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DOMESTIC SATELLITE COMMUNICATIONS SYSTEM

The following excerpts are from a White Paper dated March 28, 1968, released by the Minister of Industry, Mr. C.M. Drury:

...Because of the intense interest which was developing in the potential of a domestic satellite communication system for Canada, the Prime Minister announced, in July 1967, the creation of a task force, under the Science Secretariat. It was to advise the Government on satellite policy in general and, in particular, on the use of satellite technology for domestic communications. In the course of its work, the task force interviewed representatives of relevant private and Government interests in Canada, representatives of other countries, and of some international organizations....

The task force reported certain conclusions to the Government regarding the kind of domestic satellite system that would be most appropriate to meet the needs of Canada in the short term....

NATURE OF THE SYSTEM

The system envisaged would have two "synchronous" satellites in stationary orbit over the equator. The second satellite would ensure continuity of service by providing complete duplication, in orbit, of the functions of the first. A third satellite would be held in reserve on the ground. Each satellite would have a beam covering the whole of Canada. The satellites would be replaced in orbit after five to seven years.

It is expected that each initial satellite would have at least four, and perhaps a maximum of 12, television equivalent channels. (Each television equivalent channel can handle one television transmission or up to 600 two-way telephone circuits.) The exact number of channels would have to be specified at the outset. It would depend upon the estimated demand for service, consisting of television transmission, and telephone and message traffic.

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The task force concluded that the capital costs of the space segment, would be between \$40 million and \$75 million for three satellites, including research and development....

At least three major types of earth station are envisaged, namely large terminals to transmit and receive all types of signals (television, telephone, data), smaller terminals for more remote areas to perform essentially similar functions, and receive-only terminals, smaller still, for the reception of television transmissions only.

An initial system might well have two terminals of the first type, five of the second type and up to 30 of the third type. Present rough estimates would indicate costs in the region of \$3-5 million, \$1-2 million and \$100,000 respectively, for the three types of terminal. The numbers and costs would only be determined accurately as the design of the system progressed. A tracking, telemetry and command facility would also be required to keep the satellites in position and to monitor their performance. This facility could be an integral part of one or two of the main stations, resulting in an additional cost of those stations of approximately \$1-2 million....

COMMUNICATION CORPORATION

A domestic satellite communication system should be a national undertaking stretching across Canada from coast to coast, north to Ellesmere Island and operating under the jurisdiction of the Government of Canada.

The satellites and earth stations together would form a single system under the control of a single management. This would provide the operational and technical control which is essential to facilitate the progressive incorporation of new technology, and so fulfil the minimum conditions for financial success.

The organization should have a corporate form in order that it may sell its services efficiently to the common carriers and television systems; in order that it may compete effectively in those areas where competition is appropriate; and in order that it may finance its activities through a suitable combination of equity and debt capital....

A corporation would ensure that there would be competition between the suppliers involved in the construction of the satellite and earth stations. In particular it would ensure competition between the manufacturing subsidiaries of the common carriers and those manufacturers who are independent of the carriers. A further benefit to be derived from such a corporation is that it would help in ensuring that satellites and equipment were designed and built in Canada to the maximum degree technically and economically feasible....

Having carefully considered the relative merits of public and private ownership of satellite communication facilities, the Government will propose that a corporation be formed by special statute of Parliament to develop, own, and operate both the satellites and the earth stations of the system, consistent with relevant international agreements. The Government will propose to encourage private participation in the Corporation, and, to this end, will initiate discussions with the interested parties. The pattern of ownership needed to maintain effective Government control in those matters involving national interest will emerge from these discussions. The proposed legislation would provide not only for the establishment of the Corporation, but would also indicate the general nature and scope of regulation contemplated for the system, in the light of the general legislation for telecommunications.

CANADIAN DESIGN AND CONSTRUCTION

It is at this early stage of the development of a satellite communication system that Canada must decide whether to be simply a user of these new means, as they may be developed by others, or to be a leader in their development. Only the latter will permit the realization of their full benefits and opportunities for the Canadian public.

It is evident that Canada already possesses, to a large degree, the essential technology to determine the design and construction of its own domestic satellite system as a result of successful programmes of the Department of Industry, the Defence Research Board and the Department of Transport. This is not to say that every part of the system be manufactured

in Canada. Components or sub-systems may be brought from other countries when the volume might not justify Canadian development of production. When this is the case however, effective control can only be maintained through the exercise of choice and specification. The control of specification, design, and construction, can and must be retained in Canadian hands. The development of satellite communications will employ the most advanced 'state of the art' in many fields of technology. An important corollary, therefore, to the undertaking of such development by Canadian industry will be to enable it to apply the resulting skills to the development of other high technology products. The complex technology of satellite systems involving advanced techniques, new planning methods and higher standards of industrial performance will, in a few years, become the technology of many industries. It demands the rapid evolution of techniques, reliability of products, control of production, interdisciplinary development work, anticipatory research and system management, and long-term programme planning.

