful contribution to the search for final agreement on this most important subject.

ENDC/PV.358 Canada/Burns

23.1.68

pp.21-22

68. The Canadian delegation is naturally very happy that at last the co-Chairmen have reached agreement on a draft text for article III. We have never underestimated the difficulties involved in framing this particular article. It has perhaps been easier for Canada to take a relaxed attitude than for some other countries. On the one hand, we have from the outset been a strong proponent of the International Atomic Energy Agency (IAEA) safeguards system. On the other hand, we accept the proposition that in applying safeguards under the treaty we should take advantage of an existing regional system which has been functioning effectively for some years and will continue in being for reasons unrelated to the non-proliferation treaty. For some time Canada's policy has been to apply international safeguards to all exports of Canadian nuclear material; but those safeguards are not in all cases those of the IAEA.

69. It always appeared to us that satisfactory agreements could be negotiated between signatory States and IAEA, either directly or through organizations of which they were members and which had the same purposes as IAEA, and that through such agreements it could be verified to the satisfaction of all parties that the provisions of the treaty prohibiting diversion of nuclear materials from peaceful to warlike purposes were being observed. Therefore we welcome agreement on a formula which provides for such negotiations in a manner which would not impair the integrity of the treaty safeguards system.

70. We feel, however, that the text of the first sentence of the first paragraph of article III may contain a certain element of ambiguity. There seems to be some possibility of reading it as meaning that the safeguards under the non-proliferation treaty might be frozen to the procedures now current in the present IAEA system. We welcome, as did the representative of the United Kingdom, the assurance of the representative of the United States given at our meeting on 18 January that that sentence in the first paragraph of the article is not to be understood in the way I have mentioned (ENDC/PV.357, para.50). We should be happy if the representative of the Soviet Union would also at some convenient time assure us that his interpretation of that sentence in the article is the same as that of the United States representative.

71. A safeguards article of the kind now before us, providing as it does for different treatment for the nuclear-weapon Powers from that accorded the non-nuclear-weapon States, has been criticized as discriminatory and contrary to the principle that there should be an acceptable balance of mutual responsibilities and obligations. The Canadian delegation does not deny that such criticisms are valid, and indeed the Canadian Government would have very much preferred equal treatment for all parties to the treaty. But we do not think it would be helpful at this stage to urge renegotiation of the article to make it wholly non-discriminatory. We consider that, if the members of

the Committee should now insist on such a fundamental change, we might become responsible for failure to achieve a treaty at all. As the Canadian delegation pointed out before the recent adjournment, the announcement by two of the nuclear-weapon States represented on this Committee of their willingness to accept safeguards on their own peaceful nuclear programmes at such time as the safeguards come into effect under the treaty is evidence of the desire of those States for a safeguard régime which as far as possible applies equally to all parties to the treaty (ENDC/PV.355, para.3).

ENDC/PV.359 Poland/Blusztajn

25.1.68

p.5

6. I shall start with the problem of control. The Polish delegation is pleased to note that the solution finally reached by the two co-Chairmen incorporates the principles which appear to us to be essential, namely that any control worthy of the name must be international, entrusted to an international organization and exercised in such a way that every State party to the treaty can have confidence in its effectiveness.

7. Article III stipulates that there shall be verification of the fulfilment of the obligations assumed under the treaty: verification by the International Atomic Energy Agency under an agreement to be negotiated and concluded between the parties to the treaty and the Agency in accordance with the Statute of the Agency and its safeguards system. The present article III does not go into all the details relating to implementation of the verification system. These details will have to be set forth in the agreements which the Vienna Agency will negotiate, within the prescribed time-limits, with the signatories to the treaty.

8. We consider that the wording of article III is sufficiently precise to preclude any interpretation that would be contrary to the objective laid down, as well as to cope with any particular situation that might arise. We can therefore be confident that the system which the Agency is called upon to apply will be capable of preventing nuclear energy from being diverted from its peaceful uses to the manufacture of nuclear weapons or other nuclear explosive devices.

ENDC/PV.362 Romania/Ecobesco

6.2.68

pp.6-7

9. Sixthly, passing on now to article III, we should like to know the exact meaning of the phrase "safeguards system" of the International Atomic Energy Agency (IAEA) in paragraph 1. Does it mean the present system, or a system which will be continually amplified? In the latter case, what are the reasons for doing so?

10. Seventhly, what is the relationship between the expressions "safeguards system" of the Agency, and "the safeguards required by this Article"?

11. Eighthly, what is meant by the formula "all peaceful nuclear activities"? In that regard, how are we to understand the provision that the safeguards required "by this Article" shall be applied "on all source or special fissionable material in all peaceful nuclear activities"?

12. Ninthly, what is the purpose of applying the safeguards to all "source or special fissionable material whether it is being produced, processed or used in any principal nuclear facility or is outside any such facility"? What is the meaning of the words "any principal nuclear facility" for the purposes of article III? Furthermore, what is the purpose of applying safeguards on all source or special fissionable material "outside any such facility"?

13. Tenthly, if the "exclusive purpose" of implementation of the IAEA safeguards is to prevent the diversion of nuclear energy from peaceful uses to nuclear weapons or other

nuclear explosive devices, as provided in paragraph 1 of article III, why is the application of controls advocated "on all source or special fissionable material in all peaceful nuclear activities"?

14. Eleventhly, seeing that under paragraph 1 of article III control will be exercised over all peaceful nuclear activities of non-nuclear States, how would it be possible to carry out the provisions of paragraph 3, which stipulates that the economic and technological development of the Parties to the Treaty must not be hampered? How could such control be reconciled with the principle of non-interference in the internal affairs of States?

15. Twelfthly, for what reasons does paragraph 2 of the same article apply only to deliveries of nuclear material and equipment to non-nuclear States, and why does it not also apply to exports to nuclear countries?

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18. With those last few words I have already turned the corner from specific amendments to a set of questions on which, I am certain, most delegations are eager to obtain clarification. The majority of my queries, and the most technical of them, refer to article III, on that crucial matter of controls. My delegation has certainly noted with satisfaction that the co-Chairmen have finally been able to agree on a common proposal in this central sector. We especially appreciate that the International Atomic Energy Agency (IAEA) has been given the over-all responsibility for all treaty verification, while at the same time provisions are foreseen that would enable the utilization of the experience and the organizational arrangements of other international safeguard machinery. We trust that this compromise will be made watertight and tenable. That would give all safeguard activities the necessary credibility and would also remove from the safeguard field a large element of the commercial discrimination which exists today.

19. With our sense of satisfaction, however, is mingled a sincere disappointment that some important aspects of the control article proposed by my delegation in August 1967 (ENDC/195) have not been accepted by the co-Chairmen. Two basic principles of great importance which were embodied in our proposal have not been retained. They both concern the question of mutual obligations on the part of both nuclear-weapon and non-nuclear-weapon States. I will deal with both of them briefly in order to demonstrate what the non-nuclear-weapon States have lost in the process of agreement between the two leading nuclear-weapon States.

20. The Swedish proposal did not establish a full sharing of obligations. We maintained that, as long as nuclear activities for non-peaceful purposes were not forbidden, only the non-nuclear-weapon States could be obliged, under our formula as well as under the proposal of the co-Chairmen, to accept IAEA safeguards on all their nuclear energy activities. That is sheer logic. According to our text the nuclear-weapon States were, however, to undertake to co-operate in facilitating the gradual application of IAEA safeguards also to their own peaceful nuclear energy activities. In a highly-generalized form such a pledge is now to be found in the fifth preambular paragraph of the draft text, where it is said that the parties undertake "to co-operate in facilitating the application of International Atomic Energy Agency safeguards on peaceful nuclear activities". We should, of course, have much preferred to have this undertaking included in the control article itself and with a specific reference to the nuclear-weapon States.

21. We have duly registered as two major steps forward the unilateral undertakings made last December by the Governments of the United States and the United Kingdom (ENDC/206, 207), which in fact will vastly increase the amount of nuclear activities under safeguards and undoubtedly facilitate considerably international trade in the

nuclear field. The question remains: how complete will be the coverage of this pledge voluntarily to place nuclear activities under international safeguards in the countries mentioned and in other nuclear-weapon States? A similar pledge on the part of the Government of the third nuclear-weapon country present in this Committee, the Soviet Union, would naturally be of immense value as a proof of the sincere willingness of all States to apply international safeguards to their peaceful nuclear activities and to wipe out this quite unnecessary lack of equal treatment in regard to controls.

22. The Swedish proposal further contained a rule according to which no transfers of source or special fissionable material to any other State could take place unless the material were subject to IAEA safeguards. Such a clause would have a definite disarmament effect, as imports into nuclear-weapon States of fissionable material for weapon purposes would be forbidden.

23. That ambition to increase the non-discriminatory element in the treatment between the two categories of States has not been shared by the co-Chairmen. Their draft article III contains no conditions on the export to the nuclear-weapon States of fissionable material, equipment and so on for their military or peaceful nuclear programmes. We maintain that that is a serious limitation in the scope of the treaty; in fact it is a loop-hole by which non-nuclear-weapon States may, without even knowing it themselves, be aiding a military nuclear programme. We might even pose the question whether the treaty language of paragraph 1 of article III, which requires controls to follow all nuclear activities of non-nuclear-weapon States, does not allow an interpretation — at least as far as intentions are concerned — that to such activities belong also exports; that is, that material once controlled should never be diverted "from peaceful uses to nuclear weapons" in one's own or another country.

24. In real life the situation is somewhat more hopeful, because the supply policy of several States, including Sweden, already serves to some extent to close the loop-hole; it might be extended to do so completely by a policy requesting exclusively peaceful use and control as a condition for supply to nuclear-weapon States also. There are strong reasons for the suppliers to continue such a policy. It can easily be done by resorting to provisions for what is called a "continuation of safeguards", in accordance with paragraph 16 of the IAEA safeguards system of 1965 (INFCIRC/66), and by including such provisions in the agreements which are to be concluded between IAEA and the non-nuclear-weapon States signatories to the treaty.

25. We very much regret that it turned out to be impossible to include in the draft article III a formalization of such supply policies, already established by several States. However, lacking such a provision, we think it will be of fundamental importance for States which recognize the necessity of continuing those policies in the interest of disarmament to keep in informal contact with each other in order to standardize their policies and to remove any possible fear that safeguards will be commercially negotiable; because if that could happen the whole scheme would quickly degenerate. The draft article III before us, in combination with the unilateral undertakings by nuclear-weapon States and with an informal "code of ethics" observed by all supplier nations — which are presumably unwilling to be connected with a nuclear-weapon production programme through any generation of special fissionable material originating from them — would, but only under those conditions, come rather close to what we intended to achieve by our previously-proposed wording of the control article.

26. Let me raise a final query in regard to article III. The time-table suggested in paragraph 4, seen together with the rules for the entering into force of the treaty contained in paragraph 3 of article IX, causes rather serious anxiety. It is obvious that a considerable time will pass before the safeguards system will become universally applicable. Is there not a definite risk in the fact that during an interval which may extend to several years some countries may be subject to control and others not? All

the present apprehensions, both political and commercial in nature, will persist for that period.

27. Furthermore, there seems to be a hiatus between paragraphs 2 and 4 in article III. According to paragraph 2, no source or special fissionable material or special equipment may be provided to non-nuclear-weapon States unless the IAEA safeguards are applied. Thus, for part or for the whole of the interim period when these new agreements are being negotiated, a general standstill in the transfers of such material must be feared. A clarification on that point by the co-Chairmen would be most welcome.

28. The discrepancy in the timing between the entering into force of the treaty as such and the entering into force of control arrangements may entail a further risk. We must all realize how attentively some States will, and must, follow what control rules are going to be applied to certain other States. Is there not a risk that that may cause a retardation of the decisive act of ratification — too many States watching the actions of others? At least we should from this very moment encourage States to enter immediately into the preliminary negotiations with IAEA, so that the finally-ensuing patterns of control can be clearly discernible as early as possible.

ENDC/PV.366 USSR/Roshchin

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12. The system of control provided for in the draft treaty will in no way prevent non-nuclear countries from developing their peaceful atomic activities and will not be a means of interference in the internal affairs of States. Under the draft treaty, control has only one purpose: namely to prevent diversion of nuclear energy from peaceful uses to the manufacture of nuclear weapons. This is stated in article III, paragraph 1. In paragraph 3 of this article it is directly stipulated that the safeguards shall be implemented in such a way as to avoid hampering the economic or technological development of parties to the treaty or international co-operation in the field of peaceful nuclear activities. In this connexion, reference must also be made to article IV of the draft treaty on non-proliferation, which states — and I venture once again to quote the text of this provision:

"Nothing in this Treaty shall be interpreted as affecting the inalienable right of all the Parties to the Treaty to develop research, production and use of nuclear energy for peaceful purposes without discrimination and in conformity with Articles I and II of this Treaty."

13. Thus there are no grounds for the conclusion that the non-proliferation treaty will create obstacles to the peaceful use of atomic energy as a result of the application of control. In this connexion reference may also be made to the experience already gained in applying the safeguards of the International Atomic Energy Agency (IAEA), since it is precisely safeguards of this kind that are concerned in the draft non-proliferation treaty. We note with satisfaction that the functioning of the IAEA control system has not created any obstacles or difficulties for any country in the field of the peaceful use of atomic energy. We know that there are at present 120 installations in 27 countries under IAEA safeguards. No complaints have come from any of these countries about any obstacles on the part of IAEA to the development of their peaceful atomic activities. The members of our Committee are apparently already acquainted with the positive experience obtained in the application of IAEA safeguards, because all of them represent States which are members of the International Atomic Energy Agency.

14. I now turn to article III, which is expected not only to solve a very thorny problem — that of control — but also to inaugurate a new era of confidence and international co-operation. On 16 March 1967 I stated my delegations's position on the subject of control. I said:

"The treaty must contain provisions clearly stipulating compulsory and uniform application of the single system of safeguards of the International Atomic Energy Agency to all non-nuclear States parties to the treaty. Moreover, the control system must be extended to the transfer of nuclear material and to all nuclear activities, past and present". (ENDC/PV.294, para.14)

I added:

"In such a treaty the only inspection system acceptable in this respect is compulsory and not voluntary, international and not regional, effective and not fictitious". (ibid., para.15)

15. To what extent does the text of article III meet those very legitimate aspirations? It is difficult to deny the merit of this text due to the enormous importance and the divergence of interests connected with the application of control to nuclear activities. But, while taking into account the delicacy of this matter, we feel bound to express our apprehensions in regard to the text of article III. Of course, we shall be glad if the co-Chairmen give us the necessary information, clarifications or assurances concerning it.

16. First of all, we note that article III, paragraph 1, bases its safeguards on the agreements resulting from the negotiations that will take place between the International Atomic Energy Agency (IAEA) on the one hand and the States Parties to the treaty on the other. These agreements are left completely free by the text, which does not indicate that they will be subject to any common rules or that any common denominator will be applied. We are not at all opposed to flexibility in such agreements; on the contrary, we believe that a certain degree of flexibility is necessary in this field in order to cope with the diversity of situations. Nevertheless we fear that this excessive freedom will, in some cases at least, lead us in an unjust manner away from absolute uniformity of application of control over the various States, despite the similarity that may exist between their respective nuclear activities.

17. It is clearly in our common interest to set up an objective control in this field, which will vary only if its objective itself varies. It would not in our opinion suffice to say, in order to refute this argument, that in any case IAEA will have to be satisfied with each agreement it signs, and that that will be a sufficient guarantee against any unjustified diversity between States; for the fact remains that the Agency's satisfaction would have to be based on, among other factors, objective factors which would guarantee as far as possible equal control in equal nuclear situations.

18. That brings us to paragraph 4 of the same article, which stipulates that non-nuclear countries shall negotiate with the Agency "either individually or together with other States in accordance with the Statute of the International Atomic Energy Agency". We note first of all that this text is somewhat ambiguous in more than one respect. In the first place, it seems to us that the French text which we have just quoted does not agree perfectly with the English text, which says "together with" other States, whereas the French text uses the words "en coopération".

19. Nevertheless, both the French and the English texts apparently wish to state that, if certain States formed a group among themselves, they collectively and not their organization as such would negotiate with the Agency. However, that interpretation, which thus follows from the text, does not appear to be the one adopted by Mr. Fisher, who

told us that:

"This provision" — that is, paragraph 4 of article III — "permits the IAEA to enter into an agreement concerning the safeguards obligations of the parties with another international organization the work of which is related to IAEA and the membership of which includes the parties concerned". (ENDC/PV.357, para.53)

20. However, apart from these legal considerations, one cannot help wondering whether the implementation of paragraph 4 will not end up by establishing indefinitely in this field plurality instead of unity, discrimination instead of equality, and the weakness of the system instead of its effectiveness. Indeed, it is to be feared that IAEA may in these cases have to adopt more or less different safeguards systems according to the groups of States with which it has to conclude agreements. Moreover, one may well ask what would be, in that event, the exact nature of the safeguards, and what real power IAEA would have to enforce them in practice.

21. Our misgivings in this regard were not allayed — quite the contrary — after we heard Mr. Fisher say in this connexion:

"In order to avoid unnecessary duplication, the IAEA should make appropriate use of existing records and safeguards, provided that under such mutually-agreed arrangements IAEA can satisfy itself that nuclear material is not diverted to nuclear weapons or other nuclear explosive devices". (ibid., para.55)

22. Besides, we should have preferred the text of article III, paragraphs 1 and 2, to follow as far as possible the terminology of article III A, paragraph 5, of the Agency's Statute, and its safeguards system (INFCIRC/66/Rev.1), in order to determine the object of its control. We should at least like to have confirmation of the sense which, to our mind, is evident in article III to that effect and ties in with the provisions of the Agency's Statute and safeguards system, especially paragraph 29 of the safeguards system, — and indeed with the requirements of any effective control system. In fact, we believe that the control mentioned in the present article III extends mainly to source and special fissionable materials in whatever form or state they may be found, and whether they are produced, imported or exported by the country. Control would also extend to all kinds of principal nuclear installations, whether they contain or are intended to contain nuclear materials.

23. Moreover, paragraph 4 of article III lays down, for various cases, certain deadlines for the commencement of negotiations between the States and IAEA, and other deadlines for the entry into force of the agreements concluded between them. But one might ask what would have to be done if these negotiations failed, for one reason or another, to lead to the desired agreement, or failed to do so within the specified time. Furthermore, we note with Mrs. Myrdal that --

"It is obvious that a considerable time will pass before the safeguards system will become universally applicable. Is there not a definite risk in the fact that during an interval which may extend to several years some countries may be subject to control and others not?" (ENDC/PV.363, para.26)

24. In any case there is hardly any point, we believe, in insisting on the necessity of proceeding as soon as possible after signature of the treaty to the re-examination, according to a well-prepared plan, of the Statute and present safeguards system of the Agency; because it will be necessary to re-organize the Agency, and more particularly its safeguards department, administratively and technically. These measures are in fact necessary to enable the Agency, without useless waste of time, to assume the duties which will be laid upon it by the treaty as soon as this has been concluded, and to apply the rules governing them as objectively and efficiently as possible. Moreover, the cost

of applying the safeguards of the treaty will have to be borne for the most part by the rich countries, and naturally in the first place by the nuclear countries.

25. Moreover, and assuming that the text of paragraph 4 of article III will not be changed, it seems to us that it would be useful, indeed sometimes necessary, to make certain changes in the safeguards systems adopted by the organizations with which IAEA will be linked through agreements, in order to render them more suitable for achieving the objects of the non-proliferation treaty.

26. In addition we must note that, however legitimate may be the concern to defend the interests of commerce and industry in the international nuclear field, it is none the less true that this concern must in no way diminish the maximum efficiency which the application of the present treaty requires.

27. Lastly, and still on the subject of control, we wonder whether it would not be better to modify somewhat the contents of the fifth paragraph of the preamble, especially by strengthening it and making it concord with the text of article III of the revised draft. This paragraph appears in fact to be based on the old United States draft treaty (ENDC/152), which did not contain any provisions comparable with those of the present article III.

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31. In his next question, the representative of Romania asked for the exact meaning of the phrase "safeguards system" of IAEA, appearing in paragraph 1 of article III. He asked: "Does it mean the present system, or a system which will be continually amplified?" (ENDC/PV.362, para.9), and, if so, why. Closely related was his seventh question, in which he asked about the relationship between the "safeguards system" of the Agency and the "safeguards required by this Article."

32. The safeguards to be applied under the non-proliferation treaty are those to be specified in agreements negotiated and concluded in accordance with the Agency's Statute and safeguards system. As is the case with safeguards agreements presently in effect with IAEA, we expect that safeguards agreements pursuant to the non-proliferation treaty will incorporate by reference the relevant portions of the Agency's safeguards system documents. Should improvements in the safeguards system be made in the future, these could only be made in accordance with the Agency's established statutory procedures, the elaboration of which would involve the approval of the Agency's members.

33. We should note that the IAEA safeguards system document itself foresees the possibility of improvement. In its eighth paragraph it states:

"The principles and procedures set forth in this document shall be subject to periodic review in the light of the further experience gained by the Agency as well as of technological developments." (INFCIRC/66/Rev.1)

In other words, the safeguards system established by IAEA is subject to possible changes which could not only strengthen the effectiveness of the safeguards but which could also apply advanced technology to simplify existing procedures. It is these technological developments which the fifth preambular paragraph of the draft treaty seeks to encourage.

34. To illustrate the improvements made in 1966, IAEA then adopted procedures for the safeguarding of chemical reprocessing plants. At its meeting which is currently in progress in Vienna, the IAEA Board of Governors is discussing the addition of specific procedures for safeguarding nuclear material in fuel fabrication facilities. Specific safeguards procedures will soon be available for the entire fuel cycle. But any such changes made after the negotiation of a safeguards agreement could be applied by IAEA only

with the consent of the parties to the safeguards agreement, a consent to be given either through some general procedure agreed in advance or through subsequent modifications made in the agreements with the Agency.

35. In his next question, the representative of Romania asked about the meaning of the formula "all peaceful nuclear activities". He asked:

"...how are we to understand the provision that the safeguards required 'by this Article' shall be applied 'on all source or special fissionable material in all peaceful nuclear activities'?" (ENDC/PV.362, para.11)

The use of the phrase "all peaceful nuclear activities" is intended to cover all places and all activities where source or special fissionable material employed for peaceful purposes is located. It is such material which is the direct object of the safeguards.

36. The next question put by the representative of Romania dealt with the purpose envisaged in applying the safeguards to all "source or special fissionable material whether it is being produced, processed or used in any principal nuclear facility or is outside any such facility". He also asked what was understood by the implementation of safeguards with respect to source or special fissionable material "outside any such facility". The second sentence of article III is derived directly from the general safeguards procedures specified in paragraph 29 of the IAEA safeguards system document. This sentence specifies the scope of treaty safeguards procedures as applying to "source or special fissionable material" regardless of its mode of employ or of its location.

37. With regard to the meaning of the words "in any principal nuclear facility", we should note that paragraph 78 of the Agency's safeguards system document of 1965, as revised in 1966, defines such a facility as —

"...a reactor, a plant for processing nuclear material irradiated in a reactor, a plant for separating the isotopes of a nuclear material, a plant for processing or fabricating nuclear material (excepting a mine or ore-processing plant) or a facility or plant of such other type as may be designated by the Board from time to time, including associated storage facilities." (INFCIRC/66/Rev.1)

Examples of the "associated storage facilities" would be the rooms in a nuclear reactor complex used for storing fuel to be inserted in the reactor and the pool of water used for storage of the highly radioactive fuel which has come out of the reactor. The words "or is outside any such facility", about which Mr. Ecobesco also asked (ENDC/PV.362, para.12), come directly from paragraph 29 of the safeguards document. They make it clear that the treaty safeguards procedures apply to source or special fissionable material in all locations.

38. In his tenth question Mr. Ecobesco asked why the application of controls was advocated "on all source or special fissionable material in all peaceful nuclear activities" if the "exclusive purpose" of the implementation of IAEA safeguards was to prevent the diversion of nuclear energy from peaceful uses to permit the manufacture of nuclear weapons or other nuclear explosive devices, as provided in paragraph 1 of article III.

39. To accomplish the exclusive purpose stated in the first sentence of article III, treaty safeguards must be applied on all source or special fissionable material in the peaceful nuclear activities of non-nuclear-weapon parties. Of course, this does not mean that all source or special fissionable material would be subject to the same degree of inspection. For example, paragraph 58 of the Agency's safeguards system document — regarding frequency of inspection for nuclear material in a reactor — states that the actual frequency of inspection shall take account of —

- (a) Whether the State possesses irradiated-fuel reprocessing facilities;
- (b) The nature of the reactor; and
- (c) The nature and amount of the nuclear material produced or used in the

reactor." (INFCIRC/66/Rev.1)

Paragraph 47, relating to general procedures for inspection, states:

"The number, duration and intensity of inspections actually carried out shall be kept to the minimum consistent with the effective implementation of safeguards, and if the Agency considers that the authorized inspections are not all required, fewer shall be carried out." (ibid.)

40. It should also be noted that the IAEA safeguards document makes provision in paragraphs 21 through 23 for exempting from safeguards any quantities of source or special fissionable materials which are too small to be potentially significant from the standpoint of nuclear weapon manufacture.

41. I come now to the next question of the representative of Romania. He said:

"...seeing that under paragraph 1 of article III control will be exercised over all peaceful nuclear activities of non-nuclear States, how would it be possible to carry out the provisions of paragraph 3, which stipulates that the economic and technological development of the Parties to the treaty must not be hampered? How could such control be reconciled with the principle of non-interference in the internal affairs of States?"

(ENDC/PV.362, para.14)

42. The United States is convinced that treaty safeguards will not impose industrial, economic or any other burdens on treaty signatories and hence will not interfere with the internal affairs of the parties. We believe this conviction was clearly demonstrated by President Johnson's offer of 2 December 1967.

43. We see no contradiction between paragraphs 1 and 3 of article III. In fact, they are to some extent mutually reinforcing. As Mr. Fisher said when presenting the new treaty draft on 18 January, one of the two major and beneficial purposes he saw served by the new safeguards article was that —

"...the extensive application of treaty safeguards will reduce concern about providing source and special fissionable material, specialized equipment and information to non-nuclear-weapon States. It will thus provide a significant impetus for accelerated co-operation among all parties in the development of peaceful nuclear research and industry." (ENDC/PV.357, para.57)

States will become parties to the treaty according to their own decisions taken in the light of their evaluation of their national interests. Surely we have reached the point where it is no longer necessary to raise the question of interference in internal affairs in connexion with a voluntary action by individual sovereign governments to enable the international community to avert a common danger.

44. In his last question, the representative of Romania asked why paragraph 2 of the same article, dealing with nuclear material and equipment, applied only to deliveries to non-nuclear States, and why this paragraph should not apply also to exports to nuclear countries. This question relates to the issue of the applicability of treaty safeguards to nuclear-weapon parties, to which I referred in connexion with his fourth question. While there is no treaty requirement for safeguards on exports to nuclear-weapon countries, parties are in no way precluded from requiring such safeguards as a condition for exports to nuclear-weapon States, if they wish to do so.

45. I should like now to deal with another question regarding article III raised by the representative of Sweden in her statement at our meeting of 8 February (ENDC/PV.363, para.26). But first I should like to note with appreciation that Mrs. Myrdal expressed the view that the article III we are discussing will, in practice and taking into account the safeguards offers of the United States and the United Kingdom, come, as she put it, "rather close" (ENDC/PV.363, para.25) to what was intended by the safeguards proposal suggested by the Swedish delegation in August 1967 (ENDC/195). Again, I should like to

state the view of the United States delegation that the safeguards article before us is not only realistic but also effective.

46. In her statement Mrs. Myrdal suggested that the time-table set forth in paragraph 4, taken together with the provisions for entry into force of the treaty contained in article IX, paragraph 3, raised possible problems. She said it was obvious that a considerable time would pass before the safeguards system would become universally applicable. Is there not a definite risk, she asked, that during an interval, which may extend to several years, some countries may be subject to control and others not? (ENDC/PV. 363, para.26)

47. Furthermore, she added, there seems to be a hiatus between paragraphs 2 and 4 in article III (*ibid.*, para.27). She said that according to paragraph 2 no source or special fissionable material or special equipment may be provided to non-nuclear-weapon States unless IAEA safeguards are applied. Thus, she concluded, for parts of or for the whole interim period, a general standstill in the transfers of such material must be feared.

48. We expect that treaty safeguards will begin to apply at different times within the over-all period specified by article III, depending on when the parties conclude the prescribed agreements with the Agency. However, with respect to any possible "general standstill in the transfers" of nuclear material as a result of the provisions of paragraphs 2 and 4, it is our interpretation that paragraph 2 does not prohibit such transfers of nuclear material during the transition period. Specifically, paragraph 2 of article III contains an undertaking not to provide materials or equipment "unless the source of special fissionable material shall be subject to the safeguards required by this Article." But the "safeguards required by this Article" are safeguards to take effect not later than at the end of the specified period. They are not safeguards required immediately upon entry into force of the treaty. Accordingly, paragraph 2 of article III does not contain an obligation to interrupt transfers during the transition period.

49. The United States expects to continue during the transition period its present policy of supplying materials and equipment under appropriate safeguards. We hope other States will follow a similar policy of requiring appropriate safeguards during this transition period. Of course, any such safeguards will, as necessary, later have to be brought into conformity with the safeguards required by the treaty when the party in question concludes its agreement with IAEA.

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20. There is yet another feature of the treaty which causes concern, and that relates to safeguards provided in article III, which apply only to non-nuclear-weapon States, making the obligation entirely one-sided. The Indian Government has been consistently of the view that the safeguards should be universally applicable and be based on objective and non-discriminatory criteria. The Indian delegation is aware that two nuclear-weapon States have made statements indicating their willingness to accept the safeguards provided in the draft treaty (ENDC/206, 207); but this acceptance, apart from the fact that it is not agreed to by the other nuclear-weapon Powers, is subject to "national security", the scope of which presumably would be defined by the nuclear-weapon States themselves, making the application of the safeguards illusory in practice.

21. While on the subject of safeguards, apart from the feature of paragraph 2 of article III I have just mentioned, we note that in the application of the whole safeguards system a certain flexibility has been envisaged. Paragraph 4 of this article speaks of non-nuclear-weapon States party to the treaty concluding agreements with the International Atomic Energy Agency "either individually or together with other States". It is not stated that these agreements would be uniform, one not being more onerous than the

other, whether negotiated by individual countries or by a group of countries. In regard to the application of safeguards, we hope it is not the intention that different standards should be applied to those who accede to the treaty.

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5.3.68

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42. In our deliberations so far considerable attention has been rightly concentrated by a number of delegations upon article III, on safeguards. Being aware of the difficulties which the solution of this question encountered in the previous negotiations, we consider the formulation of article III in the drafts of 18 January to be a most essential contribution. This article corresponds in principle to our views concerning the purposes and tasks of safeguards within the framework of the non-proliferation treaty. The proposed range and object of the safeguards measures are in harmony with the task which the international control under the non-proliferation treaty has to fulfil: that is to say, to ensure the observance of the commitments undertaken by the contracting parties under the treaty. In harmony with the commitments undertaken on the one hand by non-nuclear-weapon States and on the other by nuclear-weapon States, and in particular with the contents of those respective commitments, we consider acceptable the concept upon which article III is based, according to which the commitment to apply the relevant safeguards to the activities in the field of peaceful uses of nuclear energy does not relate to nuclear-weapon States.

43. Furthermore, the method of application of the safeguards, as stipulated in article III, is in harmony with the views stated earlier by my delegation in this Committee. Article III is based on the principle that the responsibility for providing assurance that fissionable material is not diverted to the production of nuclear weapons rests with the International Atomic Energy Agency (IAEA). That, we are glad to note, was again explicitly stated by the representative of the United States, Mr. Fisher, at the meeting of 18 January, when he presented the revised draft (ENDC/PV.357, para.55). That fact is reflected in the provision of the first paragraph of article III, where it is stipulated that the agreements on safeguards to be negotiated and concluded by the contracting parties with IAEA must be in accordance with the Statute of IAEA and the Agency's safeguards system.

44. The Czechoslovak Socialist Republic, as a member of IAEA, is, together with an overwhelming majority of the Agency's member States, in favour of the safeguards system adopted at the Ninth General Conference of IAEA in Tokyo. In our opinion this system is in accordance in principle with the present level of research in, the peaceful uses of, nuclear energy throughout the world. It is therefore a suitable basis for the fulfilment of the tasks of the Agency. That fact is confirmed by the experience gained so far from the application of the Agency's safeguards system. That led the Czechoslovak Socialist Republic to announce at the Tenth General Conference in 1966 its willingness to accept, under certain conditions, the Agency's safeguards. We consider that the fact that the agreements on safeguards to be negotiated and concluded with the IAEA by all non-nuclear-weapon parties to the treaty must be in harmony with the Statute of the Agency and its safeguards system is an adequate guarantee that these safeguards will be, on the one hand, sufficiently effective and, on the other, equal for all contracting parties.

45. In the discussions so far questions have also been raised concerning how the non-proliferation treaty would be affected by future changes in the IAEA safeguards system. The Czechoslovak delegation considers it only natural that the IAEA safeguards system will develop further in accordance with the further development of the peaceful uses of nuclear energy, with the development of technology in the sphere of control,

and with the experience gained in the application of safeguards. That is how we interpret also the relevant provision in the preamble to the draft treaty. In our opinion this expected development in the sphere of safeguards should not cause any problems or doubts. It is our conviction that changes in the safeguards system will result only in its improvement.

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8. It is in the same spirit of sincere collaboration, on which all my delegation's activity has been based during the debates that have taken place in this Committee, and in the firm decision to continue to make its contribution to the drafting of a treaty based on solutions that shall be both equitable and effective, that the Romanian delegation, on the instructions of the Government of the Socialist Republic of Romania, has the honour of submitting officially to the Committee a working paper containing amendments modifying and adding to the revised text of the draft treaty on the non-proliferation of nuclear weapons (ENDC/223/Rev.1). Our task is lighter because the paper has been circulated in advance and delegations have already been able to acquaint themselves with the contents of the amendments which it sets forth.

9. As our colleagues have no doubt already noted, the Romanian delegation's proposals deal with the question of control within the context of the non-proliferation treaty; with the relationship between this treaty and other measures aimed at achieving nuclear disarmament; with the security assurances which have to be given to the non-nuclear countries parties to the treaty; with the convening of periodic conferences; and with certain aspects of the conditions of withdrawal from the treaty.

10. In dealing with the question of control, we should like to make it clear that in our opinion the control measures must be confined to the basic objectives of the treaty, which are made quite evident by the obligations contained in articles I and II of the draft treaty. The essential purpose of these obligations is to prevent the proliferation of nuclear weapons. Precisely for that reason, it is quite natural that the provisions dealing with control should be strictly subordinated to the purpose laid down.

11. In its present form, article III provides for an extension of the safeguards system of the International Atomic Energy Agency to fields which, by their nature, involve no danger of the proliferation of nuclear weapons. In order to ensure complete agreement between the scope of the safeguards and the purpose laid down by the treaty, the area of control must be defined in such a way as to cover only those activities of States which might enable nuclear energy to be diverted from its peaceful uses to the manufacture of nuclear weapons. Otherwise, control may put a brake on the activities of States devoted to the peaceful use of nuclear energy.

12. Those are the considerations underlying our proposal to include in article III, before the present paragraph 1, a new paragraph worded as follows:

"The control established by this Article shall have the exclusive purpose of preventing the use of special fissionable materials for the production of nuclear weapons or other nuclear explosive devices by non-nuclear-weapon States Party to the Treaty. Control shall be applied to such peaceful nuclear activities of non-nuclear-weapon States Party to the Treaty as, by their nature and the quantities of source and special fissionable materials which they produce, process or use, may lead to the proliferation of nuclear weapons".

Consequently it will be necessary to make a series of changes in the first three paragraphs of the present text of article III, and the paragraphs will have to be re-numbered. Since all representatives have these proposals before them, we do not

intend to repeat them.

13. Nevertheless, we should like to draw the attention of members of the Committee to the new paragraph 6 which we propose for inclusion in article III. It is worded as follows:

"6. The States Party to the Treaty agree to establish through the Security Council an appropriate control to ensure that non-nuclear weapon States Party to the Treaty on whose territory there are foreign military bases shall not acquire in any form whatsoever access to nuclear weapons indirectly through such bases".

We have drafted that paragraph on the footing that article III contains a number of measures designed to control the technical means by which countries not possessing nuclear weapons may acquire them, through their own means or through outside assistance. But the draft treaty on non-proliferation does not offer any solution of control designed to prevent the danger of the proliferation of nuclear weapons indirectly through military bases equipped with nuclear weapons situated on the territories of certain non-nuclear States.

14. Nevertheless, in accordance with the obligations devolving on the Parties to the treaty under Articles I and II, it is necessary to set up a reliable barrier to preclude any form of proliferation of nuclear weapons. That is the requirement that prompts the Romanian delegation's proposal regarding paragraph 6, the effect of which would be to close a loophole whose consequences must not be under-estimated.

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2. In the discussion concerning the draft treaty on the non-proliferation of nuclear weapons (ENDC/192/Rev.1, 193/Rev.1) great attention has been given to the question of control over the fulfilment by the parties to the treaty of their obligations under the treaty to the question in what way and how effectively the provisions of the treaty, especially article III, ensure compliance with the treaty by the parties to it.

3. Some delegations, in particular the representative of the United Arab Republic, Mr. Khallaf (ENDC/PV.367, paras.14 et seq.), have expressed misgivings concerning whether article III provides to a sufficient extent the assurance that the basic obligations assumed under the treaty will be fulfilled and that the main purpose of the treaty — the non-proliferation of nuclear weapons — will be achieved. In this connexion the following questions have been raised: is there any assurance that the agreements on control over the fulfilment of the obligations assumed under the treaty will be complied with in practice; and will control be applied in the same way to the different States?

4. In stating our views on the first of these questions, namely whether the treaty will be complied with in practice, we must first of all point out that, as is well known, under article III of the draft non-proliferation treaty the agreements on control are to be concluded with the International Atomic Energy Agency (IAEA) in accordance with the Agency's Statute and safeguards system; (INFCIRC/66/Rev.1) consequently the provisions of the Agency's Statute that ensure compliance with the agreements on safeguards will also be applied to the agreements concluded in accordance with article III of the non-proliferation treaty.

5. The Agency's Statute gives it considerable authority to observe how the safeguards agreements are complied with by States which have concluded such agreements with it. The rights and obligations of IAEA in this field are set forth in article XII of its Statute, which contains a whole set of measures designed to ensure the fulfilment of agreements on safeguards. Thus under this article, in the event of non-compliance by any State with the agreement on safeguards, IAEA is entitled to demand the immediate

remedy of any non-compliance which it has discovered and to report this to all members of the Agency and also to the Security Council and the General Assembly of the United Nations.

6. In its activities over a period of more than ten years the Agency has acquired great experience in the application of safeguards. By October 1967 the Board of Governors of the Agency had approved 35 agreements on safeguards. Twenty-nine countries apply the safeguards which cover 65 reactors. Speaking of the possibilities of the Agency in regard to control functions under a non-proliferation treaty, the Director-General of the International Atomic Energy Agency, Mr. Eklund, stated at its eleventh General Conference in September 1967 that it was prepared to assume such functions. He said:

"The control organization which we have is capable of doing this; and we can say with conviction that the Agency is the best organization available for the implementation of such an important task."

7. The experience of the International Atomic Energy Agency in applying safeguards has been recognized in the Treaty for the Prohibition of Nuclear Weapons in Latin America of 14 February 1967 (ENDC/186). It is well known that the system of control provided for by this treaty includes the application of IAEA safeguards to the activities in the field of nuclear energy of the States parties to the Latin-American treaty.

8. In view of what we have just explained we consider that the control measures provided in article III duly ensure compliance with the treaty on the non-proliferation of nuclear weapons.

9. On the question whether control will be applied uniformly to different States, it is necessary above all to point out that article III, paragraph 1, states quite clearly that agreements concerning verification of the fulfilment of the obligations assumed under the treaty will be concluded with the International Atomic Energy Agency "in accordance with the Statute of the International Atomic Energy Agency and the Agency's safeguards system." In accordance with paragraph 5 of the document concerning IAEA safeguards,

"The Agency will not assume such responsibility [for administering safeguards] unless the principles of the safeguards and the procedures to be used are essentially consistent with those set forth in this document."

10. Accordingly the agreements to be concluded with the Agency must provide for safeguards whose principles and the procedures to be used are in accordance with the principles and procedures laid down in the document concerning the Agency's safeguards. Thus article III of the non-proliferation treaty, the provisions of the Statute of IAEA and of the document concerning the Agency's safeguards will serve as a sound legal basis which should ensure that the agreements concluded with IAEA by parties to the treaty have the necessary degree of uniformity in applying control to the different countries.

11. No inconsiderable importance for ensuring the necessary uniformity of agreements on control attaches also to the fact that on the part of IAEA these agreements are to be approved by its Board of Governors, which is a sufficiently representative body to ensure that various points of view are taken into account in considering such agreements. Moreover, in accordance with the Agency's Statute, in case of need the question of any particular agreement may be referred to the General Conference of the Agency, in which all its members are represented; or this Conference may itself call for a report from the Board of Governors on any given matter.

12. In connexion with the question we have just touched upon, we would mention the statement made by the representative of Nigeria, Alhaji Sule Kolo, who explained the position of his Government in regard to article III as follows:

"We are particularly happy that the safeguards agreements provided for under the article are to be concluded in accordance with the Statute of

IAEA. This condition presupposes that all such agreements shall be subject to approval by the Board of Governors of that Agency and that all members of the Agency will have access to the texts of the individual or collective agreements. Under such conditions, and given good will on all sides, the present article III should meet the needs of non-proliferation." (ENDC/PV.371, para.22)

13. Further, during the discussion the question was raised whether a procedure whereby control would be applied to atomic activities of the non-nuclear States parties to the treaty and would not be extended to the nuclear-weapon States, would not be contrary to the objectives of the treaty. In connexion with that question we should like to point out that the article on control has been so drafted as to ensure that fissionable materials in non-nuclear States shall not be diverted to the production of nuclear weapons. The non-proliferation treaty does not provide for the prohibition of nuclear weapons and their manufacture by the nuclear countries — although it is indeed a step towards that objective. Therefore, according to the sense of the non-proliferation treaty, there arises no question of control over the activities of the nuclear Powers in the atomic field.
14. At the same time article III of the treaty has a special provision the purpose of which is to ensure that in their relations with the non-nuclear States the nuclear Powers parties to the treaty do not infringe the purposes which this agreement sets before it. In accordance with paragraph 2 of article III, each State Party to the Treaty, whether nuclear or non-nuclear, undertakes not to provide source or special fissionable material, or equipment or material especially designed or prepared for the processing, use or production of special fissionable material, unless there is international control over such material or equipment.
15. The draft treaty on the non-proliferation of nuclear weapons has been drawn up with due regard to the reality of the existence of States possessing nuclear weapons and of States not possessing such weapons. Accordingly it is quite reasonable that the States possessing nuclear weapons and the States not possessing such weapons, in concluding a treaty on the non-proliferation of nuclear weapons, should assume obligations of a different character. This differentiation of the obligations assumed by States under the treaty derives from the purpose of the treaty and is necessary for the achievement of its aim — to prevent widening of the circle of States possessing nuclear weapons.
16. Despite the difference in character of the obligations of the nuclear and non-nuclear parties, the non-proliferation treaty serves the interests of both types of States, by setting itself the aim of restricting the number of States possessing nuclear weapons. Thereby the treaty reduces the risk of an outbreak of war with the use of atomic and hydrogen bombs. Under the treaty all States are provided with an important means of ensuring their security. Consequently the treaty is based on the common interest of the parties to it in the strengthening of international peace and security.
17. Thus article III, by ensuring the fulfilment of the main purpose of the treaty, meets the interests of all the parties to it. Moreover, where the non-nuclear States are concerned, these, by assuming the obligation not to acquire or to produce nuclear weapons, would like to have the assurance that work on the creation of nuclear weapons is not being carried on in other non-nuclear States in circumvention of the treaty. That is the purpose that will be served by the control system provided by the treaty.
18. Some delegations have raised the question whether the control system provided by the draft treaty on the non-proliferation of nuclear weapons would not create obstacles to the economic and technological development of States parties to the treaty in the matter of the peaceful application of nuclear energy, and whether this control would not lead to infringement of the sovereignty of States parties to the treaty and to interference in their internal affairs. We dealt with this question in our statement of 16 February (ENDC/PV.366, paras.11 et seq.). In addition to what we then said, we deem it

appropriate to draw attention to the provision of paragraph 9 of the document on IAEA safeguards, which lays down that "The Agency shall implement safeguards in a manner designed to avoid hampering a State's economic or technological development."

19. As for the question of the sovereign rights of States, it may be pointed out in this connexion that Article III B.1 of the Statute of IAEA lays down that in carrying out its functions the Agency shall "conduct its activities in accordance with the purposes and principles of the United Nations". The provisions of the United Nations Charter concerning the purposes and principles of the United Nations forbid any intervention "in matters which are essentially within the domestic jurisdiction of any State..." (Article 2, para.7). Moreover, observance of the principle of the sovereign rights of States in the implementation of the control system is guaranteed by the provision of Article III D of the Statute of IAEA which lays down that "the activities of the Agency shall be carried out with due observance of the sovereign rights of States."

20. Thus the provisions of the draft treaty on the non-proliferation of nuclear weapons relating to international control over the fulfilment of the obligations assumed under the treaty do not allow any interference in the internal affairs of the States parties to this treaty or any infringement of their sovereignty in connexion with the implementation of such control.

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12. Concerns such as those expressed by the delegation of Italy have contributed to the formulation of article IV and article III. The second paragraph of article IV now contains a clear-cut undertaking by parties to co-operate in contributing alone or together with other States or international organizations to the future development of the applications of nuclear energy for peaceful purposes, especially in the territories of non-nuclear-weapon States parties to the treaty. This undertaking would include the supply of nuclear materials for peaceful purposes.

13. Some concern has been expressed in this Committee that perhaps in some way the requirement of safeguards pursuant to article III might detract from international co-operation in the supply of nuclear materials. However, it is important to note that the first sentence of the third paragraph of article III states clearly that the safeguards required by the article shall be implemented in a manner designed to comply with article IV of the treaty. Moreover, paragraph 3 of article III prescribes that the safeguards shall avoid hampering the economic or technological development of the parties or international co-operation in the field of peaceful nuclear activities, including the international exchange of nuclear material and equipment -- and I repeat: including the international exchange of nuclear material and equipment.

20. With regard to the proposed Romanian amendments to article III, the substance of most of those amendments was discussed in Ambassador DePalma's statement of our 368th meeting, in reply to Ambassador Ecobesco's questions at our 362nd meeting. For example, the proposed new paragraph 6 or article III, calling for Security Council control to --

"...ensure that non-nuclear-weapon States Party to the Treaty on whose territory there are foreign military bases shall not acquire in any form whatsoever access to nuclear weapons indirectly through such bases" --

parallels the substance of one of Ambassador Ecobesco's earlier questions. In this instance I should like to reiterate the response given by the United States delegation to his earlier question:

"The answer is to be found in the provisions of article I which prohibit

any transfer to any recipient whatsoever of nuclear weapons or other nuclear explosive devices, or control over such weapons or devices, directly or indirectly. This article and the counterpart article II thus prohibit those activities which constitute nuclear proliferation. The treaty is not designed to deal with defence relationships or arrangements within alliances which do not involve nuclear proliferation. Any attempt to do so would take us back into the morass of theoretical argumentation over amorphous issues which too long frustrated our negotiations." (ENDC/PV. 368, para.30)

21. Similarly, we have previously treated the question of the degree to which peaceful nuclear activities of non-nuclear-weapon parties must be subject to treaty safeguards. We have already noted that the IAEA safeguards document (INFCIRC/66/Rev.1) -- particularly in paragraphs 47 and 58 -- already provides for varying degrees of inspection. Also we have pointed out that there are provisions -- specifically in paragraphs 21 and 22 -- for exempting from safeguards any total quantities of source or special fissionable materials which are too small to be potentially significant from the standpoint of nuclear proliferation. Therefore I believe that the proposed Romanian amendments dealing with quantitative and qualitative limitations on the application of treaty safeguards are unnecessary. They are already covered in principle and as far as necessary in the IAEA safeguards document.

22. However, I should like to reiterate our conviction that, to accomplish the exclusive purpose stated in the first sentence of article III, treaty safeguards must in the first instance be applicable to all source or special fissionable material in the peaceful nuclear activities of non-nuclear-weapon parties. Any exemptions from such safeguards and relaxations in the degree of safeguards inspection would then be made as provided for in the safeguards agreements concluded with IAEA and in accordance with specific provisions of the IAEA safeguards document, such as those I mentioned earlier.

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32. We find the content and phrasing of the preamble satisfactory, and in particular we ascribe importance to the provisions that assert support for research on and development of the instrumented means of carrying out safeguards procedures in the system of the International Atomic Energy Agency (IAEA); to the provisions that affirm the principle that States not possessing nuclear weapons should receive the benefits of all peaceful applications of nuclear technology, including the uses of nuclear explosive devices for peaceful purposes; and to those provisions which refer to steps to halt the arms race and lead to nuclear disarmament. We are pleased to see the inclusion in the present draft of the paragraph suggested by the delegation of Sweden (ENDC/215) reaffirming the determination expressed in the Moscow limited test-ban treaty (ENDC/100/Rev.1) to achieve a cessation of all nuclear weapon testing.

34. Turning to article III: while Canada would have preferred an equitable safeguards article, which would apply safeguards to the peaceful nuclear activities of all parties to the treaty, we consider the formulation of article III submitted on 18 January by the United States and the Soviet Union (ENDC/192/Rev.1; 193/Rev.1) to be an acceptable compromise arising out of lengthy and difficult negotiations. As a non-nuclear-weapon State, Canada has been greatly assisted in coming to a decision to support this formulation by the public undertakings of the United States and the United Kingdom last December to accept safeguards on their own non-military nuclear activities (ENDC/206, 207). We earnestly appeal to the Union of Soviet Socialist Republics to give a similar

undertaking.

35. We would urge other members of this Committee also to support the latest formulation of article III. This article is in our view essential to the credibility and working of the treaty, because it would provide effective means of ensuring that the terms of the treaty were being respected by the parties. As we have often stated in this Committee, Canada considers provision for effective verification to be fundamental to realistic and durable measures of arms control, not least to invest them with the vital element of international credibility. Article III would, we are sure, accord the treaty the necessary credibility and instil in parties the confidence necessary to ensure that the treaty would be effective in preventing the further spread of nuclear weapons and enhancing the security of the community of nations.

36. We would remind members of the Committee that the intent of the article is to apply safeguards in accordance with the Statute of IAEA and the Agency's safeguards system (INFCIRC/66/Rev.1). This safeguards system has been sanctioned by the General Conference of the Agency, which claims the membership of every country represented in this Committee. It has, moreover, attracted wide international support and has stood the test of time and experience. Article III envisages, not the imposition of a new untried concept and set of procedures, not a departure from established norms and practices, but rather the logical, and we trust progressive, extension of an effective, unobtrusive and generally-acceptable set of controls against the diversion of nuclear energy to weapon purposes.

37. What is required at this juncture is merely some general indication of support for the principle and intent of the article, particularly from those members of the Committee with active peaceful nuclear programmes. No member can be expected to make a final judgement on or commitment to the article until the treaty is in final form. All members will have the opportunity to review and assess the viability of all provisions of the treaty before they sign and ratify it. Even as parties, they will have the opportunity to review the actual functioning of the treaty and the extent to which all parties are living up to its terms and spirit.

38. However, we can clearly not begin the process of developing a treaty safeguards system until a convincing number of prospective parties agree on and indicate their support for such a system. Only with such support can we ensure that the predominant part of the world's nuclear materials and equipment will fall under effective safeguards.

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74. I turn now to my own proposals. In the nuclear field my own priority is a ban on underground tests, and we have given particular thought ourselves to the problems of a comprehensive test ban treaty. Obviously the banning of underground nuclear tests is closely related to any agreement on the limitation of offensive and defensive nuclear weapons and an associated cut-off of production of fissile material for nuclear weapons, but it seems to us to be a measure of cardinal importance because we think that the real danger of vertical proliferation lies in the development of more sophisticated weapons systems. Purely quantitative control will achieve nothing if the nuclear weapons that are permitted become more and more costly and more and more deadly. The merit of a comprehensive test ban treaty is just this, that it would prevent the development of more sophisticated weapons systems.

75. The principal avowed obstacle in the way of a comprehensive test ban treaty is the problem of on-site inspection. Obviously, if there is a treaty parties must be able to satisfy themselves that the obligations imposed by the treaty are being fulfilled. Since this question of on-site inspection first became a bone of contention, the means of

identifying incidents as earthquakes or explosions have been greatly improved, but it is difficult to see how a complaint by one party that the treaty had been infringed could be substantiated without on-site inspection.

76. The Soviet Union has consistently opposed the whole principle of on-site inspection. We can understand fears that such inspections might provide opportunities for espionage, but we think that those fears might be dispelled if arrangements could be made by which on-site inspection could take place only if there were strongly seismic or other evidence that the treaty had been infringed. I should therefore like to suggest that consideration be given to the possibility of the treaty's providing for a special committee whose function it would be to consider complaints of infringements of the treaty and assess the evidence produced in support of the complaint. Such a committee might be composed of the representatives of the three nuclear-weapon States parties to the treaty, the representatives of three non-aligned countries and a nominee of the United Nations Secretary-General or the Director-General of the International Atomic Energy Agency. There should be the right of on-site inspection if the Committee decided by a majority of five to two that a prima facie case had been made out in support of the complaint. Our thought is that a committee of this composition would be able to carry out on-site inspection only if there were very strong evidence that the treaty had been infringed. The necessary majority could never be achieved if there were a mere suspicion that an unauthorized nuclear explosion might have taken place. That should help to obviate all possibility of unnecessary on-site inspection and so rule out all fears of its improper use.

77. As I have already indicated, the question of a comprehensive test ban is closely linked with agreement on the cut-off of production of fissile material for nuclear weapons and with the limitation and subsequent reduction of offensive and defensive nuclear delivery vehicles, but there is a difference between the comprehensive test ban and these other measures — the difference between a continuing process and a once-for-all event. The comprehensive test ban has been generally thought of as a once-for-all event, an agreement that up to a certain date there should be complete freedom to conduct any number of underground nuclear weapon tests of any size but that after that date no tests at all should be permitted. We have been wondering whether the comprehensive test ban itself might not be made a phased operation by starting with an agreed annual quota of underground weapon tests explosions. We feel that it might be possible for the treaty to provide for quotas on a descending scale over a period of, say, four or five years, ending with a nil quota after which further tests would be banned absolutely. Alternatively, the quotas might not be written into the treaty but fixed annually, possibly by a committee of the kind I have already suggested.

78. Those two suggestions for a committee and a quota system are not alternative but complementary since, if a quota system were established machinery would still be needed to ensure that the quota was not exceeded. I have used the word "suggestions" and that is what I mean. We have not worked out full details and these are certainly not formal proposals, but I shall be glad to hear the reactions of my colleagues on this Committee in due course and I hope that our co-Chairmen in particular will give these suggestions their serious consideration.

6. The second auspicious event is the continued progress made in regard to methods of control of an underground test ban. I am thinking specifically of verification by seismic methods. We have noted with deep satisfaction and as a good omen that for the first time in many years scientists from different sides came together recently at an unoffi-

cial scientific meeting to discuss the technical aspects of the control of an underground test ban. I am referring to the meetings which took place recently in Sweden under the auspices of the International Institute for Peace and Conflict Research in Stockholm (SIPRI), at which experts from Canada, Czechoslovakia, France, India, Japan, Romania, Sweden, the United Kingdom, the United States and the USSR were present. A unanimously-adopted summary of their full report has been made available to delegations in document ENDC/230.

7. I think it should be noted that, although the Swedish delegation has served as an intermediary, the document is the responsibility, of course, of that international and independent Institute. The full report of the meetings, containing also the explicit views on points on which the experts differed, will be made available as a publication by the Research Institute in the near future. As I have just mentioned, the summary report contains the points on which the experts were agreed. In view of the fact that a similar confrontation of views between experts has not taken place since 1960, the results of those meetings — though unofficial in character — deserve close study. I therefore wish to make the following remarks on the background and the contents of that summary report.

8. The discussion by the experts was limited to the basic methods for the control of an underground test ban by national means only, and did not deal much with the practical applicability of the basic methods which are available at present. It was recognized by all participants that one seismological identification method developed in the United Kingdom, using the relative strength of long- and short-period earth movements, gives a sufficiently certain positive identification of underground explosions, provided the explosions are strong enough. Those findings in the United Kingdom were supported by similar evidence from Canada, the Soviet Union and the United States. It was also found that existing ordinary seismological networks could be used to apply that method in regard to explosions in hard rock when the yields were from 20 to 60 kilotons. Concerning smaller explosions the experts did not reach a consensus.

9. It should be noted that the report was produced within a limited framework. The experts did not at that time explore in detail the possibilities of using the big, modern array stations equipped with the very sensitive long-period seismographs required for applying to weaker underground events the British identification method I have just mentioned.

10. It also became clear at the meetings that the different characteristics of the instruments employed in the Soviet Union on the one hand and in most other countries on the other hand necessitate further studies, both experimental and theoretical. The great value of personal contacts in this rather special field is well illustrated by the fact that some comparative calculations were immediately undertaken by some of the participants, who were then able to explain to their colleagues who were present some of the essential elements of differences in evaluation caused by the fact that experts used differing systems. I mention that detail only to stress the important practical value of meetings of experts towards a further understanding of the complicated control issue.

11. I should now like to turn to some specific conclusions that we in our delegation have drawn from the summary report of the experts. I would first mention the encouragement we feel in seeing mentioned as one of the possibilities for further improvement of identification the employment of statistical methods as we proposed here at last year's session of the Eighteen-Nation Committee on Disarmament (ENDC/191). We have now a renewed confidence in our belief that these methods could be a very efficient tool for bridging the remaining magnitude gap between strong underground events that can be identified with certainty today by using seismological means alone, and weaker events which would have to be covered in order to underpin an underground test ban with a completely meaningful control system. I do not wish to take

the Committee's time by repeating here and now what my delegation said last year when we tried to elaborate in the Committee on this method; but I beg to refer my colleagues to the relevant verbatim records, documents ENDC/PV.309, 315 and 323.

12. In this connexion it should be noted that the experts in their summary report make clear that explosions weaker than 20 kilotons and completely contained in very loose soil or in large cavities in hard rock seem to escape all present means of detection and identification from a distance.

13. The countries which have repeatedly insisted on the importance of an effective international data exchange system as a vital part of the control arrangements for an underground test-ban agreement should be gratified by the unanimous support of the experts for such an exchange. In our delegation we have noted this part of the report as an encouragement for continued efforts to establish that co-operative system of data exchange.

14. My own conclusion, after having studied carefully the report by the experts, is that the state of the art of identification by seismological methods has progressed further and that we should be particularly encouraged by the fact that experts from various important countries have for the first time agreed that a broad field of seismic events do allow positive identification as to their origin: are they natural earthquakes or man-made explosions? This progress seems to be so important that it must have an influence on political positions. The negotiating positions maintained since 1963 simply cannot remain fixed and frozen.

15. To be effective, our work in relation to underground test-ban control must be carried forward in converging directions. The effort of the scientists to provide efficient control methods must now be matched by a corresponding effort to set a defined political goal for the control endeavours. This would in practical terms mean political decisions on what risk, at different explosion-yield levels, of unrevealed cheating is tolerable. If we make such decisions it will give the scientists working in this field the necessary guidance to know when their efforts to extend identification possibilities have reached the stage where their findings can be put to definitive practical use. But what is much more important is that we are all eager to see a convergence of the political desiderata with the technical capabilities, in order to narrow the field of dispute and reach a viable agreement.

16. The United Kingdom delegation has opened this debate by making some new and concrete suggestions. I should like to turn for a moment to Mr. Mulley's ideas and offer some preliminary comments. We first observe his suggestion —

"...that consideration be given to the possibility of the treaty's providing for a special committee whose function it would be to consider complaints of infringements of the treaty and assess the evidence produced in support of the complaint". (ENDC/PV.381, para.76)

17. As we have in this Committee had some earlier experience with similar suggestions — I am thinking of the proposal by the eight non-aligned members of the Committee for an international commission (ENDC/28) — we shall, of course, be particularly interested to learn in due time about the acceptability of this idea at the present time to the other nuclear-weapon Powers members of this Committee. Until we know more about the attitude of others, the Swedish delegation would not wish to bind itself to any definite position on this point, the more so as Mr. Mulley's proposal of a committee seems to presuppose that obligatory inspection *in loco* is a necessary element of a comprehensive test-ban control system. As we have stated in the past, my delegation is not ready to commit itself to that assumption. Our efforts in the control field have, on the contrary, been inspired by a desire to reduce the requirements for inspections and to find ways of securing sufficient verification by other methods, offering greater hopes of general acceptability and being, at the same time, less burdensome for all the parties which may

wish to make a contribution to the verification of a treaty. The seismological methods have the additional advantage of offering a "spin-off" leading to improved possibilities of earthquake prediction.

18. I shall turn now to Mr. Mulley's other suggestion, concerning a system of quotas for tests on a descending scale over a limited period of years, ending with a nil quota after which further tests would be banned absolutely (*ibid.*, para.77). This is an interesting addendum to the list of earlier proposals for some modus vivendi arrangement, including various proposals on some kind of moratorium. There may come quite an avalanche of comments and views, critical and otherwise, on this point, but let me at this early stage in the debate try to pose a couple of positive ideas, or at least positive queries, to Mr. Mulley and other interested parties.

19. The first is, would a phasing-out period facilitate agreements on control by allowing experimentation with verification methods? More particularly, would the method of verification by challenge — which is in reality the method in operation as far as the Moscow Treaty (ENDC/100/Rev.1) is concerned — be tested on some suspicious event occurring outside the announced series in the legalized category? That would seem to be in line with a similar suggestion made first in another international forum and then introduced in this Committee by Lord Chalfont (ENDC/PV.279, pp.13-15).

ENDC/PV.386 USSR/Roshchin

1.8.68

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56. Most of the delegations that have spoken during the current session of our Committee have emphasized that now, after the conclusion of the non-proliferation treaty, the question of the prohibition of underground tests has quite logically and naturally moved into one of the foremost places in the agenda of the disarmament negotiations. The Soviet Union fully agrees with that point of view, and therefore has once again stressed in its memorandum that —

"The Soviet Government is prepared to reach agreement without delay on the banning of underground nuclear-weapon tests on the basis of the use of national means of detection to control observance of the ban."
(ENDC/227, p.3)

57. It seems to us that the attempts of certain countries to hinder the adoption of a constructive decision regarding the prohibition of underground nuclear tests on the pretext that there is a need for some sort of international control and on-site inspections are merely an expression of the fact that certain governments are not yet ready to reach an agreement on this important question. Given modern national seismic instruments, practically no country can carry out an underground nuclear-weapon explosion secretly without incurring the risk of being exposed as a violator of an important international agreement. The only thing needed to reach agreement on the cessation of underground nuclear-weapon tests is a political decision by governments — and primarily those of the nuclear Powers — to put an end to such nuclear tests once and for all.

58. In that connexion I should like to refer to that part of the statement made by the representative of the United Kingdom, Mr. Mulley, which deals with the question of underground nuclear tests (ENDC/PV.381, paras.74 et seq.). First of all it has to be said that the arguments he put forward for the establishment of an international control commission for control over the observance of an agreement were, once again, based on the idea of international inspection. That was quite rightly brought to our attention by the representative of Sweden, Mrs. Myrdal, in her very interesting statement at the meeting of the Committee on 30 July. She said:

"...Mr. Mulley's proposal of a committee seems to presuppose that obligatory inspection in loco is a necessary element of a comprehensive test-ban

control system." (ENDC/PV.385, para.17)

59. Consequently the basis on which that proposal of the United Kingdom delegation rests remains the same, namely international on-site inspection. That approach — I should like to call the attention of the members of the Committee to the fact — is contrary to the position repeatedly stated by us which is that control over the observance of an underground test-ban treaty can and must be carried out by national means of detection. As all of you have noted, our memorandum of 1 July reiterates once again the approach which we have repeatedly advocated in the Eighteen-Nation Committee and in other international forums, including sessions of the United Nations General Assembly.

ENDC/PV.387 UK/Mulley

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12. I recognize that the greatest difficulty we have to face is that of verification, since understandably parties to any arms control or disarmament agreement are entitled to be reasonably satisfied to the greatest practicable extent that other parties are carrying out their obligations under the agreement. This principle is well illustrated by the safeguards requirements of the non-proliferation treaty (ENDC/226, art.III). After much study we have been obliged to conclude that no comparable system is possible for microbiological or chemical weapons. Any such system would be so intrusive as to be quite unacceptable, and even then could not be fully effective. The principal difficulty arises from the fact that almost all the material and equipment with which we are trying to deal here have legitimate peaceful purposes; and it would be wrong to inhibit work of real value to humanity in combating disease, for example, and impracticable to inspect every laboratory in every country. We must accept, therefore, that no verification is possible in the sense of the term as we normally use it in disarmament discussions.

13. Thus we must make a choice — balance the risks of evasion if we go ahead with the formulation of new obligations, against the risks for the world if we do nothing and allow the fears of eventual use of microbiological methods of warfare to continue and intensify. My choice is emphatically to go ahead; we cannot afford to do nothing. While we cannot offer a fully effective system of verification and we believe it is beyond the wit of man to devise one, we can provide arrangements which should satisfy States, given the intractable nature of the problem, that they will not be exposing themselves to unacceptable risks. No doubt other members may be able to make further suggestions and other improvements to these proposals.

14. In short, in paragraph 8 of the paper we envisage the establishment of machinery for the investigation of complaints either that microbiological methods of warfare have been employed or that one of the other obligations established by the convention has been infringed. It goes without saying that any allegations, to qualify for investigation, would have to be made by States, not individuals or organizations, and that they would need to be supported by the necessary evidence. We have consciously refrained from suggesting how the competent body of experts should be appointed or what the composition of this body should be; but clearly it would need to include experts both in microbiology and in the potential means of delivery of microbiological agents in hostilities.

28. I should therefore like to make the position of my Government quite clear. It is completely unequivocal. We favour the conclusion of a comprehensive test-ban treaty at the earliest possible moment and as soon as terms that are generally acceptable can be agreed. We recognize that in this, as in all similar agreements, it is reasonable for the parties to ask for such verification to be provided as is possible, practicable and neces-

sary to ensure that other parties are also honouring their obligations. As to what is necessary, we are flexible in our views and are quite prepared to be convinced by such evidence as is available. I hope other delegations will adopt a similarly flexible approach and seek to reach a consensus from which we can proceed to the consideration of a draft treaty. My suggestions are put forward on that basis — in an attempt to bridge conflicting views and positions.

29. Mr. Roshchin has reiterated that no on-site inspection is necessary; but all the technical evidence goes to show that at the detection threshold there can be no real certainty whether a given event was a nuclear explosion or an earthquake. What we maintain is that, when the evidence strongly suggests that an explosion has taken place, there should be the possibility of an on-site inspection. I find it difficult to see how Mr. Roshchin can maintain that in those circumstances there is no need for on-site inspection.

30. There is the further point that, as Mr. Roshchin has himself acknowledged, under article V of the non-proliferation treaty we have to provide for peaceful nuclear explosions — and presumably their testing — under internationally-agreed arrangements. One can envisage an arrangement by which IAEA experts — possibly in conjunction with experts from other nuclear-weapon States parties to the treaty — checked the associated instrumentation in order to satisfy themselves and the international community as far as possible that the explosion in question was indeed for its stated purpose and was not a nuclear-weapon test. Does Mr Roshchin rule out the possibility of on-site inspections in that context and, if so, how can the obligations of article V be carried out under a comprehensive test ban? Mrs. Myrdal has always stressed the importance of international supervision for peaceful nuclear explosions. Does she not accept that there may also well be a need for on-site inspections to achieve that international supervision?

31. My suggestion for a seven-member committee (ENDC/PV.381, paras.76 et seq.) — and I should make clear I am quite flexible as to the number and composition of the committee and am only seeking first to establish the principle — was designed to try and meet those difficulties. On 30 July (ENDC/PV.385, para.17) Mrs. Myrdal said she would not comment on that suggestion for the moment, in view of the reaction to a similar proposal (ENDC/28) made by the non-aligned members of the Committee in April 1962. I think that in fact their proposal was rather different from my own suggestion, as regards both the composition and the powers of the suggested bodies. The non-aligned proposal was for the constitution of an international commission consisting of a limited number of highly-qualified scientists, possibly from non-aligned countries, together with an appropriate staff. My own proposal was for a committee consisting of the representatives of the three nuclear-weapon States, the representatives of three non-aligned States, and a nominee of the United Nations Secretary-General or the Director-General of the IAEA.

32. Admittedly, both the international commission suggested in the non-aligned proposal and the committee suggested by me would have the same basic task, the assessment of evidence that a nuclear explosion had taken place. But my suggestion was that this committee should have in addition the right to conduct on-site inspection if it decided by a majority of five to two that there was strong evidence that the treaty had been infringed. A party which refused to accept inspection in such circumstances would of course be in breach of its treaty obligations. The object of our proposal was to provide a right of on-site inspection, but to circumscribe that right in such a way as to ensure that it was not exercised irresponsibly or improperly. Under the kind of arrangements which I had in mind, any country which respected its treaty obligations not to conduct underground nuclear explosions could be reasonably certain that it would never have to face a situation in which it was required to accept on-site inspection.

33. Since I agree that a State which accepted the obligations of the treaty would not infringe its provisions, it could well be that the committee or commission I suggest would never have any work to do. No country adhering to the treaty would be submitting to any certain or automatic on-site inspection. Equally, it would solve the problem of whether all States or only nuclear-weapon States should be subject to such inspections, since only where there was a prima facie case of possible infringement would the question arise. As scientific knowledge and means of detection develop, the need for and the probability of such inspections would diminish.

34. A further difference was that the international commission proposed in 1962 was to be composed of a limited number of highly-qualified scientists. Our own concept is of a committee composed for the most part of governmental representatives who would of course be assisted by their scientific advisers. We think that is more realistic.

35. I turn now to our quota suggestion (ENDC/PV.381, para.77). This too I consider a realistic suggestion, since it is based on recognition of the fact that it may not be possible to get agreement now to stop all nuclear-weapon testing overnight in isolation from other measures. If we can get such agreement, well and good; if not, then I think this idea is worthy of consideration. The object of the quota proposal is to put an increasingly powerful brake on the development of new nuclear-weapon systems, with a view to bringing this dangerous vehicle to a complete halt within a fixed distance.

36. Mrs. Myrdal has asked (ENDC/PV.385, para.19) whether the suggested phasing-out period would allow experiments with verification methods — particularly verification by challenge — on suspicious events outside the permitted quota. It seems to me that the verification issue arises in virtually the same form whether there is a complete ban on underground tests or an agreed quota system. In the first case the object of verification is to ensure that no nuclear explosions at all are conducted; in the second case its object is to ensure that the quota has not been exceeded.

37. Mrs. Myrdal asked also (ibid., para.20) how peaceful nuclear explosions would be treated in a quota system. Either they could be treated as part of the quota, or they could be treated — as I envisage they would be under a complete test ban — as permitted exclusions from the treaty provided they conformed to the internationally-agreed arrangements.

38. Finally, I would think the conclusion and effective implementation of such a quota system, leading to a complete ban in a relatively short time, would increase mutual confidence, since it would be a further and important step on the road towards our goal — although, as I have already said, I would prefer a complete ban if that is possible in the near future.

39. The remaining matter I want to mention is the exercise in conventional arms control verification — "First Look" — which has been in progress as a joint United States-United Kingdom project in southern England since the beginning of June. I myself spent a day there recently with Members of Parliament and British experts and had the privilege also of meeting one of our co-Chairmen, Mr. Foster, when he paid a visit last week. I believe the experience gained from exercise "First Look" will be of much value to us in our future work and in particular for our consideration of regional arms control and disarmament possibilities. Indeed, I was greatly impressed with the knowledge of force strengths and movements that very small teams of inspectors could assemble unobtrusively and with little or no co-operation from the host country.

25. In my statement on 18 July I referred as follows to the relationship between the comprehensive test ban and progress on the limitation of strategic nuclear weapon

vehicles:

"An agreement to halt the development of offensive and defensive missile systems should also make it much easier to reach an agreement on the prohibition of underground nuclear testing, thus completing the Moscow Treaty of 1963 (ENDC/100/Rev.1). However, we in this Committee should not wait until there actually is agreement on what is likely to be a very difficult subject of negotiation — that is, the halting of the race in the production of missiles, offensive and defensive." (ENDC/PV.382, para.10)

The Committee can make a valuable contribution to the eventual solution we are seeking by a detailed discussion and study of the various aspects of an eventual treaty. Verification, in the Canadian view, is the crucial aspect. The need for on-site inspection is still a matter of controversy. However, we seem to accept generally that detecting and identifying violations of a treaty can be made to depend to a great extent on seismological techniques. I should like to pass on to the Committee Canadian scientific opinion on recent international progress in this field, and to outline the state of development in Canada of the techniques of seismological detection and identification of underground explosions.

26. In the opinion of Canadian scientists, an opinion which seems to be shared by Swedish scientists, there has indeed in the recent past been encouraging progress in the detection and identification of seismic events. Perhaps the most important development, as Mrs. Myrdal told us on 30 July (ENDC/PV.385, para.8) is the acceptance of a positive method for identifying explosions down to yields of 20 to 60 kilotons in hard rock — a method which, for convenience in this statement, we shall call the "positive identifier" method. However, as Mrs. Myrdal noted, this system becomes less reliable in less dense earth structures (*ibid.*, para.12). Then there is the possibility of evading detection when or if explosions take place in large cavities — the so-called de-coupling process.

27. Another problem still exists, and that is that a seismological network, in order to apply this identification criterion to events of lower magnitude, must be sufficiently sensitive to provide detection. To provide this high detection capability, we are assured by our scientists, is by no means a simple problem. More research on this identification system will certainly be necessary in order to deal with explosions of lower yields than the 20- to 60-kiloton explosions which have been mentioned.

28. As for the Canadian contribution to seismological research relevant to test-ban control, Canada has no programme of secret research. Data, records and conclusions of Canadian scientists working in the field are transmitted or are available to all members of the international seismological community. There is now working a network of twenty-three uniformly-instrumented seismograph stations within Canada, and two more should be added this year. At Yellowknife in the North-West Territories we have a medium-aperture short-period array which we work in co-operation with the United Kingdom Atomic Energy Authority. We have a modest digital-processing facility in Ottawa for research into array signals.

29. Using the twenty-three standard-station network, Canadian seismologists have made a pilot study of nuclear explosions from the United States Nevada test site and of earthquakes in the western United States. That study showed to their satisfaction that positive identification of the explosions was possible using the surface wave method — that is, the "positive identifier" method previously referred to — down to yields of 10 to 20 kilotons in hard rock. Unfortunately, Canadian detection capability falls off in the lower end of this range; therefore it was not possible to quote a probability for detection of explosions of lower yield. It appears, however, that the probability of detection of Nevada explosions may be calculated as being reasonably high above 20 to 60 kilotons in hard rock and as falling rapidly below that level. Using only our own resources, we find that the situation rapidly worsens for explosions outside North America. This problem

would be alleviated to a great extent if our scientists could have access to data from other seismological networks. This is the "seismic detection club" concept, which Canada has supported from its beginning. I shall return to this point later in my statement.

30. Other Canadian research activities in this field have related to signal processing to determine depths of focus of underground explosions. Results of this research will be published shortly. It has been found that this method is very effective in screening out earthquakes of greater depth than about 50 kilometres. Locations of events have been automatically determined with accuracies of a few hundred kilometres from one well-sited medium-aperture array, and the results of this research have been published. Lastly, research has been carried out using arrays to separate out simultaneously-arriving signals from two different sources, and the results have been published.

31. There has been research activity also in Canada on other so-called diagnostic aids which can be used for identification of nuclear explosions if the explosion is too small for the "positive identifier" previously referred to. The United States, the Soviet Union, the United Kingdom, Sweden and Japan are also studying these "aids"; but so far there is no general agreement on the conclusions which the several countries draw from their research. The advice of our scientists is that, as of now, these methods do not give as good results as the "positive identifier" method, although there seems to be promise of progress.

32. The upshot of all this is that the Canadian position on control of underground test prohibition is virtually as I outlined it last autumn. I shall not take the Committee's time this morning by repeating what I said then, but would simply refer representatives to document ENDC/PV.332 of 21 September 1967, and especially to paragraphs 14-23.

33. This should not be taken to mean that there is no room for movement or that we do not anticipate progress. That is not so. Research in this area is continuing in Canada as elsewhere, and I think we can look forward hopefully to better results. The prospects for such results would in our view be greatly enhanced by an increase in international co-operation and exchange of data. This is in keeping with our long-standing interest and participation in the "seismic detection club". In our view, the establishment of a world-wide interlocking network of seismological stations and an international data-exchange centre would pay enormous dividends in terms of both pure science and test-ban control. Indeed, the very interesting summary of the report of the SIPRI Seismic Study Group which the Swedish representative has put before us as a conference document (ENDC/230) points out that progress in scientific seismic research would be advanced by merging existing seismological networks into one world-wide data-exchange system.

ENDC/PV.391 Sweden/Myrdal

20.8.68

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30. The difficulties which are often presented as veritable stumbling-blocks on the road to any agreed ban here, as so often, reside in the question of control. This makes it a natural centre of our attention. We have to recognize that perfect control over the production and possession of B and C weapons is simply not possible. What can be done is, as Mr. Murrley rightly stated on 6 August, to "provide arrangements which should satisfy States ... that they will not be exposing themselves to unacceptable risks." (ENDC/PV.387, para.13)

31. The first measure, I venture to suggest, would be to attain a universal openness about activities in this field in order gradually to create confidence. Already all information available through scientific documentation is being nationally examined in order to assess the direction research activities are taking. There are a number of indications

which could be discovered by careful readers of such reports, together with other available information, that research in and production, testing or stockpiling of B and C means of warfare or their means of delivery may be occurring. Further, public and scientific discussion, based on that open information, has led to spontaneous reluctance on the part of some scientific and technical personnel to participate in the search for or production of B and C means of warfare. When an international ban on such activities comes into being, coupled with openness about laboratories and factories, considerable protection against violations should be obtained already through an element of what one might call "control through public morale" — or even "control through public shame".

32. Next, it would seem worth pondering whether an international agency, for instance the World Health Organization, could not undertake a key role in collecting, systematizing and disseminating all information pertaining to B and C weapons available from national and scientific sources. The world-wide control of diseases and epidemics is one of that Organization's normal functions, and such a continuous survey must be of utility for already-established purposes. It could at the same time serve the control function of monitoring any suspicious build-up of capabilities for B and C warfare.

33. Further, a system of periodic reporting could be worked out under which States would transmit information about resources, stocks and research in factories, stores and laboratories, about personnel employed, future plans, and so on. Needs for peaceful purposes should then be indicated. Obviously, the activities in the sphere of science which should be made the subject of reporting would have to be defined. Agreed lists might be drawn up and periodically revised by agreement.

34. Even more active steps in such a projected and gradually-expandable verification system would imply efforts to check against possible lacunae in the flow of information or suspicious trends, to press for further information, to question the appropriateness of certain research or stockpiling. That would, as a matter of fact, constitute the beginning of a process of "verification-by-challenge".

35. Finally, thought would have to be given to the acceptability of some system of inspection in loco, voluntary by mutual visits to laboratories by scientific experts, or prescribed in a treaty. Practically, the task would not be too difficult, particularly in regard to biological means of warfare. Inspectors could visit laboratories and factories of possible interest from the viewpoint of warfare capacity. The scientific documentation, plus the periodic reporting and the systematized compilation which I mentioned earlier, would constitute a preliminary control system and could then serve as a point of departure for possible further investigations by inspectors. The whole sequence might be made fairly similar to the control system provided by the IAEA safeguards for controlling the non-proliferation treaty.

ENDC/PV.392 Italy/Caracciolo

22.8.68

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29. In view of these considerations, my delegation would today like to put forward the specific suggestion to separate the settlement of the problem of underground explosions for peaceful purposes from that of the problem of strictly military tests. This separation would have the advantage of making it possible to devise an acceptable formula for verification, leaving aside for the moment the sector of explosions for military purposes. The problem would thereby be greatly simplified; for this approach would give us the opportunity of seeking a temporary solution, pending advances in science and technology that will give us the means of guaranteeing, beyond all possible dispute, an overall prohibition. Under an international system for regulating nuclear explosions for peaceful purposes, certain preliminary initiatives could thus, in our opinion, be envisaged.

30. In the first place, all peaceful nuclear explosions should be notified to the United Nations. In their communications the governments concerned should furnish all relevant information, such as the approximate date of the explosion, its location, its depth, its purposes and its power. All explosions not notified to the United Nations would be considered to be tests for military purposes.

31. Secondly, governments desiring to carry out explosions for peaceful purposes would be obliged to allow a certain number of designated experts from non-nuclear countries to attend those tests. Scientists as well as technicians of the non-nuclear Powers would have the opportunity of familiarizing themselves with the techniques of nuclear explosions and, especially, of becoming acquainted with their practical results. Thus a start would be made to apply the provisions of article V of the non-proliferation treaty.

32. Thirdly, the governments of the non-nuclear countries would submit a list of experts from which the governments of the countries where the nuclear explosions were to take place could choose the observers to invite.

33. I wish to make it clear that the sole object of the suggestions I have just made is to facilitate a final agreement through the adoption of measures that are partial but in the present circumstances feasible.

34. With the same object, the Italian Government considers that it might also be possible to reach an agreement on the timeliness of a joint formal declaration prohibiting all explosions for military purposes under the sea-bed. On the other hand, explosions for peaceful purposes in the same environment could be made the subject of a general moratorium pending the establishment of international regulations safeguarding the interests of all nations.

35. My delegation intends to have circulated in the next few days a working paper embodying the ideas I have just put forward, for later examination by the Committee and for inclusion, as an Italian document, [ENDC/234] in the final report of the Committee to the twenty-third session of the General Assembly of the United Nations.

ENDC/PV.397 USA/Smith

25.3.69

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39. Third, in order to constitute a genuine and stable contribution to international peace and security, any arms control measure relating to the sea-bed should be of such a nature that the participating countries could feel confident that all participants were fulfilling their obligations. Verification of compliance could involve special problems in the geographically hostile environment of the sea-bed. Nevertheless, the United States, which has consistently supported the principles of adequate verification of arms control measures believes that some appropriate provision must be included in the agreement in order to provide the needed reassurances that all the provisions are being complied with. In this respect it may be desirable to draw on useful precedents of the outer space Treaty to establish a right of access and inspection. Such a right should be based on reciprocity and should not confer, or imply the existence of, any right or power to veto proposed visits.

40. As in outer space, the difficulties of the environment probably require that representatives should give reasonable advance notice of a projected visit. That would permit maximum precautions to be taken to avoid dangers to personnel and the disruption of the normal operations of the equipment or the facility.

41. Consideration of the verification question also demonstrates the need to restrict the scope of the prohibition to weapons of mass destruction, since otherwise the task of inspecting the multitude of present and future facilities would be beyond capabilities.

42. Fourth, one of the most difficult questions is the definition of the boundaries beyond which the prohibition would apply. Regardless of the method which might be

agreed, the United States believes that the goal should be to apply the arms control measure to as broad an area of the sea-bed as possible; therefore the prohibition should, we think, apply to the sea-bed beyond a narrow band along the coasts of States. To the extent possible, the method chosen to define that band should provide ease of determination and uniformity of interpretation, and should be equitable in its application. For example, the zone could be defined by several methods such as:

- (1) A specified horizontal distance from the coast;
- (2) The use of a specified isobath or depth limit which would generally follow the contour of the sea-bed; or
- (3) As some have suggested, a method based on the outer limits of national jurisdiction derived from either sovereignty or sovereign rights. This approach, at first glance, would appear feasible because it is based on existing boundary claims. However, the differences in the international community regarding the legitimate extent of such claims would result in gross inequities and would weaken the effect of the measure by excluding wide areas of the sea-bed from the zone of application.

43. Those are some of the considerations which will need to be discussed before an effective international agreement can be worked out, and we urge the Committee to undertake such discussions as soon as possible. In this way we shall be doing what the world community expects of us: seeking ways to prevent the spread of weapons of mass destruction to new environments, and at the same time helping to ensure that the potential for peaceful purposes of this great area of our planet will be enhanced. If we can do this much, it will be no small accomplishment. In effect, we shall have placed nearly 70 per cent of the earth's surface off-limits to the arms race and shall have achieved a significant restraint on the deployment of weapons of mass destruction.

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15. In 1967 the Swedish delegation initiated a renewed discussion of the technical and political aspects of the underground test ban control issue by advancing an analysis, by decision theory, of the seismological identification methods available. I am referring to document ENDC/PV.309. A description of this analysis was given in the Swedish memorandum of 19 July 1967 (ENDC/191) and further explanations were proffered by us in the ensuing debate (ENDC/PV.315 and 323) in which the United States (ENDC/PV.312 and 320), the United Kingdom (ENDC/PV.319) and Canada (ENDC/PV.332) offered further technical arguments. In February 1968 the Swedish Defence Research Institute distributed a report containing a detailed description of our scientific analysis and the results so far obtained.

16. It is important to note that the purpose of test ban control was envisaged by us not as having the intelligence aim of obtaining complete information or the aim of providing judicially conclusive evidence but rather as having the aim of deterring a prospective violator from concealed testing by presenting him with a sufficient probability of being exposed.

17. This purpose entailed exploitation of the statistical properties of the seismological identification criteria in order to determine in advance a "decision level", as it is called, at which a seismic event had to be acted upon politically either as an earthquake or as an explosion. In this process it becomes inevitable to strike a compromise assuring, on the one hand, a sufficient probability to make correct decisions about explosions and, on the other hand, a sufficient probability of avoiding false alarms about earthquakes.

18. We then submitted to analysis first the case in which control would rely on

obligatory inspections. Application of this analysis to data then published about seismological identification methods showed that what appeared to us to be a satisfactory deterrence could be obtained with far fewer inspections per year than earlier suggested, in the order of one inspection per year.

19. Next, it was revealed that such a deterrence effect could be available also by using control without obligatory inspections, if one allowed for a certain rate of false alarms, fewer than one in ten years. Such false alarms, which may lead to an unjustified accusation, are impossible to exclude in connexion with seismological test ban control. But the solution of the practical problem in the case of control without obligatory inspections consists in making the false alarms extremely rare occurrences. For those occasions the control procedure of the treaty should provide ways for the accused Party to clear himself, including the possibility, as envisaged in our scheme for verification-by-challenge (ENDC/PV.247, pp.13-23), to invite an on-site inspection.

20. From the discussions in 1967 and 1968 it appeared that the main limitation of our proposal was that it did not cover the so-called "magnitude gap" between 4.5 and 4. I am referring specifically to the statement by the United States representative contained in document ENDC/PV.320, paras.57 et seq.. This range is usually thought to comprise explosions in hard rock of yields from some 10-20 kilotons down to about one kiloton. In this range, long-distance seismological methods, which would be able efficiently to identify explosions and earthquakes, were lacking.

21. In 1968 there was a new turn of events. Some of the outstanding issues were discussed at a meeting of scientists from several countries, including the United States, the Soviet Union and France. A summary report from this meeting, convened by the Stockholm International Institute for Peace and Conflict Research (SIPRI), has been circulated as document ENDC/230 and has been quoted many times by several delegations here.

22. The SIPRI study concerns itself only with the seismological conditions for controlling a test ban without obligatory inspections, termed "detection and identification by seismological means only". It states that the so-called world-wide standard seismic network of conventional seismographic stations separates clearly the waves from explosions in granite with yields down to 20-60 kilotons from those generated by earthquakes. This corresponds roughly to the upper end of the magnitude gap I have just mentioned, and the summary report goes on to say that British, Canadian, American and Soviet research indicates separation possibilities well down into the magnitude gap.

23. We note that these summary conclusions are consistent with an essential part of our own earlier conclusions.

24. In this Committee the political reactions to the unanimous scientific conclusions in the SIPRI summary report were not unanimous. The representative of the Soviet Union, Ambassador Roshchin, said in his statement on 1 August 1968:

"Given modern national seismic instruments, practically no country can carry out an underground nuclear-weapon explosion secretly without incurring the risk of being exposed as a violator of an important international agreement. The only thing needed to reach agreement on the cessation of underground nuclear-weapon tests is a political decision by governments..." (ENDC/PV.386, para.57)

Already in his statement on 16 July 1968 the Soviet representative had said:

"The Soviet Government is ready to come to an agreement immediately on the prohibition of underground nuclear tests on the basis of using national means of detection for control over this prohibition." (ENDC/PV.381, para.32)

25. In his statement to the First Committee of the United Nations General Assembly on

5 December 1968 the representative of the United States, Ambassador Foster, said that the technical inability to distinguish at long distances between explosions and earthquakes in ranges of fairly low yields but with great military significance could not be dismissed, "no matter how much some might value the political advantages of doing so" (A/C.1/PV.1630, provisional, p.16). In the letter from President Nixon to the United States representative read out by Ambassador Smith at the opening meeting of our Committee this year it is said that:

"...the United States supports the conclusion of a comprehensive test ban adequately verified. In view of the fact that differences regarding verification have not permitted achievement of this key arms control measure, efforts must be made towards greater understanding of the verification issue." (ENDC/239, p.2)

26. The decision as to what constitutes "adequate" verification is certainly ultimately a political decision even if it ought to be made on the basis of extensive scientific and technical considerations. In our theoretical approach to the control question, as referred to above, we made this quite clear.

27. One may now ask whether the technical possibilities can be improved in the foreseeable future or not. I shall certainly not enter into any detailed predictions as to what scientific and technological advances will be forthcoming. However, already at the stage of last summer's meeting of scientific experts, as described in the full report of the Stockholm International Institute for Peace and Conflict Research, several promising roads to improvement were pointed out, such as by further exploitation of the depth at which an event takes place, by the sense of first motion recorded, by frequency content in seismic waves, by excitation of shear waves, by complexity, by improved methods of surface wave detection, by more study of the relative excitation of surface and body waves by earthquakes and explosions, by applying the methods of pattern recognition to earthquakes and by statistical treatment of identification criteria for decision applications.

28. Apart from that quite promising list, I should like to point out that the SIPRI study did not take into account at all the very powerful array stations already existing or soon coming into service. They should provide a considerable improvement in capabilities for teleseismic identification. My country expects to get a smaller station of this kind into service in the near future as a modest contribution to the research capabilities in this field.

29. The SIPRI report concerned itself a great deal with identification by comparison of long surface waves and short body waves, the former running along the surface of the earth and the latter through the deep interior of the earth, and it was on the basis of this method that the above-mentioned summary conclusion about the 20-60 kiloton limit for clear separation was drawn. I have been advised that a closer investigation of these data as presented at the SIPRI meeting -- closer than was possible during the short time available to the meeting -- shows great differences between the results obtained by different investigations, apparently dependent on where the events took place, where the observations were made and what instruments were employed. The very difference between the United States and the Soviet type of instrumentation seems to play an important and confusing role.

30. We hope that this matter will be investigated in detail by the utilization in direct comparison of both types of instruments. Some of the data in the SIPRI report, when extrapolated, showed very promising capabilities of covering the above-mentioned magnitude gap. I understand that the sensitivity of this identification method is much improved when the distance between observatory and event is decreased. This makes measurements at regional and local distances very important in comparison with measurements at teleseismic distances, on which most of the emphasis of the discussion

on test-ban control techniques has been placed in recent years.

31. Practical gains of considerable value could be derived from improvements in regard to properly located stations of the classical, or anyway some fairly simple, model, as was also recommended in the SIPRI report. Regional and local data could also be obtained by the use of some variety of automatic and sealed stations, as has been discussed earlier in this Committee. Other gains of great practical value would be won from the use of an efficient data exchange, as proposed by us repeatedly since 1965, transmitting the required regional and local data to other countries. It would seem that the impressive development of communication via satellites might be useful for the distribution of data from these stations.

32. Both those measures — more stations and more data exchange — would very quickly entail, I think, a large improvement in the present control capabilities. They would constitute a practical infrastructure for the scientific analysis going forward. Financially the improvement of verification possibilities would be an unimportant matter compared to the cost of nuclear-weapon testing.

ENDC/PV.400 USSR/Roshchin

3.4.69

pp.10-11

22. As an argument in favour of the conclusion of an agreement limited to the prohibition of the emplacement on the sea-bed and the ocean floor of weapons of mass destruction, fears were expressed that the conclusion of an agreement on complete demilitarization might complicate the problem of control over its implementation.

23. We believe that such fears are groundless. It is precisely demilitarization of the sea-bed that would facilitate the problem of control. Indeed, if the ban covered only certain types of activity, the controlling party would be faced in each specific case with the question of whether the object concerned had to do with prohibited or permitted activities. The solution of that problem would require the insertion in the agreement of articles laying down the principles of the activities and the powers of the controllers, verification procedures and so forth. The practical implementation of control would in that case become a complicated affair requiring a great deal of time and effort and would greatly complicate the relations between the controlling party and the party being controlled. But in the case of complete demilitarization, in the first place, the number of objects subject to control would be sharply reduced since only peaceful objects would remain; and secondly, verification would be considerably less complicated, because States would have no fears that verification of the objects placed by them on the sea-bed would reveal their military secrets to the controlling party.

24. Should an agreement on a comprehensive ban on military activities on the sea-bed and the ocean floor be concluded, the parties could apply the principle of free access to objects placed on the sea-bed in order to verify compliance with the treaty. That is precisely what the proposal of the Soviet Union is aimed at. In this connexion, may I quote the text of article 2 of the Soviet draft treaty, which reads as follows:

"All installations and structures on the sea-bed and the ocean floor and the subsoil thereof shall be open on the basis of reciprocity to representatives of other States which have placed such objects thereon of the obligations assumed under this Treaty."

25. In its proposals concerning control over the implementation of this draft treaty, the Soviet side is following the principles used in the Antarctic Treaty and the outer space Treaty — principles which have proved their worth and are being successfully applied, for example, in the activities of States in Antarctica. The system of control on the basis of free access has proved to be effective and workable in practice. Indeed, in those cases involving areas where there are no national borders — such as Antarctica,

outer space or the sea-bed — the principle of free access can be applied fully and is the most complete and effective method of control. This form of control will, we are convinced, contribute to the growth of mutual understanding and confidence in international relations. In these cases spheres of human activity are concerned which have practically not yet been or are only just being opened up. States not at present engaged in military activities in these areas have nothing to hide and have no reason to fear that control based on the principle of free access will be used for carrying out military intelligence.

26. Should it be agreed to conclude an agreement providing not for the complete prohibition of the use for military purposes of the sea-bed and the ocean floor, but only for the prohibition of the placing of nuclear weapons and other types of weapons of mass destruction there, the principle of free access would be difficult to apply. Indeed, if we were to prohibit only the placing on the sea-bed of nuclear weapons and other types of weapons of mass destruction, while at the same time permitting the placing there of conventional weapons, it is doubtful whether a State, even if honestly complying with the agreement, would agree to the inspection of its military installations by the controlling party, since such a form of control would reveal its military secrets and only lead to tensions and conflicts between States parties to the treaty.

27. Our point of view is that the method of control over the implementation of the agreement should be organically linked with the contents and scope of the ban on military activities on the sea-bed and the ocean floor. Complete demilitarization of the sea-bed should be matched by the principle of free access for the purpose of verification.

ENDC/PV.401 USA/Fisher

8.4.69

pp.5, 7-10

...the United States has strongly advocated the adoption of the "cut-off" on many occasions both in the United Nations General Assembly and in this Committee. In 1964 and 1966 we presented to this Committee four working papers (ENDC/134, 172, 174 and 176) on verification of various aspects of a cut-off agreement. At this session of this Committee, the United States will continue to support such an agreement.

7. The essential elements of a cut-off agreement would be:

First, as of an agreed date nuclear-weapon States would halt all production for use in nuclear weapons of fissionable material — that is, uranium enriched in U-235 and plutonium.

Second, the production of fissionable material would be permitted to continue for purposes other than use in nuclear weapons, such as power and propulsion reactors and nuclear explosives for peaceful purposes.

Third, in order to provide for compliance with the agreement, the International Atomic Energy Agency (IAEA) would be asked to safeguard the nuclear material in each State's peaceful nuclear activities and to verify the continued shutdown of any facilities for production of fissionable material that are closed.

8. This last element — that is, the provision for International Atomic Energy Agency safeguards — represents a change in the previous position of the United States. The United States previously proposed what we thought was a reasonable inspection system in order to safeguard against any significant diversion of fissionable material. That system involved substantial elements of adversary inspection, particularly in the search for undisclosed facilities. It is described in a working paper on the inspection of a fissionable material cut-off (ENDC/134) which was presented to this Committee on 25 June 1964. Since that time, however, a somewhat different approach to the verification problem in so far as it is applicable to non-nuclear-weapon States has been developed in this Committee and has gained wide acceptance. This approach is contained in article III

of the non-proliferation Treaty. It involves reliance on the International Atomic Energy Agency and agreements to be worked out in accordance with the Statute of the International Atomic Energy Agency and the Agency's safeguards system as the means for preventing the diversion of nuclear materials to use in weapons. We propose a similar approach to the verification of a cut-off agreement for the nuclear-weapon States.

14. We are familiar as well with the argument that the system for verifying a cut-off, which the United States suggested on previous occasions, was designed, somehow, for the international collection of intelligence on key sectors of State defence. Although this assertion did not accurately describe the reasonable inspection system we had previously suggested, it clearly cannot be applied to the inspection system we are now discussing — that is, IAEA safeguards on the nuclear material in peaceful nuclear activities and IAEA verification of facilities for the production of fissionable materials which are shut down.

15. We emphasize this aspect of the cut-off because of our belief that the nuclear-weapon Powers should be prepared to accept, in the context of a cut-off agreement, the same safeguards on their fissionable material production facilities as are appropriate to verify non-proliferation in the non-nuclear-weapon States. We do not propose any other inspection or verification for this agreement, and we submit that the suitability of IAEA safeguards should be apparent to all of us who have called on other States to accept them.

16. During the past three years, while our efforts were directed primarily towards fashioning a broadly acceptable agreement to halt the spread of nuclear weapons, several countries proposed that a non-proliferation treaty be linked to other measures of nuclear disarmament. As members of the Committee know, the United States opposed these proposals. Our reason for doing so — and I believe the correctness of our assumption has been borne out — was that insistence on establishing such a link as a pre-condition for a non-proliferation treaty would result in achieving neither the non-proliferation treaty nor other measures.

17. The United States is still of this view. We are urging a cut-off in the production of fissionable material for weapons purposes as a measure to follow the Treaty on the Non-Proliferation of Nuclear Weapons, pursuant to article VI of that Treaty. We would respectfully urge that no country use the fact that a cut-off agreement is now under discussion as a reason for delaying its decision on the non-proliferation Treaty. We would respectfully urge that instead it become a party to the non-proliferation Treaty and by such action be able to add an argument based on article VI of that Treaty to the weight of its other arguments in support of a cut-off.

18. I should now like to turn to the subject of the banning of underground nuclear weapon tests. All of the previous speakers have taken note of this topic, and most speakers, I believe, have described a ban on such tests as one of the most important and pressing of arms control measures. The Swedish delegation has, in addition, submitted a paper entitled "working paper with suggestions as to possible provisions of a treaty banning underground nuclear weapon tests" (ENDC/242). I have read and studied, with care, the statements of the representatives and the working paper submitted by the delegation of Sweden.

19. The position of the United States can be stated quite simply. We support a comprehensive test ban treaty that is adequately verified. But we are convinced that adequate verification requires on-site inspections. Ambassador Smith made the position of the United States on this point quite clear in his statement of 25 March (ENDC/PV.397, paras.22 et seq.). Moreover, in a series of statements during the past several years, we have set forth this position in detail — giving both the scientific and the political reasons which support it. I do not believe that scientifically or politically there is any

basis for changing this position.

20. The representative of Sweden, in submitting a working paper that does not provide for obligatory on-site inspections, has expressed the view that the problem of what is adequate for verifying a comprehensive test ban is a political problem, not a technical one (ENDC/PV.399, para.12). The view was also expressed that what is required is a political decision, not a technical assessment. One cannot quarrel with the sound observation that any negotiated agreement requires political decision. But the political decision as to what constitutes adequate verification of a comprehensive test ban is one which must be made on the basis of extensive scientific and technical considerations, as well as purely political ones.

21. We in this Committee are all well aware of the findings of the SIPRI report on "Seismic methods for monitoring underground explosions", a summary of which is contained in document ENDC/230. That report is the outcome of a meeting of seismologists last summer, sponsored by the Stockholm International Institute for Peace and Conflict Research. The drafters of the report took into account all the latest advances in seismic techniques and theory, including the statistical decision theory advanced by the Swedish delegation and relied upon by the representative of Sweden in support of the approach contained in the recent Swedish working paper. Yet, taking all these considerations into account, the expressed assessment of the seismologists participating in the SIPRI report is that a clear separation between earthquakes and nuclear explosions could not be made by teleseismic means for underground nuclear test explosions up to tens of kilotons of explosive yield. This means that each year many seismic events will occur in the Soviet Union which are not susceptible to a determination — by seismic means — whether they are earthquakes or nuclear tests up to tens of kilotons of explosive yield.

22. The United States cannot accept the statement advanced in support of the recent Swedish working paper that there will be less than one ambiguous event, or "false alarm", in the Soviet Union every ten years (ENDC/PV.399, para.19). It is our assessment, consistent we believe with the SIPRI report, that there will be a large number of events each year which cannot be distinguished between earthquakes and underground nuclear explosions. That is why it is not possible to verify a ban on underground nuclear explosions by seismic means alone. Furthermore, nuclear test explosions in the yield range of up to tens of kilotons can have very important and significant military value.

23. These are the reasons for our decision — a political decision based on scientific considerations — that adequate verification requires obligatory on-site inspections in addition to seismic detection and identification techniques.

24. Our delegation is aware of the fact that the SIPRI report called for further progress to be made in the field of seismic detection and identification. But it is appropriate to point out that the estimates of potential seismic detection and identification capability which underlie the United States position have been made taking into account the reasonably anticipated improvements in seismic capability.

25. Turning now to the political aspect of the question, I note that the representative of Sweden has said that it is not the purpose of control to provide "judicially conclusive evidence" of a violation, but that rather the aim is that "of deterring a prospective violator from concealed testing by presenting him with a sufficient probability of being exposed." (ENDC/PV.399, para.16). However, in dealing with the concept of deterrence we should bear in mind that an inspection procedure will serve as a deterrent only if a potential violator realizes that it provides machinery under which the possibility of damage to its interests from a violation exceeds the possible gains to be obtained from such a violation.

26. It is that test which we shall have to use in analysing the working paper contained in document ENDC/242 in order to determine whether it is an effective political instru-

ment. And in applying that test we cannot assume that there has been no violation and that one has to be concerned only about preventing false alarms from inducing unwarranted political accusations of a treaty violation. We must look at the more pertinent and worrisome question of what would happen under this control machinery if there were to be a violation. That is the point that must be addressed if one is to talk of deterrence.

27. I believe that we must assume that a violator would take sophisticated precautions in an attempt to minimize any risk of disclosure. Here I should like to note that the SIPRI report indicates that the possibility of taking such precautions does exist. But let us say that this clandestine underground nuclear explosion is detected and there is some seismic evidence, some probability, that the event may indeed have been an underground nuclear explosion, and thus a violation. The violator would be presented with the evidence; he would be questioned. The evidence which would form the basis of the questioning would be highly technical material — understandable only to highly trained seismologists, and in many cases ambiguous even to them.

28. And what if one finds the explanation of the event unsatisfactory? The violator has, according to the Swedish proposal, no further obligation. Those who consider their security endangered may, of course, withdraw from the treaty, but the onus will be on them, not the violator. That would give the agreement an inherent instability. In fact, any nation that wanted to resume testing openly could just conceivably use such a scheme to force others to abrogate the treaty, rather than do so themselves.

29. Obligatory on-site inspections would, we believe, add a sufficiently binding constraint, so that not only would deterrence be greatly enhanced but a violator, persisting in spite of that, would himself have to denounce the treaty to avoid inspection — or be found out.

ENDC/PV.402 USSR/Roshchin

10.4.69

pp.20-21

70. The Soviet Union has consistently advocated the complete prohibition of nuclear weapon tests in all environments, including underground tests. In the Soviet memorandum of 1 July 1968 on some urgent measures for stopping the arms race and for disarmament it is pointed out in this connexion that:

"The Soviet Government is prepared to reach agreement without delay on the banning of underground nuclear-weapon tests on the basis of the use of national means of detection to control observance of the ban."
(ENDC/227, point 5)

71. We listened with great interest to the statement made by the representative of Sweden, Mrs. Myrdal (ENDC/PV.399, para.7 et seq.), when she submitted to the Committee a working paper (ENDC/242) on the question of banning underground nuclear weapon tests. We are studying this new proposal of Sweden with the attention it deserves. It is not my intention at the present moment to enter into a detailed analysis of the Swedish paper. Nevertheless, I should like to stress that the proposal put forward by the Swedish delegation is based on the fact that the present level of development of seismology makes it possible to judge the nature of a seismic phenomenon accurately enough. The position of the Soviet Union is precisely that national means of detection are adequate to identify any underground nuclear explosion.

72. An important role in achieving an agreement to ban underground nuclear explosions is attributed by Sweden and by other Powers to an international exchange of seismological data. The Swedish delegation has already put forward the idea of international co-operation in the field of the exchange of such data — the idea of setting up a so-called "detection club" (ENDC/154). We have expressed in the past and should now

like to reaffirm our positive attitude to this proposal, because it is aimed at facilitating the conclusion of a treaty banning underground nuclear weapon tests. We should now like to emphasize the willingness of the Soviet Union to exchange national seismological data with the other parties to a treaty prohibiting underground nuclear weapon tests. At the same time we consider that participation in an international exchange of seismological data should not impose on the parties participating in such an exchange any obligations in respect of international inspection or control on their territories and that the evaluation of the data collected should be made not by some international agency but by each State for itself.

73. In endeavouring to accelerate the solution of the problem of banning all nuclear weapon tests, the Soviet Union has expressed and reaffirms its support for the proposal (ENDC/144, p.33) of the United Arab Republic concerning the prohibition of underground nuclear weapon tests above a threshold yield with a magnitude of 4.75, accompanied by a moratorium accepted voluntarily by States on underground tests below that threshold (DC/PV.75, para.134) — although we are convinced that even explosions below 4.75 in magnitude can be detected by national means. It is only because we are anxious to make progress towards nuclear disarmament that we accept the proposal of the United Arab Republic.

74. We are convinced that the problem of the complete prohibition of underground nuclear tests can be solved if a constructive approach is adopted and all States are guided by the desire to reach agreement on this important question as soon as possible. At the same time we should like to emphasize that the categorical demand that the problem of the prohibition of underground tests be solved exclusively on the basis of the on-site inspections does not contribute to progress in achieving agreement on this urgent problem relating to nuclear disarmament.

ENDC/PV.404 UK/Mulley

17.4.69

pp.6-8, 12

....The text also indicates the considerable study and leading role that the Swedish delegation has undertaken in this subject over a long period and I readily acknowledge a great debt to Sweden on this account. My delegation has studied the text with great care and I hope we may have an early opportunity in the Committee to consider its provisions together in detail.

10. For the moment may I raise one or two general questions? Both the preamble and article I (3) refer to an international agreement covering explosions for peaceful purposes. Is this envisaged as being the same international agreement as that referred to in article V of the non-proliferation Treaty — since, as I am sure Mrs. Myrdal recognizes, there is a significant difference of language as the non-proliferation Treaty permits bilateral agreements in addition to "special international agreement or agreements"? It would be helpful I think to have some further clarification of the relationship between the agreement envisaged here and that set out in article V of the non-proliferation Treaty.

11. Article II deals with the crucial question of verification and I do not take a rigid position on this. However, I wonder whether what is proposed in the text will be thought generally acceptable since a State considering the Treaty has been infringed has only the right (a) to make inquiries and receive information and (b) to make proposals as to suitable methods of clarification. Its only recourse, if it is still not satisfied, is to bring a complaint to the Security Council, or alternatively to exercise its right of withdrawal — in each case a course of action which should not lightly be undertaken.

12. Several suggestions have been made in the past, including my own proposals in 1968 (ENDC/232), for some kind of committee to supervise the operation of the Treaty and I

feel these proposals should be given further consideration. A committee with suitable technical support could prove invaluable in assessing the large amount of information put forward and in clarifying doubtful events. As the Committee will recall, in my suggestions, which are still on the table for consideration, I proposed that while there would be no certain or automatic right of on-site inspection, that right should exist in certain circumstances.

13. In considering these proposals it may also be useful to examine the present effectiveness of seismological exchanges and consider how they might be improved. As I see it, the suggestion here is that all countries should make speedily available, presumably through a common data centre, all relevant seismic records. Of course, several international seismic data centres already exist — for instance, in Edinburgh, in Washington and in Moscow. The centre at Edinburgh receives data from all over the world; those data include epicentres, origin times, magnitude, depth of focus, and other supplementary information which might be of use in determining the nature of particular events. However, the centre at Edinburgh with its present resources is only able to produce collated information on events of larger magnitude after a considerable lapse of time. The United States Coast and Geodetic Survey also calculates epicentres based mainly on the Worldwide Standard Seismological Network (WWSSN) and distributes these some weeks after the events, but this rapid service is not as precise or as comprehensive as the slower service provided by Edinburgh. The centre in Moscow makes available collated data from Russian stations which are transmitted to Edinburgh. However, such data relate to earthquakes and my understanding is that data from Russian stations on underground explosions, whether in the Soviet Union or outside, are not, as a matter of course, made available outside the Soviet Union.

14. None of those data centres, with the possible exception of the United States Coast and Geodetic Survey, provides a service whereby copies of original station records could be made readily available; and we must recognize that the scrutiny of station records would be essential to decisions in doubtful cases.

15. We plainly have some way to go before it could be said that adequate international machinery exists to enable States to assure themselves that the best possible use could be speedily made of seismic data obtained from stations throughout the world. And even if the resources and the means could be found to make the best possible use of seismic data, we must accept the SIPRI experts' evaluation (ENDC/230) that techniques at present deployed will not give a capability for identification of better than twenty to sixty kilotons in hard rock.

16. Therefore we should very much like to hear the views of the Swedish and other delegations on how they see the provisions of article II working in practice. It would also be of interest to us to know the views of our Soviet colleague, particularly on the availability of explosion data from Soviet seismic stations.

17. Even if the technical difficulties are overcome, political difficulties may remain. As my delegation has made clear on many occasions, our wish is to secure a comprehensive test-ban treaty at the earliest possible date. However, if that is not feasible, if it is not possible to get an immediate cessation of all tests for military purposes, we feel that my proposal (ENDC/232, para.6) for quotas, embodying a phased reduction in the number of tests to zero over a small number of years, merits serious consideration. This might also assist us to meet the problem of tests of nuclear explosives for peaceful use, which is a relatively new and complicating factor in achieving our objective of a comprehensive test ban. Such a phased reduction period would be a great deal better than nothing and would be of immense value in building up mutual confidence, on which, as the Swedish draft text illustrates, so much depends.

18. I was very interested in proposals presented by the representative of the United States, Ambassador Fisher (ENDC/PV.401, paras.5-17), for an agreement to cut off the

production of fissile material for nuclear weapons, the cut-off to be verified by the International Atomic Energy Agency (IAEA). The proposal for a cut-off is not new but the method of verification is. Any such agreement would have to make adequate provision for verification and I can say that we would be prepared to accept appropriate IAEA safeguards for that purpose if the other nuclear Powers were prepared to do likewise. We are studying these proposals and I hope that other delegations will do so also.

31. Verification and investigation of complaints is another aspect of our biological warfare proposal on which we would welcome views and comments before going ahead with the submission of a draft convention. We realize that this presents great difficulties. For reasons explained in my paper, we think the objective should be an effective procedure for the investigation of complaints that the convention has been infringed, rather than safeguards of the kind provided in the non-proliferation Treaty and I should like to give the Committee some indication of what we have in mind.

32. It seems to us that any complaints of use, production and possession of biological warfare agents for hostile purposes would have to be investigated very quickly in order to establish facts. It is important to have machinery to achieve this — which the Geneva Protocol does not have — because only such machinery could provide adequate restraint on aggressive activities. Procedure for investigating complaints would have two distinct aspects: first, machinery for receiving complaints and initiating an investigation; and second, machinery for carrying out the actual work of investigation. Those two aspects could be dealt with by a single body, but need not be. Because of the need for speed, machinery should be as far as possible automatic. All facts discovered by investigation would be transmitted to the Security Council as the body with primary responsibility for the maintenance of international peace and security. It would be for the Security Council to decide upon any follow-up action.

33. We have tentatively concluded that the best arrangement would be for the Security Council to adopt a resolution taking note of the convention and authorizing the establishment of appropriate machinery to receive complaints, initiate fact-finding investigations, and report findings to the Security Council.

ENDC/PV.404 India/Husain

17.4.69

pp.22-23

60. As to the problem of verification of a comprehensive test ban, India, along with other non-aligned countries, has over the years made various proposals which have not so far been accepted by the nuclear-weapon States. Developments in regard to seismic detection and identification as well as the proposals for an organized international exchange of seismological data have made it increasingly difficult to plead inadequacies in this field as the sole reason for holding up agreement on a comprehensive test ban.

61. It is against that background that my delegation welcomes the initiative taken by the Minister of State of Sweden, Mrs. Myrdal, in submitting for the consideration of this Committee a working paper with suggestions as to possible provisions of a treaty banning underground nuclear weapon tests (ENDC/242). My delegation commends the approach adopted in that paper as being sound and worthy of the most serious consideration by this Committee. We are generally in sympathy with the purposes underlying this effort. We think that this draft treaty provides a realistic basis for meaningful negotiations on formulating a comprehensive test ban for universal adherence.

62. Article I of the Swedish draft, which contains the prohibitions to be enjoined for purposes of a comprehensive test ban, is based on a three-tier approach, which in our opinion is the most logical and correct one. According to this approach, the partial

test-ban Treaty would represent the first tier; an underground test ban forbidding all nuclear tests by all countries, including all nuclear-weapon countries, in the remaining environment would be the second tier; and the third and final stage would be reached when a separately negotiated international agreement regulating the conduct of nuclear explosions for peaceful purposes had been concluded.

63. The question of control of an underground test-ban treaty is dealt with in article II of the Swedish draft. The provisions of that article are based on the assumption that recent advances in the seismic art have made a notable improvement in the capability to monitor underground nuclear tests by seismological means alone. The article also envisages, towards the same end, an effective international exchange of seismological data. My delegation shares that twofold approach. Article II of the Swedish draft then goes on to outline the procedure for "verification by challenge" in order that clarifications of any doubtful events may become possible. My delegation, before taking a final position on this matter, would like to study very carefully the views that might be advanced by other members of this Committee.

ENDC/PV.404 Canada/Ignatieff

17.4.69

pp.28-31

80. The Canadian authorities intend to use the projected "Plowshare" explosions to further Canadian research on detection and identification and, as is the normal Canadian practice, any results obtained will be published in open literature. I may mention that there have been several relevant Canadian scientific papers published since the SIPRI meetings at Stockholm and others are about to appear in print. For the convenience of the Committee, I have asked the Secretariat to circulate a list of the titles as a working paper [Circulated as document ENDC/244]. The Canadian authorities consider that steady progress is being made in clarifying the verification issue. I should add that an experiment is now under way in Canada with some equipment at Yellowknife — where, as Committee members may recall, we have a very modern seismological array — and digital processing in Ottawa, which it is hoped will ultimately allow the resolution of the problem of whether the surface-wave/body-wave criterion for distinguishing explosions from earthquakes breaks down below yields of less than ten kilotons in hard rock. That question, as we know, was left open in the report of the SIPRI study group (ENDC/230).

81. Now we come close to the nub of the verification question, to the interaction of scientific seismological detection aids and the political will — or can we call it good will? — required to conclude an agreement. Whatever judgement and interpretation may be made about the effectiveness of seismological verification of compliance with a comprehensive test ban as a measure of control, it seems to be agreed on all sides that the problems of verification would decrease if guaranteed access to all original seismological data were to be provided. The differences of opinion are much more concerned with how much the problems would decrease if access were fully guaranteed. Thus arrangements for the exchange of data, or at least for guaranteed access to all data, are required in order that the problems of verification may decrease. Because of our long-standing attention to this question, my delegation noted with interest the statement of the Soviet representative on 10 April (ENDC/PV.402, para.72) concerning the willingness of the Soviet Union to exchange national seismological data with the other parties to a comprehensive test ban.

82. In principle, data exchange on a worldwide scale seems to us to be desirable. However, when we look at the practical aspects we encounter the problem that massive resources would be required to handle the volume of data. For instance, the Canadian standard network alone generates 55,000 large — that is, about one yard by one foot —

seismograms yearly from twenty-five good stations. This figure, by the way, does not include the records from our Yellowknife array. There are some 200 to 300 stations throughout the world with comparable standards and equipment, and perhaps twice as many more with poorer equipment. The Canadian authorities in a preliminary assessment have estimated that between 100 and 200 stations are really the key ones. These would include most of the twenty-five Canadian stations because of their geographic location, modern equipment and comparatively high sensitivity.

83. For the investigation of any particular event only a few dozen or perhaps a few hundred records may be required. The problem seems to be to devise a system by which their availability could be guaranteed within an acceptable and practicable interval of time. The time problem obviously will be closely related to the structure of the system and its cost, not to mention its political acceptability.

84. One possible system would be based on governmental guarantees to supply records or microfilms, with supporting background technical information, upon the demand of any requesting government within an agreed time interval. Non-compliance with a demand presumably would strengthen the suspicion that clandestine weapons tests were going on. A system along these lines would in effect do little more than render obligatory under an international agreement the kind of exchanges which at present are made for scientific reasons and fix a maximum time-limit for compliance.

85. Another possible system would be to deposit microfilm of records at an international data centre within an agreed interval of time after the record had been generated, or perhaps to send the original records for microfilming at the international centre. All countries would have equal access to the microfilm data, which would be supplemented by technical data on the instruments producing the records, station co-ordinates and other relevant technical information for each station.

86. Seismic data recorded on magnetic tape, as in the case of the Canadian array at Yellowknife, would have to be handled differently. Governments might agree to store original data for one or two years and make requested portions available to interested parties through the international centre. The centre would need to be equipped with machinery for "translating", or converting from one format to another, in order to present the data requested in a form usable by the requesting country. Considerable technical negotiations would be necessary to establish the exact needs but in the view of the Canadian authorities the problems of data compatibility can be resolved without undue difficulty.

87. I have attempted to outline some of the problems which would be involved in establishing a system for the effective international exchange of seismological data. I cannot emphasize too strongly how important my delegation believes it to be that this Committee should prepare as promptly as possible to report appreciable progress to the next session of the General Assembly. I hope we may be able to agree on ways to bring together a group of experts to consider and report upon the organization of an effective international exchange of seismic data. Perhaps such a group could be invited to meet by the co-Chairman. However, without wishing to make any proposal on this point at this time, I consider that the group should include experts from non-members of the Eighteen-Nation Committee on Disarmament which have extensive seismological resources and experience, notably Japan and Australia, which for that reason are members of our informal seismic detection club. But first this Committee must agree in principle that action along the lines I have suggested would indeed be useful and appropriate.

88. The Canadian delegation is aware that there has been a strong tradition of continuing informal international co-operation in some aspects of seismic data exchange. Incidentally it is in the light of existing arrangements for international co-operation that the Canadian delegation is studying the interesting suggestion made by the repre-

sentative of Ethiopia (ENDC/PV.402, paras.103-104) at our meeting on 10 April. We are aware of UNESCO interest, too, in one seismological centre in Edinburgh, Scotland — the centre which has just been referred to by Mr. Mulley — established under the aegis of a non-governmental international scientific organization, which collects and collates one kind of seismic data from stations throughout the world. Our position is simply that this form of co-operation could be extended and strengthened by governmental guarantee, either by developing a new centre for this purpose if the major nuclear Powers so wish, or by extending the function of the present centre either in Edinburgh or elsewhere, or in some other way, depending upon the wishes of the co-operating parties and their technical requirements. The essential point appears to be to make clear just what information Governments will make available and then find an economic technical means acceptable to all parties of making this seismic information freely available. Successful progress towards this limited goal cannot fail to clarify the verification issue.

89. Meanwhile we might agree as a first move to ask all countries to send a list of all seismic stations from which they would be ready to supply records in the framework of a worldwide exchange of data. The list would show the co-ordinates of each station, the technical characteristics of its equipment and other appropriate information. A move of this kind would lead in the direction of merging existing seismological networks into a worldwide data exchange system and would be in accord with the unanimous conclusions of the SIPRI study group.

ENDC/PV.405 Sweden/Myrdal

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80. To find a solution on the no less important question of control we might compare the formula used in the Antarctic Treaty of 1959 with that used in the outer-space Treaty of 1967.

81. Article VII of the Antarctic Treaty provides that in order to promote the objectives and ensure the observance of the Treaty provisions, the Parties have the right to carry out inspections through designated observers. Those observers have complete freedom of access at any time to any area of Antarctica. The right of inspection includes all stations, installations and equipment within Antarctica, as well as all ships and aircraft at points of discharging or embarking cargoes or personnel. Aerial observation may be carried out at any time. The parties are further obliged to notify each other of all expeditions and stations within Antarctica as well as of any military personnel or equipment they intend to utilize there.

82. The corresponding provisions in the outer-space Treaty, article XII, are definitely more limited in scope. They provide that all stations, installations, equipment and space vehicles on the moon and other celestial bodies shall be open to other parties to the Treaty on a basis of reciprocity. Before a projected visit can take place, reasonable advance notice must, however, be given and appropriate consultations be held to ensure safety and to avoid interference with normal operations in the facility to be visited.

83. The formula used in the Antarctic Treaty seems to us preferable as a model, but is, of course, a matter for further debate within the Committee.

84. It has been natural for our delegation to view the Soviet draft text in the light of the principles I have just outlined. I shall now proceed, therefore, to somewhat more detailed comments and to some queries following the Soviet text in document ENDC/240.

90. Article 2 of the Soviet draft contains the provisions on control. Ambassador Roshchin pointed out in his statement on 3 April that:

"Should an agreement on a comprehensive ban on military activities on the sea-bed and the ocean floor be concluded, the parties could apply the

principle of free access to objects placed on the sea-bed in order to verify compliance with the treaty." (ENDC/PV.400, para.24)

91. We agree fully with that standpoint. The moment no military installations are permitted all installations and objects on the sea-bed can be inspected as they will be connected with peaceful activities only. However — and I come back to this possible qualification — should the final outcome of our negotiations as to the scope of the prohibition contain certain exceptions, thus allowing for the installation of some structures of a military nature on the sea-bed, it would seem necessary that a process of obligatory notification be introduced.

92. I come now to the concept of reciprocity introduced in article 2 of the Soviet draft. To us this is obscure. It might be interpreted as meaning "open to other parties which also have installations on the sea-bed". But the meaning must surely be rather "open on a non-discriminatory basis for inspection by all parties to the treaty". We should welcome clarification on this point. It is also important to recall the possibility that inspection may come to be carried out through an international undertaking.

93. How the inspection could be realized is an important question in this connexion on which it would be interesting to have the views of other delegations. Submarines might conceivably have to be used; diving-bells for the greater depths and underwater television cameras. Magnetic detectors might be useful in order to localize metal structures on the sea-bed which might then have to be identified further by any of the methods mentioned earlier or by yet other methods. As States have different capacities for participating in this form of control, some sort of international co-operation may be necessary.

ENDC/PV.409 USSR/Roshchin

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41. The draft treaty submitted by the Soviet delegation provides for the system of control used in those agreements, namely, free access to objects placed on the sea-bed and the ocean floor and the subsoil thereof, by States parties to the treaty on the basis of reciprocity.

42. Some delegations, if we are to judge from their statements in the Committee, maintain the position that the complete prohibition of the use for military purposes of the sea-bed and the ocean floor and the subsoil thereof would complicate the problem of control. Thus, for instance, the United States representative said on 25 March:

"Consideration of the verification question also demonstrates the need to restrict the scope of the prohibition to weapons of mass destruction, since otherwise the task of inspecting the multitude of present and future facilities would be beyond capabilities." (ENDC/PV.397, para.41)

43. Such a point of view is incomprehensible to us. We have already pointed out in our statement of 3 April that, in our opinion, the complete prohibition of the use for military purposes of the sea-bed and the ocean floor would facilitate, whereas a partial ban, being limited to prohibiting only the emplacement of weapons of mass destruction, would complicate the problem of control (ENDC/PV.400, paras.22-27). We should like the United States delegation to explain its view that a partial ban would facilitate the problem of control.

44. Some representatives have raised the question whether it would not be possible to give control an international character. In our opinion, there is no need for this. Control based on the principle of free access has proved its effectiveness, particularly in verifying compliance with the Antarctic Treaty.

45. The use of international means of verification would greatly complicate the problem of control, and the control machinery itself would most probably be cumbersome and

inflexible. It should also be noted that the adoption of an international system of control would require substantial funds and appropriate personnel that could be used for other, more urgent needs.

ENDC/PV.409 Romania/Ecobesco

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71. In our opinion — and similar views have been expressed by the delegations of many other States, both in the United Nations and in this Committee — the difficulties relating to control are not convincing arguments and cannot justify postponing the conclusion of an agreement on the prohibition of underground nuclear weapon tests. This is all the more true because scientific and technical progress has disclosed new data which strengthen the thesis that it is possible to carry out verification by modern means of detection and identification. The question is essentially a political one. As has been emphasized here repeatedly, its solution depends upon the political will of States — and upon that of the nuclear Powers in the first place — to come to an agreement.

72. In the case of the non-proliferation Treaty, which is aimed at a more complex regulation, it was possible to find a solution to the control problem. Does the agreement on the cessation of underground tests — which, by its object and its scope, appears to be a more limited measure — raise insurmountable difficulties regarding control? The elements available to the Committee point towards an answer in the negative. We consider that, if the nuclear Powers are determined to put an end to such tests, the conditions for a mutually acceptable solution exist.

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10. The word "reciprocity" in the Soviet text (article II) does not seem to us to represent a reasonable basis for verification procedures. It suggests that only States which place objects on the sea-bed or ocean floor acquire the right to inspect submarine installations emplaced by another State. If that is the intended meaning, we expect we would not be alone in finding it unsatisfactory. In fact, I inferred from the remarks of the representative of the United Arab Republic at our meeting on 15 April (ENDC/PV.403, para.35) that he also has reservations about this aspect of article II. Likewise, the views expressed by the representative of India at our meeting on 17 April (ENDC/PV.404, para.70) suggested to my delegation that the reference to reciprocity had raised questions in his mind. At our meeting on 22 April the representatives of Sweden (ENDC/PV.405, paras.92 and 93) and Brazil (*ibid.*, para.30) referred to difficulties which would possibly arise, at least under certain interpretations of reciprocity. The parallel with the outer space Treaty (General Assembly resolution 2222 (XXI), annex) seems to us to be overdrawn. The verification procedures will need to have other characteristics in order to accommodate States which may feel threatened and to allow them in some way to participate in the inspection procedures.

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53. I should now like to dwell upon the third panel of our triptych, the problem of control. Italy considers that any agreement establishing a limitation of the military uses of the sea-bed and the ocean floor should be controlled in an effective manner, and that only an international system can ensure the credibility and effectiveness of the control. I confess, for my part, that I do not understand why the need for an international

control body has been so strongly felt in the case of the Treaty on the Non-Proliferation of Nuclear Weapons, why it is so laboriously sought with a view to the conclusion of an agreement on underground nuclear explosions or an agreement on the limitation of the production of fissionable materials, while it is rejected in the case of the demilitarization of the sea-bed and the ocean floor.

54. The comparison with the Antarctic Treaty of 1959 and the outer space Treaty of 1967 with a view to establishing national controls based on the principle of reciprocity does not appear to us to be really relevant. Unlike the environments to which the aforesaid two treaties relate, the sea-bed is more easily accessible to man, and its utilization, even if to different degrees, is within the reach of a larger number of States. The need for an adequate control system, free of any discrimination, therefore remains in any case, whatever may be the extent or the nature of the prohibition. To that end, it is not enough to adopt the criterion of reciprocity between States possessing installations on the sea-bed. If we wish to do without a system of international control, we shall have to find another solution — which is very problematical — that would make it possible to subject existing installations to a control exercised even by States parties to the treaty which do not possess such installations. On the other hand it has not been proved that international control machinery would necessarily have to be more complex and more burdensome than the many national systems as a whole or than reciprocity.

55. I should also like to recall that various delegations have expressed doubts in this connexion, wondering whether a system of national controls would really be sufficient. The representative of Brazil in his statement on 22 April recalled in this regard that:

"It might be a purely reciprocal system of verification would create practical difficulties, for not all States would be in a position to exercise a thorough inspection of underwater installations" (ENDC/PV.405, para.30).

At the same meeting the representative of Sweden made similar reservations and said:

"As States have different capacities for participating in this form of control, some sort of international co-operation may be necessary" (ibid., para.93).

The representative of India was even more explicit when he said on 17 April:

"The issue of verification for a sea-bed treaty would have to be dealt with in the light of the principle of international means of verification so that all parties could feel assured that the prohibitions of the treaty were being complied with" (ENDC/PV.404, para.70)

ENDC/PV.411 Nigeria/Alhaji Sule Kolo 15.5.69 pp.6-7, 9

....But "co-operation in good faith" presupposes mutual trust and confidence, which, as I have said, are desirable ingredients in the existing relations between some of the Powers which are more likely to be "directly involved in a given event requiring verification". The question, therefore, is whether we can rely on a system of verification that is dependent to a large extent on trust and confidence.

9. In his message to this session of our Committee, the Secretary-General of the United Nations sagely stated:

"Disarmament is a most complex, as well as vital, problem for which there is no single solution. Progress can be achieved only by the converging and continuing efforts of all concerned. The essential task is to persevere...".
(ENDC/PV.395, para.4)

Indeed, our experience in this Committee not only confirms the need for perseverance but proves that in tackling the complex question of disarmament we cannot speak of a plethora of ideas or proposals: every proposal enlarges our field of choice and the scope

for working out an agreement.

10. In the face of the atmosphere of suspicion which appears to engulf us these days, I cannot see any hope of our concluding a draft comprehensive test ban treaty unless we can establish a fool-proof system of verification. In other words, transposing the well-known legal maxim about justice, nuclear explosions for non-peaceful purposes not only must be banned but must also be seen to have been banned.

11. My delegation is all for limiting verification to long-range seismic identification if it is fool-proof and acceptable to all. But in spite of the tremendous progress that has been made in this field and the bright prospects of further progress, our impression is that the experts themselves are all agreed that there is still a gap to be bridged. That gap, if it exists, albeit small, cannot in the prevailing atmosphere be ignored. However, if such a gap does not indeed exist, and if a fool-proof seismological verification system can be proven to exist, then the importance given to these on-site inspections will no longer be valid.

12. In view of the alleged gap I have referred to in the effectiveness of long-range seismic detection, that system must, at best, be augmented by another form of verification to allay fears of possible violations of a test-ban treaty. I know that there are reservations about on-site inspections, but such reservations stem, I believe, mainly from an uneasiness about the fact that on-site inspections might be exploited for purposes of espionage and also from the difference of opinion about the effectiveness of seismological verification systems. In the absence of general acceptance of the effectiveness of the seismic detection system, it would appear necessary, in order to eliminate the problems to which I referred earlier, to consider limited on-site inspections. In this connexion I would refer the Committee to the working paper (ENDC/232) presented by the United Kingdom on 20 August 1968 which, among other things, proposed the establishment of a committee that would undertake on-site inspection if strong evidence of an infringement of the test-ban treaty were produced. To my mind, the inclusion of the super-Powers in such a committee would not help to remove the basis of the reservations about on-site inspections. I would therefore propose that inspections, when necessary, should in principle be conducted by a group of non-aligned countries that have signed the non-proliferation Treaty and possess the necessary technological know-how to cope with the implications of such inspections.

13. In that connexion I would venture to suggest the following countries as examples — assuming of course that each has signed and ratified the non-proliferation Treaty: Mexico, Finland, Sweden, Austria, Yugoslavia, Brazil, India and Switzerland. That arrangement should, I think, allay the main apprehensions about on-site inspections. In the first place, since as a pre-condition those countries would have signed the non-proliferation Treaty, they should not be interested in atomic weapon espionage, because by virtue of their accession to the non-proliferation Treaty they would be unable to put to practical use any unlawfully acquired knowledge whilst having the right to benefit, by virtue of the provisions of that Treaty, from the advantages of peaceful nuclear research. Furthermore, being non-aligned countries, they are unlikely to act as agents of any of the super-Powers. A working paper (ENDC/246) along my delegations's line of thinking is now being submitted for the consideration of the Committee.

14. The group we have in mind should have the right to carry out on-site inspections only if there is strong evidence of violation of the test ban treaty which cannot be proved conclusively by the long-range seismic detection system. I should like again to stress here, as I did in my previous speech, that these proposals are not in conflict with but rather augment the proposals made by particularly the United Kingdom in its working paper. Of particular relevance here will be the question concerning a system of phasing out explosions, should it be found impracticable for technical, economic or other reasons to stop underground tests on a given date.

19. While we agree in principle with verification by inspection, my delegation believes that the language of article 2 of the Soviet draft should be a little more precise. In the first place, the question of inspection in the more difficult regions of the sea-bed is academic for most countries, including mine, which have neither the material resources nor the technical know-how to undertake such an expedition. In the circumstances the right of inspection becomes specious for those countries if the word "reciprocity" in the Soviet draft is construed to imply an exchange of inspections by those who have installations on the sea-bed. Each party to the treaty, whether or not it has the capability for verification through national means, should have the right of verification. In fact, in view of the obvious disability of the majority of countries to conduct such inspections, we would suggest that provision be made for inspections to be carried out by third parties which are signatories to the treaty, on behalf of a complaining State or through an international organization, if and when that could be established. I think that this suggestion deserves our close study and possible approval.

ENDC/PV.413 Brazil/Frazaio

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14. The system of verification and control proposed by the Soviet Union does not in our view reflect a clear-cut provision on this essential element of the treaty. As previous speakers have stated, the concept of reciprocity adopted by the Soviet draft has some ambiguous connotations and could be replaced by the more straightforward principle of verification by all States parties to the treaty, without qualification or discrimination.

15. The representatives of the United Arab Republic at our meeting on 15 April (ENDC/PV.403, para.35), and of India at our meeting on 17 April (ENDC/PV.404, para.70) have already expressed their reservations about reciprocity as mentioned in the Soviet proposal. Here recently, at our meeting on 13 May, the representative of Canada stated that: "The word 'reciprocity' ... does not seem to us to represent a reasonable basis for verification procedures". (ENDC/PV.410, para.10). And at the same meeting the representative of Italy said that "it is not enough to adopt the criterion of reciprocity between States possessing installations on the sea bed." (*ibid.*, para.54)

16. Certainly, in this same system, and deriving from the same principle of freedom of access, I think that it should be clearly stated that every State party could carry out the verification through its own means or, upon request, with the assistance of any other State party to the treaty. And eventually, when an international agency becomes feasible, the States parties to the treaty can also apply to its services for the purposes of verification and control.

17. On the procedural clauses, the Soviet draft requires, in article 4, paragraph 3, the small number of five ratifications for the treaty to come into force. We consider that an instrument of such wide and universal scope would require, before it came into force, the initial acceptance of many more countries, including some of those with special maritime qualifications. The representative of Italy mentioned this idea (*ibid.*, para.40), which I think the Committee should retain.

18. Those comments do not exhaust the range of observations of my delegation on the Soviet draft, but they raise some concrete questions related to that proposal.

19. Even in this specific intervention I should like to go back to the first part of my speech, in which I referred to the concept of demilitarization and the prevention of any hindrance to the peaceful and economic uses of the sea-bed. I have in mind the question of verification of installations exclusively for peaceful and scientific purposes placed beyond the twelve-mile limit already suggested, but within the limits of the jurisdiction of a certain State. From a juridical and even from a political point of view, a system of

verification and control could not apply on the same basis to the zone beyond national jurisdiction and to a zone included within the limits of national jurisdiction. This distinction seems to be obvious for the mere reason that all States have special sovereign rights and obligations on the continental shelf under their respective jurisdictions. Thus a system of verification in the area under national jurisdiction must not be envisaged without some special qualifications.

20. The principle of freedom of access for all States parties should be preserved, as I stated before, but the State having jurisdiction for the exploitation of resources over the area where the installation is placed should be consulted before the verification is carried out and should participate in the process of verification. I do not mean that its consent should necessarily be required, because if that were the case the principle of freedom of access could be rendered nugatory. I do mean that in the area beyond the mileage adopted by a treaty, but still within the limits of the national jurisdiction over the sea-bed, the right of verification should be exercised with the participation of the State having sovereign rights for the exploitation of the area concerned, and in any case this verification must not interfere with the peaceful uses of that area. I am confident that this Committee will find the appropriate formulation to meet the points I have raised.

21. The last point I wish to make at this stage concerns the problem of the measures to be taken in the event of any verified violation of the treaty.

22. The system of verification and control to be provided for in an international agreement should not be limited to the possibility of checking and actually proving the existence of installations placed on the sea-bed in violation of the provisions of the treaty. Additional measures should be contemplated to counter such violations, which by themselves would jeopardize international peace and security.

23. In our view the system to be provided for the implementation of the additional measures might be linked with the Security Council of the United Nations. A well-grounded denunciation of a violation of the treaty, addressed to the Security Council, should then be followed by appropriate action by that Council aimed at the re-establishment of the previous conditions of security in the affected area.

24. In still another situation, related to the system of verification, the possibility of recourse to the Security Council could also be useful and constructive. I have in mind the possibility of conflicting opinions on the quality and purpose of an installation inspected by two or more States.

25. In a matter of such importance the State or States concerned should have the faculty to apply to an authoritative organ, which should have the power to ascertain the character of the disputed purpose of a certain installation. This being a question that might have a direct bearing on the maintenance of international peace and security, it is only proper that the Security Council should settle any dispute arising from the conflicting opinions presented by two or more verifying States.

ENDC/PV.414 USA/Fisher

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12. Article III of the draft treaty being submitted today deals with verification. As is well known, the United States has consistently supported the principle of adequate verification for all arms control agreements. The question arises as to what constitutes "adequate" verification of this particular measure in the light of our present and developing capabilities. That is not an easy question to answer, particularly in view of the immense technical problems associated with operating in the hostile environment of the sea-bed. However, if we can ensure that the parties to the treaty remain free to observe the activities of other States on the sea-bed and ocean floor, we are confident

that such observation will provide appropriate verification for the purposes of the treaty. One reason for this is our feeling that if a party were to violate this treaty it would not limit itself to the installation of a single weapon. If it were to violate the treaty, it would doubtless do so on a large scale.

13. Paragraph 1 of article III of our draft treaty therefore ensures the right of observation of activities on the sea-bed and ocean floor to be carried on in a way which does not interfere with the activities of States on the sea-bed or otherwise infringe rights recognized under international law, including freedom of the high seas. Paragraph 1 of article III also provides that in the event such observation does not in any particular case suffice to eliminate questions regarding fulfilment of the provisions of the treaty, the parties undertake to consult and to co-operate in endeavouring to resolve the questions.

14. I am aware that the draft treaty placed before this Conference by the Soviet representative contains the flat provision that all installations and structures on the sea-bed shall be open for verification, a provision which is qualified only by the requirement of reciprocity. Comparisons between the Soviet draft treaty and our draft treaty will be inevitable. Therefore, I should like to address myself to the Soviet draft treaty, in no spirit of contentiousness but in a spirit of carrying on the deliberations of this Committee, as we must. The verification provision of the Soviet draft treaty is of course modelled on the provision in the outer space Treaty for verifying that there are no military installations on the moon or other celestial bodies. But an attempt to transplant, so to speak, a provision applicable to the moon — where all claims of national jurisdiction have been renounced — to the sea-bed, where there are many existing claims of national jurisdiction and a growing number of scientific and commercial uses, raises many difficult political and legal questions. In addition, there would be an immense technical problem in living up to such an unqualified verification provision in the hostile environment of the sea-bed. For example, the entry of an observer into any installation on the sea-bed, if it is at great depth and, as a result, at great pressure, would be both difficult and dangerous. The solution of that problem might require special equipment designed for each particular type of installation. The entry into even one installation, in addition to being hazardous, could take lengthy preparation and be extremely expensive. In order to avoid complicated efforts to establish any such procedure at this time, the United States proposes a simple and straightforward verification system based on observation and consultation to resolve any questions as to compliance with the treaty which the observation might have raised.

15. The United States believes such a system would be workable. In my statement on 15 May I set forth the reasons why the emplacing or fixing on the ocean floor of an installation that was capable of serving as part of an effective weapons system involving nuclear weapons or other weapons of mass destruction would be unlikely to escape the attention of other maritime Powers (ENDC/PV.411, para.25). If other maritime Powers became aware of this activity, as we believe they would, and if they suspected a violation of the treaty, they could act under the observation provision of article III of the United States draft. Let us consider the role this observation could play in verifying compliance with the treaty.

16. If the installation had a configuration which could contain a missile for delivery of a nuclear weapon, and apertures or hatches from which such a missile could be launched, this would be observable. If the installation had communications facilities for a sophisticated command and control system, this might also be observed. And if the installation contained an airlock, designed to permit entry of personnel, or contained large detachable parts, which could be detached for maintenance, this too could be observed.

17. All the questions raised by those observations would have to be resolved by the

consultation provided for in article III, and the other party would be committed to co-operate to resolve them. I can assure the Committee that if the United States were to request consultations under this article, it would not propose to let the consultations drop until its questions were satisfactorily resolved.

18. I might add that this procedure for verification, involving observation and consultation, would be available to all parties to the treaty.

19. In our view, international consultation would thus play an important role in the treaty's provision for verification without the need for a special international verification organization, which we would consider as both premature and wasteful of resources.

20. The United States believes that the verification procedure set forth in article III of this draft, which I have just described, is consonant with our present and developing capability to verify activities on the sea-bed. We also believe that it is appropriate to protect against the threat that we have reason to be concerned about both now and in the immediate future. But the draft treaty we are presenting today provides that five years after its entry into force a review conference will be held. If technological and other developments warrant revision of the verification provision of the treaty, they can be considered at that time. So that there can be no doubt as to our intentions in this regard, paragraph 2 of article III expressly provides that the review conference shall consider whether any additional rights or procedures of verification should be established.

ENDC/PV.414 Italy/Caracciolo

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29. Unfortunately, the development of that discussion, which was highly interesting and constructive, has clearly shown that the crucial problem of verification and control is still the stumbling block in the way of the conclusion of an agreement. Nevertheless, a number of delegations have made a very effective contribution to the study of this problem. The Swedish delegation in particular has played -- if I may say so -- the part of a leader by enabling us to benefit from the results of the work of its scientists, by submitting a draft treaty (ENDC/242) which is very useful and also by taking the initiative for an informal meeting at which the Minister of State, Mrs. Myrdal, provided us with more complete explanations of her points of view. However, I believe that the general opinion is that we can hardly expect to reach an agreement on a total cessation of underground nuclear explosions before we have reached a compromise, acceptable to all delegations, on the problem of control.

30. Italy, for its part, cannot accept the principle that all possibilities of on-site control would be excluded. This position seems to us to be consistent with our status as a State signatory to the non-proliferation Treaty (ENDC/226). In fact -- and may I in passing express a truism -- if the non-nuclear-weapon States had adopted a similar principle last year a treaty on non-proliferation would probably not have been concluded.

31. But one -- and not the least -- of the merits of the presentation of a draft treaty by the delegation of Sweden is to impel the other delegations, faced with precise proposals, to seek possible alternatives. I hope I am not mistaken in attributing this intention to the Swedish representative. The alternative, in our opinion, can be sought only in partial solutions designed to reduce the differences between the opposing theses.

32. From that point of view we appreciate especially the position taken by the representative of Canada (ENDC/PV.404, paras.81 *et seq.*). A more thorough study of the seismological data, that is to say, a study of their importance in order to obtain an effective international exchange in this field -- an idea which moreover is contemplated in article II of the Swedish draft treaty -- seems to us to constitute a step in the right direction. We therefore support the Canadian suggestion (ENDC/PV.404, para.87) to

bring together a group of experts to consider the organization of such an international exchange and to report upon this subject. We also support the other Canadian idea (ibid., para.89), that various countries should draw up a list of all seismic stations from which they would be ready to supply records in the framework of a world-wide exchange of data.

33. We also wish to express our appreciation of the proposal presented by the United States delegation on 5 December 1968 to the First Committee of the General Assembly of the United Nations for international co-operation in seismic research by means of a series of nuclear explosions under the Plowshare programme, (A/C.1/PV.1630, provisional, pp.18-20). In this respect we would be grateful if the United States delegation, at a time which it felt to be most appropriate, would be good enough to let us know the practical measures it has in mind.

34. In August 1968 the Italian delegation presented to this Committee a working paper on underground nuclear explosions (ENDC/234). In that document we suggested that the regulation of underground explosions for peaceful purposes should provisionally be separated from the regulation of underground explosions of a purely military nature. This separation, in our opinion, had the advantage of facilitating an agreement on the control of military explosions — at least until scientific and technological progress enabled the total control of all explosions to be guaranteed.

35. The fact that we have today reached a standstill on the subject of control seems to me to prove that our approach, aimed also at a partial agreement, can constitute a new point of departure for a useful discussion.

36. In any event, and even if a comprehensive agreement could be reached today on the prohibition of all nuclear explosions, it would be necessary to face the particular problem of allowing, that is to say of controlling, underground nuclear explosions for peaceful purposes. There is no doubt — and this is clearly indicated in article V of the non-proliferation Treaty — that peaceful explosions must be allowed and must be carried out under strict international control in order to avoid the danger of any deviation from their original purpose. This international control must be exercised both if the nuclear States carried out such explosions on their own territory and if they carried them out on territory not their own at the request of a third State or an international organization.

37. Today we therefore wish to remind the Conference of the Eighteen-Nation Committee on Disarmament of that suggestion contained in document ENDC/234. At the same time, and bearing in mind the opinions which have been expressed around this table as well as the events which have occurred in the meantime — I am referring, of course, to the approval of the non-proliferation Treaty by the United Nations General Assembly — we should like to suggest a slight change in our original proposal. In our working paper, which I have already mentioned, we proposed that communications relating to the intention to carry out one or more nuclear explosions for peaceful purposes should be addressed to the United Nations. It seems to us today, bearing in mind also General Assembly resolution 2456 C (XXIII) (ENDC/237), that these communications should rather be addressed to an international service for explosions for peaceful purposes within the framework of the International Atomic Energy Agency (IAEA). Similarly, the non-nuclear-weapon States mentioned in our original proposal could submit their lists of experts to the IAEA rather than to the governments of the States in which the explosion is to take place. For the sake of clarity I wanted to draw attention to this small change in a working document [ENDC/250] — which I shall ask the Secretariat of the Conference to be good enough to circulate — representing mere modification of our previous working paper (ENDC/234).

38. We are convinced that our proposal would facilitate the establishment of international regulation of underground nuclear explosions for peaceful purposes. We also think

that it would enable scientists and technicians of the non-nuclear-weapon States to extend their knowledge of nuclear explosions for peaceful purposes. Lastly, we think that the adoption of our proposal would be a first step towards the implementation of article V of the non-proliferation Treaty.

39. I should like now to dwell upon another point in our agenda (ENDC/236, p.3) — namely, measures relating to the cessation of the production of fissionable materials for military purposes. We consider, in fact, that because of their political, military and psychological importance such measures deserve the utmost attention on the part of the Conference of the Eighteen-Nation Committee on Disarmament. Moreover, we already expressed this conviction when our priorities for defining the programme of work of the Conference were put forward (ENDC/PV.385, paras.44 et seq.). At that time we noted with satisfaction (ibid., para.50) that a proposal for the cessation of the production of nuclear weapons and for the reduction and elimination of stockpiles was included in the Soviet memorandum of 1 July 1968 (ENDC/227). Although the Soviet proposal was different in character from that aimed at ending the production of fissionable materials, we considered that it reflected the desire of the Soviet Union to undertake negotiations in this field and that it could consequently form the prelude to a more thorough study of this problem.

40. Subsequently, we took note with great interest of the statements made on 8 April by the representative of the United States on the problem of the "cut-off" (ENDC/PV.401, paras.5-17). The fact that the United States Government has decided to renew and bring up to date the 1964 proposal (ENDC/134) must in our opinion be looked upon as an important and positive contribution to the work of the Conference in a field which is followed with particular attention by the militarily non-nuclear States. The point in the proposal made by Ambassador Fisher on 8 April which has particularly aroused our interest is the one relating to the application of controls. His new proposal in fact makes it possible to overcome the difficulty constituted by the criterion of mutual inspections which was at the basis of the previous United States proposal. It is thus a very substantial improvement for States which, not having installations for the production of fissionable material and consequently not having any counterpart to offer, would be practically excluded from any control mechanism whatsoever based on the criterion of reciprocity.

41. Moreover, this new United States proposal facilitates the implementation of the principle of universality of controls, a principle which we strongly supported during the negotiation of the non-proliferation Treaty. It is designed in fact to subject the nuclear countries, so far as their production of fissionable material is concerned, to the same controls by IAEA as the non-proliferation Treaty imposes on non-nuclear countries for their peaceful nuclear activities. The institution of those controls, which obviously would extend to the entire process of peaceful utilization of fissionable material produced in the future, would therefore be tantamount to the setting up of a single control system for the nuclear countries as well as for the non-nuclear countries. With all discrimination thus abolished, this measure would contribute, moreover, to increasing the effectiveness and even the duration of the non-proliferation Treaty.

42. We have noted that in his statement of 10 April (ENDC/PV.402, paras.41 et seq.) the representative of the Soviet Union did not make any specific criticisms of the IAEA control system proposed by the United States delegation. With respect to the more general criticisms of the United States proposal that have been made I should merely like to point out that while it is true that the cessation of the production of fissionable material for military purposes would not lead to a reduction in the present stockpiles of nuclear weapons, this does not prove that the nuclear Powers must continue to increase indefinitely their production of fissionable material.

....Mr. Fisher went on to say that it was the assessment of his delegation that "there will be a large number of events each year which cannot be distinguished between earthquakes and underground nuclear explosions". (*ibid.*)

14. If we refer to the situation of today, Mr. Fisher is certainly right. Everybody knows that there is a considerable number of nuclear events in the so-called magnitude gap, between 4.0 and 4.5, with explosions extending from one to some tens of kilotons — 20 or 40 or 60, dependent on whether they occur in hard rock or softer environments. But the future possibilities are quite different. The Swedish delegation has made one attempt to circumscribe those future possibilities which could form a stable platform for a test ban.

15. In our interventions in 1967 and in the working paper of that year (ENDC/191) we described how decision theory can be employed to design rather effective ways of using certain kinds of seismological observations for test ban control, both in the case — much discussed already at that time — of a treaty with obligatory on-site inspections and also in the case — not very much investigated at that time — of a treaty without obligatory inspections.

16. There would be two stages of control in both kinds of treaty. In the first stage decision theory principles, or perhaps some other principles, would be used to select from all observations violation-like events, and in the second stage treaty procedure would be employed to get clarification or to verify whether they really were violations or not. I shall assume that what Mr. Fisher called "ambiguous events" or "false alarms" are these selected events. In our terminology they are violation-like events and consist, as the case might be, of real violations and of earthquakes mistaken as explosions and thus being potential false alarms. Decision theory routinely arranges the selection process so that the percentage of violations separated for verification is high enough to provide a sufficient deterrence and at the same time so that the rate of false alarms is held down to an acceptable level. Details about such employment of decision theory are to be found in document ENDC/191 and in a subsequent report from the Research Institute of National Defence in Stockholm, entitled "Seismological Test Ban Control", of February 1968.

17. Let us now examine the second stage — and to begin with, in the case of a treaty with obligatory inspections. There the verification procedure would consist of the performance of a certain number of on-site inspections, each with a certain practical effectiveness, less than perfect but good enough to provide the required deterrence — in our numerical calculations we chose to estimate effectiveness of inspections at 50 per cent. The potentially false alarms would then be cleared up through the inspections and an accusation of breach of treaty would be made only if conclusive evidence of a nuclear explosion was found or, more realistically, I think, if the performance of proper on-site inspection had been refused or obstructed.

18. In the case of a treaty without obligatory inspection, this described verification by obligatory inspection would, of course, not be available. In our intervention on 1 April and in document ENDC/242 we therefore proposed an alternative treaty procedure to handle this verification problem, namely the so-called verification by challenge. Our proposal was based on several notions. One of them was that "false alarms" can be made to be rare events if identification capabilities are developed as suggested by us. The effort which a suspected party would want to make to free itself on such rare occasions would thus not constitute a very heavy burden on the treaty parties. Another of our notions was that the treaty procedure suggested by us would, on the basis of the improved identification capabilities I just mentioned, be efficient enough to maintain the required deterrent against violations. Both those notions have been challenged by the

United States representative and I now want to try to "free" myself.

19. First, I turn to the point about the low rate of false alarms. Here it is necessary to keep the distinction I indicated between possible method and practical application. Our notion of the feasibility of fewer false alarms than one every ten years rests originally on our 1967 application of decision theory to the particular identification method described in 1964 by Brooker and Mitronovas, which is a method of identification over regional distances and based on data going rather far down into the magnitude gap. This was at that time a very encouraging methodological result from United States measuring stations in a regional network around United States explosions and earthquakes, that is, not relying on teleseismic observations. Whether something like that will be applicable also to other regions, including those of particular interest to the United States, will certainly depend on the practical arrangements provided in a treaty situation, and this is largely a matter for political decision. In my intervention on 1 April, I therefore stressed the importance of organizing data exchange and establishing automatic stations for the extraction of regional data (ENDC/PV.399, paras.31 and 32). Both arrangements would be particular instances of practical applications of methods which are available in principle.

20. Of course, the whole situation would be eased if such low false alarm rates were to be attainable by teleseismic means. At present such monitoring of the numerous weak events, in the lower magnitude ranges, does not seem to be available. This is therefore a problem still unsolved, where improvements both of identification methods and of practical arrangements for measurements are necessary. Here the large teleseismic array stations, particularly when placed in different regions of the world, seem to offer the best possibilities for progress.

21. In passing, let me say that I am afraid that the representative of the United States in his intervention on 8 April (ENDC/PV.401, para.21) overestimated the coverage of identification capabilities by last year's report on seismic verification of the Seismic Study Group of the International Institute for Peace and Conflict Research of Sweden (SIPRI)(ENDC/230). The SIPRI meeting actually did not take the capabilities of large arrays into account for the important conclusions. This remains to be done and we would value highly another experts' meeting doing so.

22. A very profound change in the identification capabilities, which was not dealt with in Mr. Fisher's critical intervention, would be brought about by the organized international exchange of seismological data which we have mentioned in article II, paragraph 2 of our suggested treaty text (ENDC/242). I referred to this measure in my speech on 1 April as promising a considerable improvement in comparison with present control capabilities (ENDC/PV.399, para.32). At the same time, I mentioned other improvements which could be derived from seismological stations of a classical type, properly located (*ibid.*, para.28). They might be made automatic and sealed, and should be linked up with the international network of data exchange.

23. Several other representatives have taken up the matter of seismological data exchange in their recent statements. I feel that I have to pay a special tribute to the representative of Canada, Ambassador Ignatieff, for his very efficient promotion of immediate steps towards an effective data exchange (ENDC/PV.404, paras.78-90), and now again in the working paper submitted today (ENDC/251).

24. Mr. Ignatieff pointed out, as other representatives have done, that the task of identification would be facilitated if guaranteed access to all original seismological data were to be provided. For the investigation of certain particular events, data from a few dozen up to perhaps a few hundred records would be important. The problem was therefore, he said, "to devise a system by which their availability could be guaranteed within an acceptable and practicable interval of time". (ENDC/PV.404, para.83). He suggested, as a possible arrangement, governmental guarantees to supply tape records or micro-

films, with supporting background technical information, upon the demand of any requesting government within an agreed time interval (*ibid.*, para.84). That is precisely what has been discussed as very desirable among experts from eight governments — among them Sweden and Canada — which for the last couple of years have been concerned with bringing about the so-called "detection club". Mr. Ignatieff has made several very interesting suggestions in regard to the organizational problems involved in setting up the international data exchange. We want to support warmly such an activation of international co-operation in the seismic detection and identification fields.

25. The representative of the United Kingdom, Mr. Mulley, was, of course, right in drawing our attention in his intervention on 17 April (*ibid.*, para.13) to the fact that several international seismic data centres already exist, such as the ones in Edinburgh, Washington and Moscow. But they are not as yet functioning as needed in relation to a test ban.

26. Before him, on 10 April, the representative of Ethiopia, Mr. Zelleke, spoke of the need for further research in the seismological field and stressed the idea of a joint international effort to this effect (ENDC/PV.402, para.103).

27. These suggestions were commented upon by the representative of Czechoslovakia, Mr. Lahoda, in his interesting intervention in the Committee on the test-ban issue on 29 April (ENDC/PV.407, paras.8-10). He felt, however, that the right time to consider them would be after reasonable progress had been achieved on the crux of the problem, namely, the question of the political willingness to stop testing. We beg to differ just on this point of timing. The structure of the test ban has to be established now and the technical services needed, not least the data exchange, have to begin to be organized now.

28. International co-operation for providing a data flow, however, obviously does not have technical aspects alone. Governments must be willing to decide to participate. In this connexion, I wish to add our appreciation to that already expressed by others, of the recent statements by the representatives of two of the nuclear-weapon Powers, the Soviet Union, indicating its willingness to take part in an organized exchange of national seismological data as part of a comprehensive test ban (ENDC/PV.402, para.72) and the United Kingdom (ENDC/PV.396, para.27) stressing its readiness to take an active part in establishing such a system. United States representatives have on earlier occasions expressed the same willingness, but it would be of great value if this standpoint could be reiterated at this stage of our negotiations. I shall return somewhat later to the question of how soon specific work for this purpose might be initiated.

29. In view of the many constructive suggestions made in regard to international co-operation in the exchange of seismic data, I venture strongly to recommend that in our report to the General Assembly of the United Nations this matter should be more than briefly mentioned. It marks considerable progress towards laying the foundation for a comprehensive test ban treaty, and ought to be made visible to all United Nations delegations.

30. I shall now try to answer some of the queries which have been raised in connexion with the treaty draft contained in the Swedish working paper. The general measure of support that our ideas have obtained so far is quite encouraging.

31. Representatives have dealt mainly with one or two crucial provisions of our text rendered in articles I and II and I shall do the same today.

32. Article I, paragraph 1 contains the prohibition against all underground nuclear weapon test explosions. Paragraph 2 ensures the prohibition against collaboration with any third party for the carrying out of such explosions. The contents of both those provisions are identical with corresponding provisions of the partial test-ban Treaty (ENDC/100/Rev.1). No objection has been raised in the Committee against them. On the contrary, this complete prohibition of underground nuclear tests has been greeted with

appreciation by some representatives, for instance, by the representative of Czechoslovakia on 29 April (ENDC/PV.407, para.6). It is, of course, the very core of a comprehensive test ban. But if we are to satisfy the newly awakened demand for using nuclear explosions for peaceful purposes, an exception from the general prohibitory rule must be made for them. Paragraph 3 of article I provides for that exception, namely, if such explosions are made to take place "in conformity with an international agreement to be negotiated separately".

33. In this connexion I wish to quote the representative of Brazil, Ambassador Frazao, who said on 8 May:

"We consider that the working paper presented by the Swedish delegation deals with the question of peaceful nuclear explosions in a logical and well-balanced manner: it sets forth the general and universal rule of the prohibition that is applicable to all countries, whether nuclear or non-nuclear, without any loopholes, and leaves the question of the regulation of nuclear explosions for peaceful purposes — which must be negotiated separately in another context — to be the subject of a special international agreement." (ENDC/PV.409, para.12)

34. The representative of the United Arab Republic, Ambassador Khallaf, in his intervention on 15 April reminded us of the obvious link between the provision in our suggested article I, paragraph 3 and the one in article V of the non-proliferation Treaty, also dealing with the subject of peaceful nuclear explosions. He said in that connexion: "We believe that it is self-evident that this important subject should receive identical treatment in both these treaties". (ENDC/PV.403, para.26). My answer is that there should not be, and there is not, any contradiction between the two provisions.

35. Mr. Mulley, in his speech on 17 April, touched on the same question when he asked if the international agreement mentioned in paragraph 3 of our article I was envisaged as being the same as that referred to in article V of the non-proliferation Treaty (ENDC/PV.404, para.10). Again, my answer is positive: it is intended to be one and the same "special international agreement", as it is to legislate the international regulations relating to the same nuclear explosions for peaceful purposes. But let me be quite clear: the special agreement will have to be negotiated quite soon. If only the non-proliferation Treaty is then in existence, the coverage of the provisions about control might not be total, that is, explosions in the territories of nuclear-weapon Powers would not then need to be covered. On this point one would, of course, have to study more closely the suggestions made yesterday by the representative of Italy (ENDC/PV.414, paras.34 et seq.)

36. But a further step will be indicated in the context of the comprehensive test ban, when not only explosions performed in non-nuclear-weapon States should be regulated so as not to permit them to acquire nuclear weapons, but all nuclear-weapon tests — that is, specifically underground explosions within all signatory countries and performed by any signatory State must be encompassed by the prohibition. The "special international agreement" which I have so far discussed will have to be formulated in such a way that it can take care of an extension of its coverage to nuclear-weapon States also. The technical problem in connexion with control of peaceful nuclear explosions will then be: how can it be ascertained that they are not exploited for military purposes? The handling of the explosive devices as such and also the preparations and installations, particularly those for making diagnostic measurements of the devices, must be submitted to international observation.

37. I must revert, however, to one remark made by Mr. Mulley. I know that several delegations are preoccupied with the same concern. It refers to the very last sentence in article V of the non-proliferation Treaty. Mr. Mulley pointed out what he called "a significant difference of language as the non-proliferation Treaty permits bilateral

agreements in addition to 'special international agreement or agreements'". (ENDC/PV.404, para.10)

38. Our interpretation is quite simple: the "special international agreement" is to provide the overriding regulations on how to handle peaceful nuclear explosions as such — on foreign territories, as long as we have only the non-proliferation Treaty. Recourse will always be had, on the other hand, to bilateral agreements to settle the conditions for a special project, the modalities, not least the financial conditions, and so on, between a particular nuclear-weapon Power and a particular beneficiary government, altogether free now but only if "pursuant to" the general international rules when they have been settled in the international agreement.

39. I am sorry if this excursion into the field of peaceful nuclear explosions has been a bit time-consuming, but I know that it is a cause of great concern, not to say of some worry, to a number of countries, particularly those underprivileged, so far, economically in a world full of riches.

40. I now have to turn to article II in our suggested text, dealing with control. When introducing this text in the Committee on 1 April, I said that we did not wish to take a rigid attitude in this matter (ENDC/PV.399, para.37). Our text was intended as a compromise between the until-now widely different standpoints of the two main Powers, and intended to entice them into coming forward with more precise alternatives than hitherto. The procedure for verification proposed in our text has to be seen and judged as a whole. It is not rewarding to lift out parts of it and say, "Look, this text contains hardly any binding obligations on a suspected party". We, and many others, hold that it does. Paragraph 1, containing a solemn undertaking by all parties to co-operate in good faith to clarify events, is definitely a binding obligation. Paragraph 2, containing an undertaking by all parties to collaborate in an effective international exchange of seismological data, is a binding obligation. To take on that obligation as binding will be in the interests of all parties, considering the mass of valuable information they will obtain in return.

41. On paragraph 3 of article II, dealing with what we have called "verification by challenge", the representative of Czechoslovakia, Mr. Lahoda, in his intervention on 29 April asked for:

"a more detailed explanation of the interrelationship between the provisions of paragraph 3(b) and 3(c) of article II and their relationship to paragraph 4 of that article". (ENDC/PV.407, para.7)

42. Over the years I have several times tried to present this Committee with as succinct a description as possible of the procedure for verification which has been generally referred to as "verification by challenge". I shall try once again, referring now to the wording in the provisions mentioned by Mr. Lahoda.

43. We consider it of primary importance that a treaty banning underground nuclear tests should contain provisions by which a party wrongly suspected of having violated the treaty can speedily free itself of suspicion. We hold that this is the main concern in this matter. We have organized such provisions in a three-step series of ascending severity. Under article II, paragraph 3(a), a party is supposed to give explanations. In paragraph 3(b) it is provided that the party might make use of the possibility to invite the suspecting party and/or any other State or some international organ or committee to an inspection of the suspected violation, that inspection to be carried out in a manner which the inviting State itself should prescribe. It may be said, of course, that this is a right which any party to the treaty would have anyway and that it is superfluous to spell out the right in the treaty. We think it is valuable, however: it indicates a speedy and easy way for parties to free themselves of suspicion — and this is of practical value not least to smaller States.

44. To reply to Mr. Lahoda, there is to my mind no intrinsic connexion between the

provision offering that possibility in paragraph 3(b) and the following one in paragraph 3(c), under which the parties are entitled to make additional proposals as to suitable methods of clarification. Paragraph 3(c) is, one might say, a residual category for use of any method of clarification. A demand for an ad hoc inspection in the territory of a suspected party is thus not excluded. I can quite see, however, that this is precisely the focal point of controversy between those who insist on and those who oppose obligatory inspections.

45. Now, as to paragraph 4 of article II, if the various measures indicated in the earlier provisions of that article have failed to clarify a suspicious event to the full satisfaction of a suspecting party, paragraph 4 establishes the right for that party to bring the matter to the attention of the United Nations Security Council and the other parties to the treaty. That formula has been used in other treaties. It is here intended to provide an opportunity for further airing of contested statements about facts. This does not mean, however, that all the measures enumerated in the previous parts of the article, such as the inspection-by-invitation procedure mentioned in paragraph 3(b), need to have been involved. The reporting to the Security Council entails no sanction: the provision is largely of political value. The possibility of a debate in the Security Council may be considered as a kind of safety-valve for a suspected party to state its case and, of course, generally, to give added weight to deterrence.

46. I have also to deal with one fairly general complaint mentioned by several speakers, namely that the whole machinery we have envisaged is too weak.

47. In his speech on 15 May the representative of Nigeria, Ambassador Sule Kolo, made the plea for what he called "a fool-proof system of verification" (ENDC/PV.411, para.10). At the same time he presented a working paper on the subject (ENDC/246) in which he recommended that the idea raised last year by the United Kingdom delegation for a committee to undertake on-site inspections in suspicious cases should be seriously studied again. The Nigerian delegation recommends in its paper that such a committee should be composed exclusively of non-aligned countries responding to certain criteria.

48. On condition that it was generally acceptable, we would be happy to go along with that idea. However, that is probably not the case. Already in 1962 the non-aligned members of the Eighteen-Nation Committee on Disarmament launched the idea of a special commission to determine and carry out on-site inspections (ENDC/28). For about two years much work in the Eighteen-Nation Committee on Disarmament was devoted to considering such an international commission, but in the final instance it was not accepted.

49. A much more fundamental issue, raised both by Mr. Fisher and Mr. Sule Kolo, is that of verification with or without inspection. Certainly, there cannot be a difference as great as between 100 per cent for one method of deterrence and zero for another. When Ambassador Sule Kolo asked for "fool-proof" verification he knew, of course, that that was a kind of literary exaggeration: nothing like 100 per cent certainty can be foreseen in this world. But even so, we need to know more about how effective on-site inspections are. After all, they depend on achieving precision with regard to epicentre location and quite a set of favourable modalities. The literature on inspections is full of queries and doubts. In our statistical analysis we estimated 50 per cent probability of success. This is a very important question which I address to all proponents of on-site inspections: exactly how efficient are they? Further, what exactly would be the required deterrence level of a treaty with obligatory inspection? In our estimates of capabilities attainable in the future we used the deterrence level of 10 per cent disclosure risk.

50. One of Mr. Fisher's critical remarks in his statement on 8 April was as follows:

"And what if one finds the explanation of the event unsatisfactory? The violator has, according to the Swedish proposal, no further obligation.

Those who consider their security endangered may, of course, withdraw from the treaty, but the onus will be on them, not on the violator. That would give the agreement an inherent instability. In fact, any nation that wanted to resume testing openly could just conceivably use such a scheme to force others to abrogate the treaty, rather than do so themselves." (ENDC/PV.401, para.28)

51. Clearly, any party not willing to continue with the treaty would have the option of getting out of the treaty through the back door, so to speak, by obstructing the verification process, perhaps even with the onus distribution foreseen by Mr. Fisher. But I think that a treaty with obligatory inspections also offers the same option of backdoor exit, just by obstructing the obligatory on-site inspection procedure. With the obligatory inspection arrangements the occasions for such exits would be even much more frequent than in the arrangement proposed by us. That kind of instability thus exists in both kinds of treaty. I think, however, that any important treaty entered into by mutual agreement would be stabilized in its existence by the mutual interests of the parties, and if those mutual interests were to disappear no treaty would hold.

52. In his important intervention on 8 April, Mr. Fisher also said that one has to test our treaty proposal not only in regard to what is going to happen if false alarms are struck but also in regard to what happens if a violation occurs (*ibid.*, para.26). Of course, that is so and here I should like again to remark that in our verification-by-challenge process a violator would in reality most probably obstruct co-operation in verification. But that is no different from the case with verification by obligatory on-site inspection. A violator would certainly not permit any such on-site inspection of a violation; he would again simply obstruct the on-site inspection procedure. Or he would disengage himself from the treaty before any verification process was attempted.

53. I hope that in this way I have also given arguments against that part of Mr. Fisher's statement on 8 April where he said: "Obligatory on-site inspections would, we believe, add a sufficiently binding constraint." (*ibid.*, para.29)

54. I want to add that we were very gratified yesterday when the representative of the United States in his sea-bed treaty proposal (ENDC/249) suggested a verification procedure rather similar to our challenge procedure for the underground test ban (ENDC/PV.414, para.12 et seq.).

55. Let me finally deal with a very important point made by Mr. Mulley. He reminded us (ENDC/PV.404, para.17) of his proposal from last year allowing for a phasing-out of nuclear-weapon testing by starting with an agreed annual quota of underground test explosions, leading to zero over a small number of years (ENDC/232). The representative of Ethiopia, Mr. Zelleke, in his speech on 10 April suggested that this idea find a place in the Swedish treaty text (ENDC/PV.402, para.106). Our delegation is not at all negative to Mr. Mulley's proposal, if it is acceptable to others, but we do not believe it should be embodied in a major treaty, intended to stand from here to eternity. An agreement about intermediate provisions should rather find its place in some annex or protocol. The adoption of the idea as such would seem to us valuable on condition that the time be used as a warming-up period for the international data exchange and other arrangements for improving verification capabilities. This would give us a cue to the timing problem: prepare the whole structure of the test ban this summer; report to the United Nations on progress made; sign the treaty and/or the transitory regulations when the strategic arms limitation talks are under way; and then start immediately to build up the verification capabilities.

75. That brings us to the test ban. I should like to turn my attention to it, briefly, and to the proposals for a comprehensive test ban, in particular to the verification issue.

76. President Nixon in the letter which Ambassador Smith read to this Committee stated that:

"...the United States supports the conclusion of a comprehensive test ban adequately verified. In view of the fact that differences regarding verification have not permitted achievement of this key arms control measure, efforts must be made towards greater understanding of the verification issue." (ENDC/239, p.2)

77. In my intervention of 8 April I emphasized that in our view adequate verification required obligatory on-site inspection in addition to seismic detection and identification techniques. I indicated our view that this position was based on a firm amalgam of political and scientific considerations (ENDC/PV.401, para.19).

78. At this session considerable emphasis has been placed upon the relationship of seismic data exchange to a comprehensive test ban. I should like, therefore, to elaborate on our approach to this matter.

79. The United States believes that seismic data exchange would serve as a useful complement to an adequately verified test ban. However, if we are to form a judgment on the role of seismic data exchange in a test ban, then we must examine and judge seismic data exchange as it is today and as we can foresee it.

80. In her very interesting remarks this morning the representative of Sweden directed some observations towards the United States, and that was quite proper. I think it would probably be unwise — although we have been engaging in quite a free exchange, and I think it is good that we have done so — for me to attempt to reply ad lib, so to speak, to all of them. I think we shall accept in regard to many of them her invitation to supply information for the record at the forthcoming session. However, as we customarily say in this body, I do have some preliminary thoughts on some of her observations, in the context of the subject I am now discussing — that is, data exchange.

81. The Brooker and Mitronovas study, relied upon to support the proposition that a comprehensive test ban could or might be verified without on-site inspection by seismic means alone and utilizing seismic data exchange, was based on an analysis influenced by the following factors: (a) the tests and earthquakes were in the United States; (b) the observation of the seismic events created by both of these events was made by advanced seismic stations in the United States, operated by United States employees; (c) the seismic stations were very close — I think within 1,500 kilometres — to the events observed; and (d) the events occurred in an area where the geological characteristics were quite well known — we have been living there for a hundred years or so and we know the geology of the area fairly well. In addition, while the Brooker and Mitronovas study did include some smaller-yield events, these were not factored out, so to speak, to take into account the magnitude gap which the SIPRI report (ENDC/230) has brought to our attention.

82. The problem of the magnitude gap clearly is in all our minds if we are thinking of teleseismic means and, perhaps, to some degree of regional seismic data. But before even considering the assumptions as to the probability or ratio of detection serving as an adequate deterrent when that detection was only by seismic means and by the interesting but highly sophisticated game theory and, indeed, before considering the political stability of this type of highly technical information serving as a deterrent — before we even get to those questions — we shall have to have a very clear idea whether the quantity and quality of the data we would get from a seismic data exchange would be of a similar quality to data secured from United States stations on

United States territory, run by United States employees and watching United States tests and United States earthquakes, all of which we know a good deal about for other reasons. Suffice it to say that as of now nothing that we have seen in the study gives us any reason to believe that seismic data exchange would eliminate, on scientific and technical considerations, the need for on-site inspections. We believe that ambiguous seismic events would still remain even with the seismic data exchange. However, the fact that the most hopeful study was based on regional seismic data means that, if we are to be serious in our work, we cannot accept the view which has been expressed here that seismic data exchange is only something to be examined and entered into after we have achieved a comprehensive test ban. It seems to me that the very fact that an interesting study put forward for the consideration of this Committee was based on regional seismic data of a high quality automatically raises a question which every one of us ought to be asking himself: Should we not, in considering these suggestions, know what seismic data we would get out of a seismic data exchange?

83. The representatives of Canada (ENDC/PV.404, paras. 82 et seq.) and the United Kingdom (ibid., paras.13 et seq.) have addressed themselves to an analysis of the technical issues that are raised if seismic data exchange is to be effective. The representative of Canada proposed as a preliminary step that those countries which would be willing to participate in a seismic data exchange should submit a list of their seismic stations, together with appropriate technical information, in order to foster movement towards merging existing seismological networks into a world-wide data exchange system (ibid., para.89). Today an interesting statement has been made by the representative of Canada and we are fortunate to have in front of us a working paper dealing with the subject (ENDC/251). We shall certainly study this paper with the greatest interest and hope to be able to make appropriate comments on it during our next session.

84. In response to the earlier Canadian proposal, I should indicate that the United States is quite prepared to make available to the Eighteen-Nation Committee on Disarmament a list of seismic stations in the United States from which we would be ready to supply records in a world-wide exchange of data. We would all agree, however, that there is still much to be learned in the field of detection and identification of seismic events.

85. As part of this learning process, on 25 March (ENDC/PV.397, paras.23-25) Ambassador Smith restated a seismic investigation proposal that had originally been put forward in the United Nations General Assembly by Mr. Foster (A/C.1/PV.1630, provisional, pp.18-20). Ambassador Smith stated that in the course of this year there were two possible nuclear experiments in the United States Atomic Energy Commission's "Plowshare" programme that could be used in implementing this seismic investigation proposal.

86. Today I should like to submit a working paper (ENDC/252) which elaborates on one of those experiments and on our plan for implementing the seismic exchange proposal. This experiment, which goes under the code name of Project Rulison, will be conducted in the state of Colorado in the western United States. Originally scheduled for the latter part of this month or perhaps for June, the experiment has now for technical reasons been postponed until September.

87. The working paper describes the implementation of our seismic investigation proposal with respect to Project Rulison. All that data will be available to all interested States and organizations, which will be able to analyse the data. Each State can derive for itself the benefits of those analyses. The results of this experiment and, we hope, others in the future, can then be discussed in relevant scientific and technical forums. This analysis of that experiment should enable the seismic investigation proposal to facilitate further advancement in seismic technology and increasing international exchange of information in this field. Furthermore, we shall have here a concrete

example of co-operation in seismic data exchange, which will undoubtedly serve as some measure of the possible usefulness of seismic data exchange to provide progress in this field.

88. I should now like to make a brief observation regarding the cut-off in the production of fissionable materials for weapons purposes, a measure strongly supported by the United States. We have been deeply gratified by the positive remarks concerning that measure which were made by many delegations in this Committee.

89. The United States suggestion for verifying a cut-off, as revised on 8 April (ENDC/PV.401, paras.7 and 8), involves applying the same standards to the nuclear-weapon States as have been agreed to be appropriate for the non-nuclear-weapon States in the non-proliferation Treaty. It is therefore clear that objections as to the means of verification are no longer valid as a reason for objecting to the cut-off.

90. The United States has given priority to a cut-off agreement for many years because it is a realistic measure that would limit once and for all the amount of nuclear materials available for weapons purposes, and that means it would limit the number of nuclear weapons because nuclear material is obviously an essential ingredient. This would be of clear benefit to nuclear- and non-nuclear-weapon States alike from the standpoint of their security, not to mention the benefits it would bring economically and as a confidence-building measure.

ENDC/PV.415 USSR/Roshchin

23.5.69

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107. Another problem of nuclear disarmament which was considered during the present session was that of the prohibition of underground nuclear weapon tests. The Soviet Union has for many years been advocating a comprehensive test ban on all nuclear weapon tests. The Soviet Government has repeatedly declared its readiness to reach agreement on the prohibition of underground nuclear tests on the basis of the use of national means of detection and to conclude for that purpose a special international agreement.

108. The solution to the problem of outlawing all nuclear tests meets with the opposition of the Western Powers, which put forward the far-fetched pretext that international on-site inspections are necessary for control over the observance of an appropriate agreement. The demands for the carrying out of such inspections are shared neither by many members of our Committee nor by the scientists of a number of countries. That is also evidence by the considerations put forward by the Swedish delegation at the present session on the question of banning underground nuclear tests. The Swedish delegation pointed out that the need to resort to inspection, by invitation, with a view to identifying an ambiguous seismic phenomenon may arise less than once in a decade (ENDC/PV.399, para.19). Such a statement of the question shows very convincingly that the demand for international inspection to verify a ban on underground nuclear weapon tests does not rest on solid ground. We are firmly convinced that for control over the observance of the cessation of nuclear tests no international inspection in any form is required.

109. The Swedish delegation introduced a working document which sets out the basic principles of a comprehensive nuclear test ban treaty (ENDC/242). The Soviet delegation has already noted the positive aspects of the Swedish draft and indicated (ENDC/PV.402, para.72) that the Soviet Union is prepared to exchange seismic information with other countries within the framework of the "detection club" proposed by Sweden (ENDC/154).

110. At the same time the Swedish working paper contains a number of provisions which cannot fail to give rise to objections. While recognizing the adequacy of seismic means of verifying an agreement on the total prohibition of nuclear weapon tests, at the same

time it includes, in point of fact, the principle of the carrying out of international on-site verification under the guise of inspection on invitation. There is no need for this provision since, as the Swedish delegation itself recognizes, national means of detection are adequate to reveal possible violations of a treaty on the complete prohibition of nuclear tests.

111. One cannot fail to note also that in the Swedish working paper the question of carrying out nuclear explosions for peaceful purposes is resolved in such a way that until a special agreement is concluded such explosions are excluded, whether undertaken for the nuclear countries themselves or on the basis of bilateral agreements — which is contrary to the non-proliferation Treaty (ENDC/226).

112. Unfortunately, we must observe that the negative position taken by the United States delegation in regard to any proposals for the prohibition of underground nuclear testing if they do not include a provision for compulsory on-site inspection hampers progress towards the solution of this problem. If the United States side continues to maintain this demand as an obligatory condition for the discontinuance of underground nuclear tests, all efforts by the members of the Committee to solve this problem will prove unavailing.

ENDC/PV.416 Japan/Asakai

3.7.69

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66. Although the partial test-ban Treaty was concluded in 1963, we have not yet achieved the prohibition of underground nuclear-weapon tests, which is the only field not covered by that Treaty. The most difficult technical problem in formulating a treaty banning underground nuclear-weapon tests is that of verification to ensure compliance with the treaty. In recent years, however, great advances have been made in research and international co-operation relating to the detection and identification of underground nuclear-weapon tests by seismological methods.

67. The study meetings on seismic methods of monitoring underground explosions which took place last year in Stockholm under the auspices of the International Institute for Peace and Conflict Research in Stockholm and with the participation of experts from ten countries, including four nuclear-weapon States, reached the conclusion that, as far as underground disturbances of a magnitude greater than 4.75 are concerned, discrimination between nuclear explosions and earthquakes would be possible with almost 100 per cent accuracy from outside the country in which the disturbances took place (ENDC/230). This is a fact which marks a new epoch in the negotiations aimed at prohibiting underground nuclear-weapon tests. We should make every effort to improve teleseismic observation techniques to the point where we can with certainty identify all underground explosions.

68. At the same time short-range observation must also be recognized as deserving intensive study so that we may find a solution to the problem of identifying such disturbances as cannot yet be identified by teleseismic observation. One of the possible methods of making such short-range observation effective would be for each nuclear-weapon State to be permitted on a reciprocal basis to install unmanned seismological observatories — the so-called black boxes — in appropriate places within the territory of other nuclear-weapon States with a view to monitoring underground explosions.

69. But in the last analysis the most effective method is the one by which the data from seismological observatories in each country would be internationally exchanged and examined. In this case, however, little would be gained unless the data which were so exchanged covered all the important areas. Accordingly it is necessary for us first of all to know how wide is the monitoring range of existing seismological observatories. If there were areas which the existing seismological observatories could not cover, we

would hope that each country would install seismological observatories in appropriate places within its own territory. We believe that by taking the steps I have just mentioned we would be able to make a further step towards the solution of verification problems. Since Japan, owing to its geographical location, is able to supply valuable observation data, we shall be able to contribute to the discrimination of seismic data.

70. The halting of the production of fissionable materials for weapons use and the transfer of the stockpiles of those materials to peaceful purposes are fundamental steps towards the reduction of nuclear weapons and are included in the proposals for general and complete disarmament of both the United States and the Soviet Union. The question of verification has been the biggest obstacle to the preparation of a treaty for this purpose; but a system of safeguards similar to that which is to be applied to non-nuclear-weapon States by the International Atomic Energy Agency in accordance with the Treaty on the Non-Proliferation of Nuclear Weapons must also be applicable as a verification measure in this case. Accordingly we hope that the negotiations to halt the production of fissionable materials for weapons purposes will not be further delayed on the pretext that the problem of verification is insoluble.

71. At the same time we also hope that the proposal that all nuclear-weapon States should bring their nuclear weapons to designated depots for disassembly, for removal of fissionable materials, and for destruction of the remaining components in a manner that would be demonstrated to nationals of all States, may be re-examined. Such proof of destruction of the components of nuclear weapons would certainly make all the peoples of the world understand the significance of article 6 of the Treaty on the Non-Proliferation of Nuclear Weapons, in which each of the parties to the Treaty undertakes to pursue in good faith negotiations on effective measures relating to nuclear disarmament.

ENDC/PV.421 UAR/Khallaf

22.7.69

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111. My delegation listened with the utmost attention to the statement made by Ambassador Asakai, the representative of Japan, at the last meeting of our Committee. He suggested (ENDC/PV.420, paras.14, 15) that the area of prohibition, which in his opinion should be in terms of denuclearization, should extend to the sea-bed and the continental shelf of the territorial waters. Thus the entire sea-bed and ocean floor would be free from nuclear weapons of mass destruction. Conceivably the prohibition would not interfere with conventional weapons in the territorial waters of coastal States. This imaginative suggestion is being studied most attentively by my delegation.

112. I can only point at this stage to the various implications of this suggestion in relation to nuclear disarmament measures by nuclear Powers and to its link with the non-proliferation régime contemplated by the non-proliferation Treaty. In our opinion we still have to listen to more comments, especially from the Japanese delegation itself as well as from nuclear Powers. One aspect of the question would be — as the representative of Japan himself pointed out — the enormous problems with regard to the establishment of a workable system of inspection and control. This problem could acquire a more serious character since the implications of the Japanese suggestion might conflict not only with the security needs of a country but also with sovereignty considerations in its territorial waters.

113. I now wish to tackle the question of verification. In attempting to formulate treaty provisions in this field we must be guided by the very nature of the sea-bed environment. We would agree with the view expressed by some delegations that all-out analogy with outer space or Antarctica should have its limits. The sea-bed and ocean floor are inseparable parts of the world oceans and seas, on the coasts of which most countries

are situated, and they are used by these in one form or another and in various degrees. Most members of the international community are, by virtue of this fact, maritime countries. Few countries are Antarctic Powers and even fewer are space Powers.

114. A system of verification and inspection, in order to be both workable and attractive, should therefore take into due consideration the manifold interests of the large part of the community of nations. In this light it becomes of the utmost importance that such a system should be tailored in such a way as to afford every country, even a small country, an opportunity to put it into operation whenever it deems it necessary. The right to inspect should therefore acquire, as far as possible, practical value for all. Without that a non-armament agreement on the sea-bed would fall short of enlisting the wide adherence which is an essential factor if it is to be meaningful.

115. Consequently we do not believe that small countries would be sufficiently persuaded to adhere to an agreement whose system of verification was based only on the right of every State to observe the activities of others on the sea-bed; for that right is already in existence under present international law applicable to the high seas. Indeed, article III of the United States draft recognizes that fact when it states that "the Parties ... remain free to observe activities of other States ...". Furthermore, the exercise of such a right would have a meaningful and practical value for a small country only if it is afforded assistance by some other country or through some international arrangements.

116. A system based primarily on observation is not ameliorated by providing for an undertaking on the part of the suspected State to consult and co-operate to resolve the question; for consultation and co-operation are by definition dependent on the will of the suspected State, and they constitute a stage subsequent to the stage of observation, on which I have already expressed my delegation's misgivings.

117. We also find some difficulty in understanding the reasons for making the revision of the verification system envisaged by the United States draft more rigid than revision of other provisions of the treaty, some of which are very fundamental indeed. For, while all other provisions could be amended at any time in accordance with article IV, the revision of the system of verification is to be carried out exceptionally through the procedure of a review conference to be held five years after the entry into force of the treaty.

118. Furthermore, we find some ambiguity with regard to the provisions on consultation and co-operation in the United States draft. We assume, however, that those consultations are supposed to take place between the suspecting party and the party which is suspected to have emplaced the prohibited weapons. But what would be the situation if the latter refused to co-operate in those consultations? Another question: is it conceived under the United States draft that certain measures are to be taken in the territorial waters of a State when alleged suspicions are related to the sea-bed under those territorial waters if those waters are covered by the prohibition; and would those measures be taken after the permission of the coastal State had been acquired, or irrespective of that permission? I think it would be useful to hear some clarification on these and other related questions.

119. We have also studied with great attention the system of verification proposed in article II of the Soviet draft, and listened to the various comments made on that article in the course of the spring session. We believe that the principle of accessibility to the installations and structures goes a step further in making the system more effective. Our main difficulty, however, with the proposed Soviet system lies in the fact that it does not afford a practical opportunity for medium and small Powers to exercise their rights of verification and inspection.

120. Faced with those difficulties in both the Soviet and the American drafts, we find ourselves in no position but to insist on providing for certain provisions in any verifica-

tion system which would make such a system non-discriminatory and workable for all. We have thought, together with others, that one method of achieving this could be by way of making verification through access available to any State party to the treaty, through its own means or with the full or partial assistance of any other State party to the treaty, if so requested. When it becomes feasible, such verification could also be carried out by an appropriate international agency or arrangement.

121. We believe that that is the minimum provision necessary to give meaning to the system of verification, at least for small and medium-sized States. Meanwhile we remain open-minded and ready to hear the comments of other delegations in our effort to secure a verification system that is equal in its practical application.

122. It is the objective of my delegation, while we are engaged in this rather comparative approach to the two texts before the Committee, to try to find more grounds for an agreement which would best secure man's benefit and betterment in this vast and promising human environment.

ENDC/PV.422 Sweden/Myrdal

24.7.69

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53. Coming now to the question of control, one might object that the control procedure is made more complex by the delimitation of two different zones: the three-mile limit for the obligation not to install nuclear weapons further out, and the twelve-mile limit for the exclusive use and control of the coastal State. It has, however, been stated by the United States representative that nuclear installations on the sea-bed will be large affairs. They should be observable with enough accuracy to set in motion the additional control machinery to be provided in the treaty. Here I wish to emphasize that in regard to the twelve-mile maritime zone observation, if carried out in consistence with international law, would not be hampered by the exclusive rights of a coastal State which I have mentioned earlier.

54. Let me now leave the question of observation and turn to the further measures of control — that is, verification. In the earlier part of today's intervention I tried to pinpoint the differences in approach on this score between the Soviet and the United States draft treaty texts. We for our part wish to retain in principle the idea of free access contained in the Soviet draft, as I stated in my intervention on 22 April (ENDC/PV.405, para.91). In this context I wish to recall in passing that a number of delegations, including my own, have earlier criticized as unsatisfactory that part of the Soviet text which contains the notion of reciprocity in control functions. Further, a strong appeal has been made for including the possibility that the verification process might, when this becomes feasible, be committed by a party to an appropriate international organization.

55. Finally, appeals have been made that a party should also have the possibility to ask for the full or partial assistance of any other party to the treaty for carrying out the verification procedure. The representative of the United States in his recent statement (ENDC/PV.421, paras.48 et seq.) gave his reasons against international arrangements and against commitments for third-party assistance. Like several other delegates — most recently the representative of the United Arab Republic, Ambassador Khallaf, in his intervention on 22 July (ibid., paras.113 et seq.) — I wish, however, to support these appeals as being important to many countries throughout the world. They are fully in line with the formula of co-operation used in the United States draft, and do not imply any binding obligation on a particular party to give such assistance in a particular case.

56. A further important point in connexion with control is the one I outlined earlier of giving the coastal State in principle the exclusive right but also the obligation to carry out verification in its maritime zone. This provision is not in contradiction to either of

the two existing drafts. We only suggest that such a right and obligation for the coastal State should be clearly spelt out. Any desire by another party to proceed with further verification must obviously be channelled through the coastal State and could only be undertaken with its co-operation.

57. If parts of the continental shelf adjacent to a coastal State extend beyond the twelve-mile limit of the maritime zone, some uncertainty undoubtedly remains as to the rights of verification on that outer shelf. The coastal State, according to existing international law, has sole rights of exploration and exploitation. Any installations in this area of the sea-bed must be presumed therefore to belong to the coastal State or to have been installed with its consent. Here the principle of free access meets a real test. In our opinion that principle ought to be upheld; but as a matter of international courtesy it would be normal for consultations to take place with the coastal State concerned. I wish to add that these difficulties should be considerably reduced, and risks of conflicts even more so, if revisions of the international legislation regarding the continental shelf were made so as to establish firm delimitations instead of the present open-ended situation.

58. Where the principle of free access is applicable without any limitation, of course, is in regard to the deep ocean floor proper as well as to sea-beds at any depth which are unconnected with continental shelves of particular coastal States — for instance so-called sea mountains and ridges. Many parts of the ocean are so shallow as to make the floor accessible already now by conventional capabilities for maritime exploration, which are in the possession of many States. These parts may also be the very ones to tempt nations to establish installations and structures. Exploration activities, which are permitted to all, must be open to the kind of verification envisaged in this treaty. In reality the principle of free access is but a corollary of the commonly-recognized principle of free exploration of the sea-bed invoked in the first preambular paragraph of the United States draft. It is also concomitant with the principle of the sea-bed and ocean floor being the common heritage of mankind, to be used in the interests of all and not subjected in any part to the national sovereignty of individual States.

59. This is the grand scheme which we all, as Members of the United Nations, are pursuing in regard to the positive task of utilizing the sea-bed for peaceful purposes. The demilitarization of the sea-bed is but the preliminary step towards avoiding obstacles and impediments to the fully free and common utilization of this, man's last frontier.

60. In conclusion, I wish to summarize as follows the ideas tentatively presented here in order to seek a compromise between the Soviet and the United States drafts on the demilitarization of the sea-bed.

61. We should retain, from the United States draft, the notion of prohibiting all nuclear weapons and installations for weapons of mass destruction beyond a three-mile zone adjacent to the coastlines.

62. A further prohibition in regard to all weapons, and to military bases and fortifications and other installations of a military nature, except some which are of a purely passive, defensive character — such as means of communication, navigation and supervision — should be valid beyond a twelve-mile maritime zone along the coastlines, as suggested in the Soviet draft.

63. Within the twelve-mile zone the coastal State should have the exclusive right of use and verification, the right of observation by all already being assured in international law. Beyond this maritime zone any installations on the sea-bed should be open to all parties for verification. A procedure for assistance or for verification by an appropriate international organization should be foreseen.

35. It now remains for me to speak about the delicate problem of controls. In my statement on 13 May I confessed (ibid., para.53) that I did not understand why the need for an international control body had been felt so strongly in the case of the non-proliferation Treaty (ENDC/226*), why it had been sought so laboriously with a view to the conclusion of an agreement on underground explosions or an agreement limiting the production of fissile materials, while it was rejected in the case of disarmament of the sea-bed and the ocean floor. I added also that comparison with the Antarctic Treaty of 1959 [United Nations Treaty Series, Vol. 402, pp.71 et seq.] and the outer-space Treaty of 1967 (General Assembly resolution 222 (XXI)(Annex)) with a view to instituting national controls founded on the principle of reciprocity did not appear to us to be truly pertinent, because, unlike the environment with which those two Treaties are concerned, the sea-bed, and above all the part covering the continental shelf, is more accessible to man and its utilization is within the reach of a greater number of States. Since then, however, we have heard with interest the explanations given to us by the representative of the United States in his latest statement, especially when he referred to international co-operation and the possibility of the review conference provided for in article III of the United States draft defining and establishing more precise procedures within an international framework (ENDC/PV.421, paras.38 et seq.).

36. For our part we still believe that, in regard to control, a minimum of internationalization must be recognized upon the entry into force of the treaty and without waiting for the review conference, the main object of which, as its name indicates, is to review rather than to institute. Moreover, it does not seem to us too difficult to imagine a simple and not necessarily costly international procedure which would channel a request for verification coming from any State, and by virtue of which the technically more developed States would accept the obligation of giving it necessary assistance. Nor do we see any difficulty in finding some body to supervise the operation of such a system and to screen requests for assistance.

49. On the question of control, the United States has suggested that we should limit ourselves to securing for the parties to the treaty, only the right to observe the activities of States on the sea-bed and the ocean floor (ENDC/PV.397, para.38). It can be pointed out that the right of access to any installation on the sea-bed provided for in the Soviet draft also allows for the possibility of observing the activities of States on the high seas. At the present time there is an international legal basis for carrying out such observation — the universally-recognized principle of the high seas. But will that be enough? We believe that the States parties to the treaty should be given more positive rights ensuring effective control over the fulfilment of obligations under the treaty banning the use of the sea-bed for military purposes. It is precisely this need that the form of control proposed by the Soviet Union has taken into account.

50. During the discussion of this question the United States delegation has expressed doubts about the feasibility of control in the event of the complete demilitarization of the sea-bed (ibid., paras.35 et seq.; ENDC/PV.411, paras.23 et seq.). We cannot agree with that view. As we have already pointed out, when there is complete demilitarization of the sea-bed there must be no military objects there, and the parties to the treaty would only have to be convinced that the existing objects were of a peaceful nature. In the case of a partial ban, however, a considerable number of military objects would be located on the sea-bed and in each specific case States would be faced with a very

difficult problem, namely the need to decide whether a given object related to a type of activity permitted or prohibited by the treaty.

51. Furthermore, the practical exercise of control in the conditions of a partial ban on military activities on the sea-bed would be a much more difficult matter, since the verification of objects having a military nature but permitted under the treaty would arouse apprehensions on the part of the States that had placed such objects on the sea-bed in regard to the discovery of their military secrets by the verifying party.

52. In connexion with the argument advanced by the United States delegation concerning the difficulty of control in the conditions of complete demilitarization of the sea-bed, we should like to point out as some other delegations, including that of the United Arab Republic (ENDC/PV.421, para.98), have done, that verification would in that case be necessary in fact only in respect of certain areas where the emplacement of weapons by a potential violator appeared to be technically feasible and strategically appropriate.

53. I should like now to turn to the question of the area to be covered by the treaty. As is well known, the draft treaty submitted by the Soviet Union proposes the banning of military activities on the sea-bed beyond a twelve-mile coastal zone (article 1). In proposing a twelve-mile zone the Soviet Union was guided, first, by considerations concerning the security of coastal States — and this has been referred to by a number of representatives who have spoken here — and, secondly, by the interests of ensuring the most favourable conditions for the functioning of the system of control.

54. The need to ensure the security of coastal States has been pointed out by many representatives who have spoken here, in particular by the representative of the United Arab Republic in his statement on 22 July when he said, in this connexion, that his delegation considered "the twelve-mile limit proposed for this zone in the Soviet draft to be a reasonable one" (*ibid.*, para.109).

55. Referring to the importance of ensuring the necessary conditions for the unhindered functioning of the system of control over the fulfilment of the treaty, I should like to note the following. In order to have access to the objects of control (and even in order to observe the various works that are being carried out on the sea-bed), it would be necessary for foreign ships, aircraft and so on to approach these objects. Since many States possess a twelve-mile zone of territorial waters, if a narrower coastal sea zone were established for the purposes of the treaty it would be necessary to obtain the permission of the coastal State for foreign ships to enter those waters or for foreign aircraft to fly over that zone for purposes of control. That could, of course, give rise to difficulties for the unhindered exercise of control over the fulfilment by all parties of their obligations under the treaty relating to prohibition of military activities on the sea-bed.

ENDC/PV.423 Brazil/Frazaio

29.7.69

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76. The proposals contained in article III, paragraphs 1 and 2, of the United States draft treaty could be considered satisfactory by the Brazilian Government so far as they establish a process of control in different stages: first, the simple observation and ensuing verification; second, a phase that may lead to direct and in loco inspection through consultation and co-operation. I should like to hear from the United States representative if this interpretation is correct. Assuming it is, I would consider it advisable that the text be redrafted in order to express those ideas in a more detailed manner.

77. It is, however, the considered view of the Brazilian Government that the process of control should be undertaken, in any of its stages, with the direct participation of the coastal State whenever the simple observation and consequent verification — to utilize

the terminology of the United States draft treaty — is to take place in areas over which that coastal State exercises special national jurisdiction. That means that the coastal State would have the faculty to join in the observation and verification if it so desired. There should be no requirement of a previous authorization by the coastal State. It suffices that the State wishing to observe and verify in areas under the national jurisdiction of another State should inform that State of its intention with due advance notice, and that such information be acknowledged. That procedure is designed solely to enable the coastal State to use its right of co-participation.

78. We believe also that any party should be entitled to ask for the assistance of any other party when it wishes to exercise its right of observation or verification, and that the treaty should leave the door open for transferring the control eventually to an international organization. I want to be as clear as possible in regard to the right of assistance. We maintain that the right of assistance is not to be confounded in any way with a blank commitment or a duty to assist. It is quite understandable that no country would commit itself so widely, just as it is perfectly understandable that any party lacking the technical means should be allowed to seek assistance from friendly nations.

79. I feel that such provisions would constitute a reasonable manner in which to safeguard the interests of all parties. I believe also that these proposals are entirely in line with the purposes of the treaty we want to agree upon.

80. There is, however, one remaining difficulty, and it stems from the great diversity of the claims to national jurisdiction. In order to obviate this potential stumbling-block, we propose that this right of co-participation should be exercised in any inspection that is to be carried out in a band of 200 miles, which would be measured from the outer limit of the narrow zone that is not the subject of any prohibition. This uniform criterion is aimed at setting precise and easily-identifiable limits both on the surface and under water, and at avoiding any ambiguity or controversies that should not be brought into a treaty which is solely designed to avoid armament measures on the sea-bed. The whole question of ascertaining limits of national jurisdiction would in that case be entirely superseded.

81. We should be prepared to submit a specific wording for this whole proposal in due time. In any case we should welcome the comments delegations might be willing to advance on these ideas.

82. As to the areas of the high seas which are not subject to national jurisdiction, we believe that the clear enunciation of the free observation and verification principle should be entirely satisfactory.

83. A question which we do not consider to be thoroughly dealt with in either of the draft treaties already submitted is the solution of possible controversies related to the fulfilment of the provisions of the treaty. It is possible that recourse to consultation and co-operation in endeavouring to settle the controversies that might arise would lead to adequate solutions of divergencies. But the Brazilian delegation believes that the treaty would have greater efficacy if it were possible to bring to the legal jurisdiction of an international authority any serious divergency stemming from the process of observation and thorough verification. We do not see any real incompatibility between this proposal and the one incorporated in the United States text. We would, however, prefer to have in the treaty itself an explicit mention of this recourse. Whenever bilateral negotiations do not suffice to eliminate disputes, the Security Council of the United Nations should be called upon to settle them. May I be permitted to recall my last statement? I said at our meeting of 21 May that such disputes —

"...being a question that might have a direct bearing on the maintenance of international peace and security, it is only proper that the Security Council should settle any dispute arising from the conflicting opinions presented by two or more verifying States". (ENDC/PV.413, para.25)

28. We wonder whether those countries with less well developed undersea technologies might count on the co-operation and assistance of those with more highly developed technologies in the detection and inspection of prohibited installations, particularly in areas of the sea adjacent to the coastal State. We believe, for instance, that it would be in the interests of all of us if a verification procedure could be devised offering the maximum assurance possible, within admittedly the known technical limitations, to which the representative of the United States referred the other day (ENDC/PV.421, paras.47 et seq.), that all signatories have the right to request not only the verification of activities or installations that may give them concern, but also that it be coupled with an undertaking that the nations which have a more developed competence in underwater technology would co-operate as well as consult.

29. Such a verification procedure might take many forms, but we would suggest that careful thought be given to various factors for possible inclusion. For example, a verification proposal taking the above considerations into account might include the following features. All installations and structures on the sea-bed and ocean floor beyond the twelve-mile coastal band would be open to observation and inspection by representatives of the other States parties to the treaty. States wishing to carry out actual inspection of installations and structures would be required to give prior notice of their intention to the Secretary-General of the United Nations. Every party would have the right to apply to the Secretary-General of the United Nations for the co-operation and assistance of other States in carrying out the verification process. On receipt of such an application the Secretary-General would make arrangements for the verification measures to be carried out by a technically competent State party to the treaty. The applying State would be able to nominate an official to accompany the technicians of the investigating State.

30. As for the financing, we have given some thought to a proposal which would require the complaining State to accept the financial responsibility for a verification operation in which no violation of the treaty was discovered, since this would serve to ensure that requests for verification were limited to instances in which serious concern and international action were warranted. We thought that in order to ensure that the provision was not discriminatory it might be appropriate that, in the event that the the verification procedures provided evidence of a treaty violation, the cost of the investigation would then be paid by the offending State or through an agreed procedure set up by the Secretary-General of the United Nations. If inspection were taking place within the 200-mile security zone, the coastal State involved would be consulted and allowed to nominate officials to accompany the investigating technicians, whether that State had introduced the complaint or not. Each State party to the treaty would undertake to agree to full co-operation in the verification process.

31. In our view the verification problem must be considered from the point of view not just of the present degree of sea-bed exploitation or present competence in this environment, but rather of that which may prevail during the life of any treaty. Many delegations recently attended briefings, kindly arranged by the United States delegation, which pointed up the fact that a large number of peaceful sea-bed installations and structures will probably be under construction if not in actual existence in the not too distant future. It is probable, for example, that underwater drilling rigs and perhaps even extensive undersea engineering structures are within the realm of possibility as a result of the world-wide search for new sources of power. Such developments would make it extremely difficult to verify a generalized prohibition such as that proposed by the Soviet Union.

32. The size and nature of future sea-bed engineering will also make it extremely diffi-

cult to detect violations of the prohibitions which the United States has proposed covering nuclear weapons and weapons of mass destruction only. These weapons might be concealed in other engineering forms and only close physical inspection would offer any assurance of verification. A system involving close physical inspection could be extended without undue difficulty to the list of prohibitions proposed by Canada.

ENDC/PV.424 Japan/Asakai

31.7.69

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38. The verification of compliance with the prohibition of underground nuclear-weapon tests is certainly not an easy problem. Unlike test explosions in the atmosphere, underground explosions can be neither sighted from the air nor detected by means of collecting radioactive debris in the air. The only possibility is to detect and identify them by recording underground disturbances caused by them. Hence arduous efforts have been made to elaborate seismological means of detecting and identifying such explosions.

39. Particularly in the past few years, marked improvements have been made in the seismological means of detection and identification. No doubt technical developments, including the establishment of array stations, have made their contribution to such improvements. But more important has been the further development of international co-operation, which is traditional in the field of seismology. There was, for example, the meeting of the "detection club" convened in May 1966 on the initiative of the Government of Sweden with the participation of representatives of eight Governments, including the Government of Japan.

40. Another important event was the discussion in the study group on seismic methods for monitoring underground explosions which met in April and June of last year upon the initiative of the Stockholm International Peace Research Institute (SIPRI), with the participation of leading seismologists of the world, including those from the four nuclear-weapon States (ENDC/230). It was agreed in the study group that at a magnitude of 4.75 and above it was almost 100 per cent possible to identify underground explosions using the relationship between surface waves and body waves recorded at teleseismic distances. I should like to remind the Committee that a magnitude of 4.75 was considered by the Geneva Conference of Experts in 1958 only as a future target for seismological identification of explosions. Indeed, the SIPRI study group opened a new era in the negotiations for the conclusion of a treaty on the prohibition of underground nuclear-weapon tests.

41. However, we have to admit that there is a limitation to the possibility of detecting and identifying underground explosions by seismological means. Opinions differed among the members of the SIPRI study group on whether it was possible to distinguish explosions from earthquakes as the level of magnitude went down from 4.75 to 4.5. As the figure goes further down the magnitude scale, identification by teleseismic observation becomes more difficult, and at the present stage it is not easy even to detect at long range underground events of magnitude 4.0 and less. It is impossible at present, and will remain so in the foreseeable future, to detect events of magnitude 3.0 and less at teleseismic distances.

42. Those facts lead us to the inevitable conclusion that, so long as one takes the position that an underground test-ban treaty should not be concluded unless all underground explosions, however small, are to be detected and identified, there will be no chance for a complete underground test-ban treaty in the foreseeable future. In order to conclude a treaty prohibiting all underground nuclear-weapon tests one has to start from the premise that a political decision has to be made to prohibit all such tests when a means is devised to detect and identify underground explosions above a certain limit in size.

43. Intrinsically, the size of such explosions should be expressed in terms of the power

of the explosions or "yield". But yield of explosions is not observable from outside. Inasmuch as we employ the seismological means of verification, magnitude is the only physical quantity observable to us. Thus the limit that I referred to earlier should also be expressed in terms of magnitude. What, then, should be the level of that magnitude? The easiest answer is to set it at magnitude 4.75, as explosions above that level of magnitude can be identified even at present. It may be asked, however, whether it is appropriate to leave out explosions of magnitudes below 4.75. For example, the size of explosions of magnitude 4.0 is reported to be 2 kilotons in granite and 6 kilotons in tuff, and to reach the level of 25 kilotons if fired in partly-saturated alluvium. Difficulties may exist in concluding a complete underground test-ban treaty without further assurances that test explosions of this order of magnitude would be identified.

44. Detection of explosions above magnitude 4.0 will become possible in the near future through improvement of the existing networks of teleseismic observatories; but identification is another matter. As it is the relationship between body waves and surface waves that is used for identification of explosions, and as it is not possible at present to record surface waves of explosions below magnitude 4.5 at teleseismic distances, it becomes necessary to employ data recorded at local or regional distances in order to identify explosions of magnitudes between 4.5 and 4.0, a figure which may be used for the moment as the limit in question.

45. Taking all those factors into consideration, my delegation wishes to make a suggestion for a workable formula to reach our ultimate goal — the prohibition of all underground nuclear-weapon tests.

46. The first step in that formula would be to agree to prohibit underground nuclear-weapon tests above magnitude 4.75 while securing a commitment by all States to co-operate with each other with a view to devising within a certain period of time a system of verification which would be able to monitor all underground explosions above magnitude 4.0. This first step is a provisional measure, taking fully into account the fact that the divergence of views among States on the necessity of on-site inspection prevents us from realizing the prohibition of all underground nuclear-weapon tests at a single stroke. It is our hope that the suggestion I have just put forward will be accepted by all States without delay.

47. The second step would be to agree on a complete underground test-ban when the foregoing system of verification was completed. Let me further elaborate the specific measures which should be taken to implement the system of verification suggested in our formula.

48. First, as our suggestion is based on the measurement of magnitude, a system to determine the magnitude of each underground disturbance should be established. One of the problems pointed out by the SIPRI study group was the difference in magnitude reported on the same event by eastern and western observatories, which is probably due to the difference in period characteristics of the respective instruments. It would be necessary to ensure that the magnitude reported on an event would be the same regardless of who the reporter might be, so that there would be no room for dispute about the basic scale of measurement. One effective step might be an agreement to designate a certain number of observatories for each subject area and to determine the magnitudes of events on the basis of data reported by them. We might also request in this respect co-operation from the Magnitude Committee of the International Association of Seismology and Physics of the Earth's Interior.

49. Secondly, the purpose of verification under our formula would not be attained effectively unless seismological stations in the world were properly distributed. Our next step, therefore, should be to examine the existing networks of seismological observatories in the light of the need to make the local or regional observation required to identify explosions above the limit explained earlier. In that connexion the Japanese

delegation wishes to support the suggestion made by the representative of Canada on 17 April on the registration of observatories (ENDC/PV.404, para.89). If there are important areas which are not covered by the existing stations, the States concerned need to agree to improve the existing observatories as well as to establish new ones as is found necessary.

50. A question may arise at this point on the number of new observatories to be installed. The number may differ considerably depending upon several factors. For example, there is the question of where the "important areas" to be covered are, and how wide they should be. There is also the fact that explosions of the same size detonated in a similar medium may produce considerably different magnitudes according to different circumstances. They may well produce magnitudes higher than expected. For the purpose, therefore, of restraining explosions which are normally expected to produce magnitudes above a certain level it may suffice to install enough observatories to identify explosions of a magnitude somewhat above that level. It is assumed that the number of necessary observatories would decrease as the magnitude level of explosions to be identified became higher. My delegation wishes to suggest that a meeting of experts be convened to examine further all the relevant aspects of this matter.

51. Thirdly, all the States should agree to make all the seismic data available internationally. Data to be made available should include

- (1) Data on all underground events except local micro-earthquakes, which are to be reported on a daily basis by telegraphic means;
- (2) Copies of graphic and magnetic records on specific underground events which are to be supplied upon request; and
- (3) Some analytical data on these specific events.

More specifically, the data to be provided on a daily basis to which I have referred in (1) above should include the arrival time of the first motion of body waves and the maximum amplitude and the period of that wave group, the arrival time of the depth phase, and the maximum amplitude and the period of surface waves. I should like to add that such daily data are already exchanged internationally to some extent for academic purposes.

52. In order to ensure the credibility of the data supplied, it might be necessary to agree in addition to provide seismographic records for the period when there was no earthquake, the calibration record of seismographs, and other materials to show the state of maintenance and operation of the stations, including observation diaries. In this connexion the experimental explosions which the United States plans to detonate in September and afterwards will contribute to the process of improving the identification capabilities through international exchange of seismological data. My Government is therefore prepared to co-operate fully with that operation.

53. Now, given the situation where necessary seismological data are regularly made available by the observatories properly distributed all over the world, our next step should be to establish an international centre which will process all these data promptly, and regularly report the location of epicentre, depth, body-wave magnitude and surface-wave magnitude of all underground disturbances reported by the co-operating stations. There are already international centres which conduct such an operation on a global or semi-global scale in Edinburgh, Moscow, Strasburg and Washington, D.C. Their services are put to practical use by UNESCO, for example, for its counter-measure activities against earthquakes. They are, however, not quite adequate for our purpose in either the speed of data collection and processing, the quantity and quality of reporting, or the geographic distribution of contributing seismological stations. We must examine this matter further, and seek to organize one effective international centre for quick reporting on seismic events. Such a centre will be an important cornerstone of the seismological means of verification and must be operated as an international institution.

In this regard the suggestions made in the Committee on 17 April by the representatives of Canada (ENDC/404, paras.82 et seq.) and the United Kingdom (ibid., paras.12 et seq.) deserve our very careful study.

54. I now come to the question: What if a request to provide data on a specific event should be rejected, or if falsified data should be provided on it? My delegation wishes to suggest, in order to prevent such an unfortunate situation, the setting up of what may be called an international monitoring centre which would objectively analyse seismological data and determine whether there were underground nuclear explosions. Whenever there was a suspicious underground event, the centre would request, on the basis of the data-exchange agreement which I have described earlier, the provision of copies of graphic and magnetic records as well as the result of their analysis, not only of such an event itself, but also of other events which should be compared with it. This centre might also be authorized to request, if necessary, the provision of certain other materials which might confirm the credibility of the data provided.

55. Further elaborating the functions of the centre, these would be (1) to examine regularly the report of the quick reporting centre on the epicentre, depth and magnitude of underground events and to point out suspicious events; (2) to collect necessary data on the suspicious events and other events to be examined for analytical purposes; (3) to analyse the collected data and determine whether the suspicious events were underground explosions or earthquakes; and (4) to watch regularly the operation of the registered observatories. In view of these functions, the centre might best be staffed by scientific and technical experts on an international basis.

56. This is the suggestion of my delegation on a seismological means of verification of compliance with a complete underground test-ban treaty on the basis of international co-operation. As all the specific measures indicated in my presentation involve technical problems in the field of seismology, I hope that they will be examined by the experts in this field without delay and that we can come to an early agreement on the complete prohibition of underground nuclear weapon tests. In further elaborating and implementing these specific measures, Japan will contribute as much as it can through providing the knowledge and experience it has accumulated in the field of seismology as well as through other means. My delegation will welcome any comment on the suggestions I have made today.

ENDC/PV.424 Romania/Ecobesco

31.7.69

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84. Basing itself on the considerations I have briefly outlined, the Romanian delegation declares itself firmly in favour of the adoption of energetic measures designed to prevent the militarization of the sea-bed and the ocean floor. From that point of view we consider that the draft treaty submitted by the delegation of the Soviet Union (ENDC/240), which proposes the prohibition of all military activities, offers the most comprehensive and effective solution.

85. It appears from the debates that have taken place hitherto that the question of verification is the cause of general concern. The Romanian delegation expresses itself in favour of the establishment of an effective international system of control which would be carried out through an appropriate body designed to serve exclusively the purpose of verifying fulfilment of the obligations assumed under the treaty. It goes without saying that all States expressing the desire to do so must have the opportunity of participating in such control machinery. It is also necessary for the system of control established by the treaty to take into account the interests of all States, large and small, without any discrimination whatsoever: in other words, the provisions concerning control must give expression to the actual equality of the States participating in the future agreement.

86. The concept of an international system of verification is shared by many delegations. The representative of India, Ambassador Husain, for instance, stated on 17 April last:

"The issue of verification for a sea-bed treaty would have to be dealt with in the light of the principle of international means of verification, so that all parties could feel assured that the prohibitions of the treaty were being complied with. The right of verification would need to be available to all parties and denied to none." (ENDC/PV.404, para.70).

87. We noted with particular attention also the view expressed on 22 July by the representative of the United Arab Republic, Ambassador Khallaf, when he said:

"A system of verification and inspection, in order to be both workable and attractive, should ... take into due consideration the manifold interests of the large part of the community of nations. In this light it becomes of the utmost importance that such a system should be tailored in such a way as to afford every country, even a small country, an opportunity to put it into operation whenever it deems it necessary. The right to inspect should therefore acquire, as far as possible, practical value for all. Without that a non-armament agreement on the sea-bed would fall short of enlisting the wide adherence which is an essential factor if it is to be meaningful." (ENDC/PV.421, para.114).

88. The two draft treaties now before the Conference, the Soviet draft treaty — to which we have already referred — and that submitted by the United States delegation (ENDC/249) contain considerable differences regarding the main elements of the agreement we are called upon to elaborate: the nature of the prohibition, its field of application and the methods of verification. The solutions we arrive at must represent the reflection of the willing agreement of the member States and the political, economic and security interests of all countries. The final regulation must ensure the exploration, exploitation and utilization for purely peaceful purposes of the sea-bed and the ocean floor and the subsoil thereof beyond the limits of national jurisdiction. At the same time it must respect the sovereign rights of States over the continental shelf and over the natural riches to be found in the area contained within the limits of national jurisdiction, as well as the international norms in force governing the régime of the high seas.

ENDC/PV.426 Mexico/Castaneda

7.8.69

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62. I should like now to refer to the problem of verification and control of the obligations under the treaty.

63. The primary consideration here is that the system of verification and control should be in keeping with the nature and scope of the obligations assumed under the treaty and with its geographic area of application. This concordance is essential, but not exclusively so, because of the right proportion that there must be between the risks and the magnitude of the control that is exercised. It is easy in this matter to fall into the temptation of aspiring to exercise a control that is perhaps excessive and complex and is in fact unnecessary. As the Soviet representative very rightly said (ENDC/PV.400, para.25), to areas where there are no national borders — such as Antarctica, outer space and the sea-bed and ocean floor — the principle of free access for all parties can be applied fully and is the most complete and effective method of control — especially when, one might add, they are unpopulated. Furthermore, that method is the simplest and most economical.

64. Under article 2 of the Soviet draft, all installations or structures emplaced on the sea-bed or the ocean floor "shall be open on the basis of reciprocity to representatives

of other States Parties ...". Some non-aligned countries — in fact nearly all of them — have objected to the concept of "reciprocity". That objection would be perfectly justified if the expression "reciprocity" within the context of the Soviet draft meant "open to other parties also having installations on the sea-bed or the ocean floor". If, on the contrary, it meant "open to the other parties to the treaty, without discrimination among them", then the concept would appear to us quite acceptable. In any case I believe that the meaning of the concept—"reciprocity" in this context could be clarified so as to avoid any ambiguity.

65. The analysis and criticisms of this concept of reciprocity have given rise to interesting discussions, especially within the group of non-aligned countries, concerning the whole problem of control. The dominating theme in those discussions was the possibility that some international body might take charge of verification so that States having fewer resources would not have to resort to the help of powerful States in order to ascertain whether there had been a violation of obligations under the treaty.

66. The creation of an international body to exercise this function of surveillance on the sea-bed and the ocean floor appears to me unrealistic. Its establishment would be disproportionate to the kind of surveillance required, to the existing circumstances and to the environment in which the surveillance was to be carried out. Moreover, in a field in which there are — and will be for a long time — only two super-Powers capable of carrying out those very costly operations, the most effective system of control — and the most economical for the rest of the world — would consist in their reciprocal surveillance.

67. Nor does it seem to me practical to lay down in the treaty the general obligation to assist any State requesting assistance for the control of compliance with the obligations. As the representative of the United States pointed out:

"A formal requirement to assist any complaining State could not be accepted without examining the possible need for criteria in the treaty to establish that a prima facie case had been presented that would justify the effort and expense, and perhaps even the hazards, of a verification operation." (ENDC/PV.421, para.50)

I believe the adequate solution might be that, so far as the need arises, the different groups of States could, outside the general treaty, conclude agreements among themselves to assist each other in the tasks of verification of compliance with the obligations of the treaty.

68. The difference between the Soviet and the United States drafts is that the former — leaving aside for the present the question of reciprocity — provides for total free access to any installations on the sea-bed, while the United States does not accept unconditional verification but merely lays down the right of the parties to observe the activities of other States on the sea-bed and the ocean floor, with the undertaking to consult each other and to co-operate to endeavour to solve any problem that may arise. The United States draft does not recognize the right to inspect installations of other parties except that in order, for instance, to verify whether some installation might, because of its configuration, contain a rocket for the launching of nuclear weapons, account would be taken of the characteristics of the installation, such as openings or gates to facilitate launching, which would not escape observation.

69. The reasons adduced for not accepting a system of unconditional verification is that there are many claims of national jurisdiction over the sea-bed and the ocean floor — unlike the moon — and the growing scientific, industrial and commercial utilization of the sea-bed and the ocean floor, besides the cost of the gigantic technical problems which that kind of inspection would raise in the hostile environment of the sea-bed and the ocean floor. These reasons, though important, do not appear to us sufficient to make us discard the principle of free access and confine ourselves to mere observation.

70. The question of the cost and the technical difficulties does not prove the point. Each party would decide freely whether or not, in order to inspect an event, it was prepared to make a more or less important sacrifice according to the degree of suspicion and the importance it attached to the event. If it could not, or did not wish to, carry out a real inspection, it could content itself with observation, as the United States draft allows. In fact there is no need to compare the two systems to conclude that free access is technically more difficult and costly and that the medium-sized and small countries would be unable to carry out effective surveillance. The comparison is not valid, for two reasons: first, because neither system compels any of the parties to do anything but merely authorizes them; secondly, because observation is merely a minor grade of inspection or, in other words, because all inspection involves observation.

71. The principle of free access represents a maximum. The acceptance of that principle would enable the parties, without compelling them, to graduate their reaction to a suspicious fact from doing nothing or very little to exercising fully their right to free access. That broad spectrum of possibilities covers all situations and takes into account, so to speak, all possible events. For that reason we believe it is preferable to mere observation.

ENDC/PV.428 India/Husain

14.8.69

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21. As regards the third related question of verification of the prohibition, the relevant provisions contained in the two drafts before us vary both in their intent and in their scope. The Soviet draft is based on the concept of reciprocity and access, and the United States draft is based on the concept of observation, consultation and co-operation. The first question that arises is: who has the right to verify compliance with the provisions of the treaty? As a result of lengthy discussions here it is now generally agreed that the concept of reciprocity in the sense of bilateral arrangements does not represent a reasonable or acceptable basis for verification, and this right should be available to all parties to the treaty without discrimination. This is not provided for in the Soviet draft but is implied in the United States draft. It is the view of my delegation that it would be necessary to state this in clear terms in the treaty.

22. The next question concerns the manner in which this right of verification is to be exercised. Clearly, mere observation, consultation and co-operation are not enough, as these three ideas contain no definite commitment to verify the observance of the provisions of the treaty. The right of observation of what is going on on the high seas or under the high seas already exists under present international law applicable to the high seas; consequently article III of the United States draft does not create any new right or obligation under the treaty. Consultation in the sense of one State making enquiries of another State is also the prevailing feature of normal intercourse between nations of the world and does not amount to an innovation for enforcing observance of the treaty.

23. As regards the undertaking to co-operate, article III(1) of the United States draft does not go beyond an undertaking "to co-operate in endeavouring to resolve the questions". It does not say what happens if the endeavour to resolve the questions, which depends entirely on the will of the suspected State, does not result in the satisfaction of the party to the treaty which had complained of an infringement of treaty provisions. Any control provision which does not ensure, with necessary safeguards, a reasonable opportunity for access to the structures and installations placed on the sea-bed would in our view be illusory. Unless such a provision were made, those States which have the capacity to make such emplacements on the sea-bed would be placed in a position of advantage and superiority as compared with all the technologically less advanced States.

24. Therefore the United States draft would not ensure freedom from fear in countries with less developed under-sea technology which apprehended that they might be threatened by weapons or military installations in an adjacent area of the sea-bed. This is not a position which my delegation is prepared to accept. I hope, therefore, that the verification article will provide, with necessary safeguards, reasonable access to all emplacements on the sea-bed.

25. A further question is how the right of verification is to be exercised. It is now generally recognized, we feel, that this right could be exercised by a party to the treaty either with its own resources or, if it did not have the capability, with the full or partial assistance of another State. In this connexion it has been stated by the United States delegation that "it is not desirable at this time to spell out explicit provisions — that is to say, commitments — for providing third-party assistance." (ENDC/PV.421, para.49). It has also been argued that no obligation or open-ended commitment could be placed on States to provide third-party assistance, for reasons both of principle and of the tremendous cost and technical difficulties involved in such assistance (*ibid.*, para.50). The Soviet delegation seems to agree with this view (ENDC/PV.423, para.36). Those of us who have insisted on the right of each party to the treaty to carry out verification with the full or partial assistance of another State have suggested, not that parties to the treaty should be placed under an obligation to assist, but only that the right to seek such assistance from parties willing to assist should be recognized and that this should be clearly provided for in the verification article. This is an essential provision for the technologically less advanced countries which form the vast majority of the countries of the world.

26. In this context some of us have suggested international means of verification to ensure the strict observance of the provisions of the treaty. My delegation has noted that the United States delegation has expressed the view that it regards a special international verification organization as both premature and wasteful of resources because it would amount to setting up an organization equipped to perform tasks which we are not ready to undertake and of which we have so little experience (ENDC/PV.421, para.48). The Soviet delegation agreed with this when it said:

"The use of international means of verification would greatly complicate the problem of control, and the control machinery itself would most probably be cumbersome and inflexible. It should also be noted that the adoption of an international system of control would require substantial funds and appropriate personnel that could be used for other, more urgent needs." (ENDC/PV.409, para.45)

27. While my delegation fully appreciates the concern of the sponsors of the two drafts before us about technical difficulties and financial costs, it is not clear to us why, if the existing technological "know-how" and capacity are adequate for emplacing structures and installations on the sea-bed, they should not also be adequate for verifying what is emplaced. As regards the question of expense, a viable procedure could be devised which would not entail inordinately large expenditure. In this connexion my delegation finds the suggestion made by the Canadian delegation at our meeting on 31 July for organizing verification through the United Nations (ENDC/PV.424, paras.29, 30) interesting and would commend it for most serious consideration by this Committee. In the view of the delegation of India, the principle of verification through suitable international machinery or agency or arrangement is essentially sound and would go very far in the direction of removing suspicions, lessening tension and creating an international atmosphere of trust. The Canadian suggestion shows how this could be done.

28. Before concluding my remarks on the subject of verification, it is necessary to state that my delegation agrees with the view expressed by some delegations that the treaty must recognize that coastal States have rights of national sovereignty and national

jurisdiction in respect of areas contiguous to the territorial sea, principally the continental shelf. If a party to the treaty wishes to proceed with verification outside the twelve-mile zone but within areas of national jurisdiction of the coastal State, such verification must obviously be undertaken in consultation with the coastal State and, if it so desires, under its own observation.

ENDC/PV.429 Czechoslovakia/Lahoda

19.8.69

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37. That is why we place certain hope in the long-announced and fervently-awaited negotiations between the Soviet Union and the United States on the limitation of both offensive and defensive missile systems. We are convinced that the success of those bilateral talks, which should start without further delay, would beneficially influence also the question of the underground test ban. Moreover, that conviction is supported by the significant fact that one of the decisive great Powers, the Soviet Union, has more than once in this Committee expressed its willingness to accept immediately an underground test ban based on verification by national means of detection.

38. The Czechoslovak delegation considers national means of detection to be completely satisfactory for the given purpose, and that a solution based on their application would be the easiest practicable, the speediest and the most effective one, because it could immediately put an end to underground testing and stop further development leading to a deterioration of the existing situation. For that reason my delegation does not regard any demand for on-site inspection or inspection on invitation as a contribution to or help in our endeavour. Such inspection is not necessary from the practical point of view and could only complicate and hinder the attainment of a timely and desirable solution.

39. In that connexion, for one thing, I should like to thank the Swedish delegation for the explanation delivered at an informal spring meeting in reply to our questions concerning the inter-relationship between the individual paragraphs of article II of the Swedish working paper ENDC/242. At the same time, however, I should like to state that the view claiming inspection upon request to be necessary in certain cases weakens the Swedish initiative, for which we have expressed our appreciation, and to a certain extent paralyzes the otherwise inspiring and constructive suggestions contained in that working paper.

40. Although we believe a complete and once-and-for-all solution of the question of the ban on underground nuclear tests to be possible and quite practicable with the safeguards of national means of detection, we are willing, in the interest of bridging contradictory attitudes towards that approach, to support also suggestions for the adoption of a ban on underground nuclear tests up to a certain level of their explosive strength, and for declaring a moratorium for explosions below that level. We hold that in the existing situation such a compromise concept has even now its justification in order that we might make progress in our negotiations. In that belief we are starting from the assumption that in case of its adoption the demands for on-site inspection in any form, which so far have been blocking all our endeavours in this field, would finally cease.

41. As for the doubts that could be voiced in connexion with the possibility of clandestine explosions of very small magnitude covered by the moratorium, we cannot take them seriously when we realize that any State considering such violation of the ban and breach of the accepted commitments would necessarily have to take into account the insupportable risk of its inadmissible activity being detected and to face the most serious international consequences, which would in no way be commensurate with the results gained by that procedure. Apart from that, one has to bear in mind that for any significant advancement of nuclear weapons a whole series of nuclear explosions of high magnitude is necessary and not only a few small explosions that could not fulfil their

purpose. A not insignificant influence on the observance of the ban would be exercised also by the circumstances that an overwhelming majority of all States throughout the world have a practical interest in it. As signatories of the treaty they would represent a guarantee that they would do their utmost to preserve its lasting validity.

42. An undeniable role would also be played by the constantly improving and expanding network of international exchange of seismic information that would gradually be supplemented by much more sensitive and effective devices and enriched by new experiences from space research, as was indicated by the information about transmission of seismic data from the moon to the earth over a distance of hundreds of thousands of kilometres.

43. Permit me to quote further, in favour of the said compromise solution, the opinion of a leading United States scientist, Professor Jerome B. Wiesner, Provost of the Massachusetts Institute of Technology and former scientific adviser to the United States President, which has a direct bearing on this subject. In support of the demand for a speedy ban on underground nuclear tests, voiced by him and 100 other prominent United States scientists and public figures in a letter of 1 July addressed to the President of the United States, Dr. Wiesner stated at a Press conference in New York:

"One of the principal objections to such a treaty" — meaning the underground test ban treaty — "has been the United States concern that other nations could easily violate such a treaty unless a suitable on-site inspection mechanism were devised. Based on available scientific data, these United States objections are no longer valid, for, according to the most highly-respected authorities, there is no doubt whatever that a very effective means of monitoring such tests without on-site inspection is available. Moreover, if all tests of ten kilotons in granite — equivalent to a seismic magnitude of 4.5 or above — were banned, no on-site inspection at all would be required."

44. I would like to add a few words on the subject of international co-operation in exchanging seismographic information, to which our last informal meeting was devoted thanks to the Canadian delegation, and which has also been the content of today's address of the representative of Canada, Ambassador Ignatieff. The Czechoslovak delegation will carefully study all interventions concerning this matter as well as the working papers submitted on it in recent days. We shall take them into account while further considering the problems connected with the promotion of the exchange of seismic information.

45. Again in this connexion, I should like to give the assurance that the Czechoslovak Republic is prepared to participate in the specific exchange of seismic data in the so-called detection club if this will facilitate the conclusion of a comprehensive test ban treaty on the basis of national means of control and serve the safeguarding of the fulfilment of commitments following from that treaty.

46. At this stage I may inform the Committee that Czechoslovakia has been participating in the international exchange of seismic information for decades, and that on the Czechoslovak territory there are at present seven monitoring stations in operation which are interconnected with the world seismic network. Data on the location of the stations and on the apparatus used are being published in seismographic bulletins. These bulletins are distributed at regular intervals of ten days, one month and one year, and contain evaluation of the data from the seismographs. If a foreign station or a foreign expert needs the original readings of their copies, they receive them upon request. Without this exchange and without collecting the data from the network of stations their existence would be deprived of any sense. Therefore the Czechoslovak stations observe the customs of international exchange, publish bulletins and distribute and receive copies of readings. The bulletins are sent first of all to the two main world centres of the Inter-

national Association for Seismology (IASPEI) at Strasbourg and Edinburgh, and further to the centres in Moscow and Washington. Apart from that the bulletins are sent to some 200 stations and institutes.

47. As far as an expansion and intensification of this activity are concerned, I should like to point out the view held by our experts that the necessary improvement of the existing international co-operation that would take into account not only the aspect of effectiveness but also that of restricting unnecessary financial cost has to be accomplished within the framework of the existing system by increasing its present performance. Here, of course, we are aware that, in the event of the conclusion of an underground nuclear test ban, the present level of the Czechoslovak seismographic network would have to be improved and its equipment modernized so that the Czechoslovak contribution to the international exchange of information in checking on any possible breach of that treaty would be in keeping with the needs of desirable detection capacity.

48. In connexion with problems of international exchange of seismic information, the question was raised whether such exchange of information should not result in establishing a special international data-processing centre, whose competence would possibly reach to the territories of the participating countries. In our opinion, already expressed in our earlier debate, such procedure is not indispensable and would, on the contrary, in no way facilitate or simplify our task. We hold the view that the processing of all data should be exclusively a matter for the individual participants in the underground test-ban treaty.

ENDC/PV.429 Pakistan/Shahi

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69. First, the question of a comprehensive test-ban treaty. We face an impasse. The United States maintains that adequate verification of underground events — that is, the differentiation between earthquakes and man-made explosions — requires obligatory on-site inspection in addition to seismic detection and identification techniques (ENDC/PV.401, paras.19 et seq.). The stand of the Soviet Union is opposed to any such inspection. The Soviet Union insists that no international inspection in any form is required, and that "national means of detection" are adequate to reveal possible violations of a treaty on the complete prohibition of nuclear tests (ENDC/PV.415, paras.108 et seq.). In spite of the artifices of Mrs. Alva Myrdal, the head of the Swedish delegation, the two super-Powers are not to be "enticed" into coming forward with more precise alternatives (ENDC/PV.415, para.40).

70. For our part we cannot conceal our admiration for the sophisticated approach in her working paper on the possible provisions of a treaty banning underground nuclear-weapon tests (ENDC/242). The concept of control envisaged by Sweden — that is, to set up a deterrent to clandestine underground explosions in violation of a treaty obligation by a sufficient probability of being exposed — is, we believe, not an unrealistic one. It is conceivable to us that either super-Power, once it had accepted such an obligation, would not scrupulously honour it. It is also difficult to believe that for the sake of a comparatively minor advantage it would consider acceptable even a ten per cent risk of exposure and a complaint to the Security Council, which would gravely damage its credibility and good faith in the eyes of the whole world.

71. It is clear that the provision in article II paragraph 3(c) of the Swedish working paper of a deterrent through "verification by challenge" to invite on-site inspection of the very few seismic events which cannot be identified by improved seismic means and international exchange of seismic data, provided for in paragraph 2 of article II of the working paper, is a highly constructive move to preclude, for all practical purposes, the

probability of violations of a treaty on the complete prohibition of nuclear-weapon tests; and it is also a praiseworthy effort to find a way out of the deadlock in the negotiations on that question. We share the view that any arms-control agreement would involve taking a calculated risk. The concept of a no-risk arms-control agreement ignores the larger and more dangerous consequences of an escalation of the arms race.

72. It is discouraging that the working paper of the Swedish delegation is, for contrary reasons, not acceptable to the nuclear-weapon Powers, and that yet another initiative in this Committee to break the deadlock should be of no avail. The General Assembly cannot but be profoundly concerned at the lack of progress towards the elaboration of a treaty banning underground nuclear-weapon tests, to which it attaches such great urgency.

73. The present prospect for a comprehensive test-ban treaty was summed up in the following words by the head of the Japanese delegation, Mr. Asakai, on 31 July:

"...so long as one takes the position that an underground test-ban treaty should not be concluded unless all underground explosions, however small, are to be detected and identified, there will be no chance for a complete underground test-ban treaty in the foreseeable future. In order to conclude a treaty prohibiting all underground nuclear-weapon tests one has to start from the premise that a political decision has to be made to prohibit all such tests when a means is devised to detect and identify underground explosions above a certain limit in size" (ENDC/PV.424, para.42).

Mr. Asakai pointed out that the size should be of a magnitude of 4.75, as explosions above that level can be identified even at present (*ibid.*, para.43).

74. At the twenty-third session of the General Assembly, the First Committee evinced great interest in the conclusion reached by the meeting of experts of ten countries, including four from nuclear-weapon States, held in Stockholm last year under the auspices of the International Institute for Peace and Conflict Research (SIPRI) (ENDC/230). That conclusion was that, as far as seismic events of a magnitude of 4.75 were concerned, it would be possible to differentiate nuclear explosions from earthquakes with almost 100 per cent accuracy from outside the country in which they occurred. Accordingly I stated on behalf of my delegation that a way had been opened for a political decision by the nuclear-weapon Powers to ban underground weapon explosions of moderate and large yields which are verifiable without on-site inspection.

75. My delegation therefore commends the Japanese proposal that, as a first step, agreement should be reached without delay to prohibit underground nuclear-weapon tests above magnitude 4.75, which would not require on-site inspection, while securing a commitment by all States to co-operate with each other with a view to devising within a certain period of time a system of verification which would be able to monitor all underground explosions above magnitude 4.0 (ENDC/PV.424, para.46).

76. At this point my delegation would like to remind this Committee that the proposal for a threshold underground test-ban treaty is supported by the informed judgement of some leading scientists in the world. In our view, even if the continuation of testing below the threshold would not be without military significance, it would hardly pose a danger to the nuclear balance but, on the contrary, by ending high-yield test explosions, particularly in the megaton range, would slow the nuclear arms race and be conducive to the stabilization of the balance.

77. We agree with those delegations which have affirmed that what is required above all for progress towards the conclusion of a comprehensive test-ban treaty — or even a threshold treaty for that matter — is the political will to reach agreement. Given the political will, the scientific and technical means to verify compliance with such a treaty would not be too difficult to devise.

78. A proposal has been made by Canada in document ENDC/251 that States should

communicate to the Secretary-General, for transmission to the Eighteen-Nation Committee on Disarmament, a list of stations from which they would be prepared to supply seismic records on the basis of guaranteed availability. The representative of Japan has also spelt out proposals for exchange of seismological data on a world-wide basis and the establishment of international centres for processing them promptly, and for monitoring to check against falsification of information (ENDC/PV.424, paras.47 et seq.). We consider those to be highly constructive proposals which would enhance the possibilities of lowering the identification thresholds, thereby facilitating the realization of the total prohibition of underground nuclear-weapon test explosions. In resolution 2455 (XXIII) the General Assembly, recognizing the importance of seismology in the verification of the observance of a treaty banning underground nuclear-weapon tests, expressed the hope that States would contribute to an effective international exchange of seismic data. In that context the concrete proposal made by Canada in document ENDC/251 would, if adopted, constitute a positive step by this Committee towards implementing that resolution and reducing the problems of verifying a comprehensive test-ban treaty.

ENDC/PV.429 USSR/Roshchin

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101. One of the top priority places among the partial measures that contribute towards nuclear disarmament is assigned to the question of the cessation of underground nuclear tests. Last year's session of the United Nations General Assembly, in resolution 2455 (XXIII) (ENDC/237), called upon "all nuclear-weapon States to suspend nuclear weapon tests in all environments".

102. The Soviet Union once again set forth its position in regard to that question in the Memorandum of the Soviet Government dated 1 July 1968, to which I have already referred. That Memorandum states:

"The Soviet Union has been and continues to be a steadfast advocate of the prohibition of all nuclear-weapon tests, believing that the banning of all tests will promote the consolidation of peace and the slackening of the arms race. The Soviet Government is prepared to reach agreement without delay on the banning of underground nuclear-weapon tests on the basis of the use of national means of detection to control observance of the ban."

(ENDC/227, p.3)

103. The question of an international exchange of seismic data has been dealt with in last year's General Assembly resolution 2455 (XXIII), to which I have already referred and in the statements and working papers of a number of delegations in our Committee, in particular in the working paper of the Canadian delegation (ENDC/251/Rev.1). We have already set forth our position in regard to this question (ENDC/PV.402, para.72) in connexion with the consideration of the idea put forward by the delegation of Sweden regarding the creation of a so-called "detection club" (ENDC/154). The Soviet side remarked that this idea deserved attention if in that way it would be possible to go as far as to conclude a mutually acceptable treaty banning underground tests of nuclear weapons. In this connexion we believe that participation in an international exchange of seismic data should in no way impose upon the participants in such an exchange any obligations in regard to the carrying out of international inspections on their territories, and that the assessment of the collected data should be carried out, not by any supra-national international organ, but by each of the States parties to the treaty. Of course, the supply of seismic data by States should be carried out on a voluntary basis.

104. However, as practice has shown, the idea of an international exchange of seismic data is usually linked by the Western Powers with the creation of some sort of international centre and with the carrying out of on-site inspection. Thus the United Kingdom

delegation, in advocating an international exchange of seismic data, expressed itself in favour of the creation of international machinery and linked this exchange of seismic data with its proposal (ENDC/232) for the creation of a committee which would have also the right to carry out inspections (ENDC/PV.404, paras.12 et seq.).

105. The Soviet Union considers that the development of modern science and technology has reached a level which makes it possible to exercise control through the use of national means over the fulfilment of an agreement banning underground tests. Control would give all States the assurance that the agreement in question was being conscientiously carried out. Of course, if one is anxious to continue underground nuclear tests, one can clutter the way to an agreement with a great number of artificial obstacles, including those of a scientific and technical character, in order to justify one's negative attitude. The history of the many years of negotiations on the cessation of nuclear weapon tests provides us with numerous examples of the way in which those who wanted to delay the solution of the problem of tests have acted at times precisely in this direction. If, on the contrary, States have the firm desire and determination to put an end, once and for all, to dangerous nuclear weapon tests underground, then all the possibilities exist for concluding an appropriate international agreement and for its subsequent implementation.

106. We are convinced that none of the nuclear Powers will venture to violate the agreement banning underground nuclear tests when national means of detection are used for control over the implementation of that agreement. In the conditions where dozens of States possess sensitive seismic equipment capable of detecting and identifying nuclear explosions over great distances, there is too great a risk that a violation of the agreement would be discovered. For its part, the Soviet Union is ready without delay to sign an agreement banning nuclear-weapon tests on the basis of the use of national means of detection, and strictly to abide by the agreement.

107. Certain delegations have put forward here in the Committee various proposals for a partial solution of the problem of banning underground nuclear tests which, in short, come to the following: that the more powerful underground nuclear weapons up to a certain threshold should be banned, and that the rest of the underground tests should be banned on the basis of an additional agreement. A proposal of that nature was put forward, in particular, as the members of the Committee are aware, by the delegation of the United Arab Republic (ENDC/144, p.33) which proposed the banning of underground nuclear weapon tests above the threshold of a magnitude of 4.75, with the establishment by the nuclear Powers of a moratorium on underground weapons tests below that threshold. We should like to stress that the Soviet side gives its assent to this proposal of the United Arab Republic in the interests of reaching an agreement as quickly as possible, although we are convinced that all underground nuclear explosions, including explosions with a magnitude below the threshold of 4.75, can be detected with national seismic means.

108. In the opinion of the Soviet delegation the achievement of an agreement on underground tests depends upon a political decision of the Governments of the nuclear Powers. The demand for the solution of the problem of banning underground nuclear tests on the basis of on-site inspection not only does not help towards concluding an agreement in regard to the problem but, on the contrary, blocks its solution.

ENDC/PV.430 Mongolia/Dugersuren

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29. At this stage my delegation has no intention of giving a detailed analysis of this document. However, proceeding from our well-known position on the question of control over the implementation of a comprehensive test ban, I should like to comment briefly

on paragraph 3 of article II of the possible provisions of a draft treaty. What this paragraph basically implies is the recognition of so-called on-site inspections "at invitation". We believe that the inclusion of this provision was prompted by the sincere desire of the author, so to say, to "build a bridge" between the two extremes in the position on the control question, that is, to find a generally-acceptable compromise for the speedy and positive solution of this problem. And yet we must keep in mind objective possibilities. The progress of science and technology in the field of seismology and the ever-increasing exchanges of seismological data clearly sustain the argument that the detection and identification of seismic events can be carried out without resorting to on-site inspection. This seriously questions the appropriateness of suggesting a compromise which is in fact tantamount to a retreat from the justified stand taken on the basis of objective findings of modern science and technology. Nevertheless, we believe that this document, coupled with other constructive proposals, may serve as a sound basis for the specific negotiations to be pursued with a view to elaborating a treaty banning underground nuclear weapon tests.

30. In this connexion members of the Committee will recall that we have before us the proposal of the United Arab Republic on the prohibition of underground nuclear weapon tests above a threshold of yield with a magnitude of 4.75 accompanied by a moratorium accepted voluntarily by States on underground tests below that threshold (DC/PV.75, para.134; ENDC/144, p.33).

31. Besides the proposals contained in the documents I have mentioned, a number of delegations, including those of Canada, Japan and others, have advanced ideas deserving careful study in the course of our deliberations on the question concerning the further improvement of the seismological methods of detection and identification. Since I have mentioned the recent intervention of the representative of Japan, Ambassador Asakai, I should like now to make a few preliminary remarks in that connexion. We have studied with great interest his suggestions concerning the preparation, so to say, of the scientific and technical basis for the realization of seismological control over the implementation of a future treaty (ENDC/PV.424, para.39 et seq.). It seems to us that these suggestions, as far as they are designed to promote the solution of the question of control without on-site inspection, deserve careful consideration. It may be said incidentally that these suggestions in a sense represent a further elaboration of the ideas put forward in the Joint Memorandum of 16 April 1962 submitted by the eight non-aligned members of this Committee (ENDC/28).

ENDC/PV.430 Nigeria/Alhaji Sule Kolo

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50. On the question of verification, we have had two distinct proposals. The Soviet Union has proposed free access to all installations beyond the maritime zone on the basis of "reciprocity" (ENDC/240 article 2). The United States, on the other hand, has proposed that there should be free observation by all parties of installations, but further measures of verification such as access to the installation could only be undertaken after consultation between the parties involved (ENDC/249 article III, para.1). We, for our part, see great merit in the Soviet proposal. In fact, the right of observation which the United States proposal purports to give every State is a right which already exists in international law. In other words, the United States proposal does no more than confirm an existing right. We think that the question of verification or control should go beyond the existing right of every State under international law. Therefore, while supporting the Soviet proposal in principle, we do not consider the word "reciprocity" used in the Soviet draft to be appropriate, since it may be construed to imply an exchange of inspections by those who have installations on the sea-bed.

51. As I said in my statement of 15 May:

"Each party to the treaty, whether or not it has the capability for verification through national means, should have the right of verification."
(ENDC/PV.411, para.19)

In this connexion I believe that a proposal was made by a number of countries, including Nigeria, at one of our informal meetings during the spring session. The proposal was intended to improve on the implication of the word "reciprocity" in the Soviet draft. It was further suggested at that time that international arrangements for verification might be made. That latter suggestion, it appears to us, has been misunderstood by some of our colleagues here. The proposal of the delegations — certainly that of my delegation — did not suggest that an international arrangement for verification should be automatically introduced. All that was being sought was that those at present incapable of undertaking such verification themselves should be able to call upon a friendly country, a party to the treaty, to assist in verification, or to call upon an organization if and when it became possible to have such an organization. As we understand it, if one country sought the assistance of another country there would be no obligation on the country so requested to undertake the task.

ENDC/PV.430 Ethiopia/Zelleke

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98. With respect to the question of verification, my delegation has listened very carefully to the various points of view expressed in this Committee and noted the importance attached to it. Indeed, like all preventive measures of disarmament, a treaty on the demilitarization of the sea-bed should provide for an adequate verification method. In general we feel that the solution to the verification problem in this case should be based on the reaffirmation of the existing rights of observation of activities on the high seas established under a different body of international law applicable to the high seas, and on guaranteed access to the actual activities or emplacements on the sea-bed by all States parties to the treaty on a non-discriminatory basis.

99. In formulating a provision that would reasonably ensure access to all activities on the sea-bed by all the parties to the treaty, thought must be given to the fact that not many States are in a position technologically to carry out verification activities on the sea-bed. That is why my delegation fully supports the proposal that each party to the treaty should have the right to carry out verification with the full or partial assistance of other States and, when it became feasible, through an international organization or arrangement. In that respect we welcome also the suggestion made by the Canadian delegation at our meeting of 31 July concerning the right of every party "to apply to the Secretary-General of the United Nations for the co-operation and assistance of other States in carrying out the verification process." (ENDC/PV.424, para.29).



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