The development of such methods for space projects may prove in the long run to be of considerable general importance. When entirely new, and apparently insoluble, technical problems have been solved, the methods used in their solution may often be applied to other more classical problems, such as transportation, medical techniques, and education.

While enabling Canada to enter the field of space communications, the development of satellites also gives Canada essential experience in some of the most relevant aspects of the presently evolving technology. The involvement of Canadian industrial firms in this evolution would undoubtedly help to improve the position of those firms in their bids for participation in international programmes.

National identification is intimately associated with technological progress. The power of programmes such as this to attract and hold scientists, engineers and others, and to cause them to identify their own aims with those of Canada, cannot be ignored.

The programmes, both private and public, to prepare Canadian industry for participation in space communications, have been markedly successful. The Government intends to use to the full this capability in realizing a domestic satellite communication system....

TORONTO SYMPHONY IN OSAKA

Mr. Mitchell Sharp, the Secretary of State for External Affairs, has announced that the Canadian Government will make a grant to the Toronto Symphony Orchestra so that it could inaugurate the International Arts Festival of Osaka next spring at the invitation of the Festival authorities.

The orchestra, under the direction of conductor Seiji Ozawa, will give a series of eight concerts in Japan following the inauguration of the Festival.

The Minister stressed the exceptional nature of this invitation and commented that it would provide an occasion for one of the most outstanding Canadian orchestras to contribute substantially to the projection of Canada's cultural image.

GENERAL ELECTION IN JUNE

In a statement to the House of Commons on April 23, Prime Minister Pierre Elliott Trudeau dissolved the twenty-seventh Parliament and announced that a federal general election would be held in Canada on June 25.

The Canadian constitution requires the election of a new House of Commons, consisting of 265 members, at least once every five years. The last general election was held in November 1965.

Mr. Trudeau, speaking at a news conference following the election announcement, said that one of the most important responsibilities of a Prime Minister was "to decide when to seek a mandate from the people". After considering the alternatives, he said he had decided that "the voters should be consulted before the Government brings a programme of new legislation before Parliament". Prime Minister Trudeau was elected Leader of the Liberal Party on April 6 after the resignation of Prime Minister Pearson; he had taken over from Mr. Pearson three days before the announcement of the election.

The need to reform Parliament and the public administration, a revision of relations between federal and provincial governments, linguistic and human rights, regional economic disparity and a

review of foreign policy were areas referred to by Mr. Trudeau as requiring "new direction".

THE ELECTORATE

Subject to a few exceptions, only Canadian citizens or other British subjects may vote and every Canadian citizen over the age of 21 may vote. Each elector must cast his ballot in the constituency in which he resides and at his proper polling-station. Citizenship extends automatically to persons born in Canada or born abroad of Canadian parents. Other persons born abroad may acquire citizenship by naturalization after five years of Canadian residence.

Exceptions to these rules affect relatively few people. A member of the armed forces may vote even if under the age of 21 and may have his vote recorded in his home constituency even if absent on military duty.

British subjects who have lived in Canada for a year and are not Canadian citizens may vote. Indians living on reserves and enjoying, under ancient treaties, exemption from such obligations of citizenship as payment of income tax, may vote; those living off reserves are also entitled to vote.

CANADIAN ART AT EDINBURGH

Contemporary Canadian art will be exhibited at the twenty-second Edinburgh International Festival, Scotland, from August 18 to September 7. The exhibit, *Canada 101 - The Second Edinburgh Hundred*, which will be shown at the Edinburgh College of Art, will be sponsored by the Canada Council.

In making the announcement, Mr. David Silcox, visual arts officer of the Canada Council, stated: We are delighted that Canadian artists have been honoured by this invitation from the Edinburgh Festival Society to participate in the internationally acclaimed Edinburgh International Festival. We also wish to thank Mr. Richard Demarco, of the Richard Demarco Gallery, Edinburgh, who was responsible for the selection of the artists to be represented, and who suggested the concept of the exhibition. *Canada 101* will give his view of the most vital Canadian painting in Canada's 101st year."

EXHIBITORS

The artists will include: Iain Baxter, Claude Breeze, Brian Fisher, Gary Lee-Nova, Michael Morris and Bodo Pfeiffer of Vancouver; Reginald Holmes of Vancouver and New York; Jack Bush, John Meredith and Harold Town of Toronto; Les Levine, Michael Snow and Joyce Wieland of New York and Toronto; Marcel Barbeau, Charles Gagnon, Yves Gaucher, Roy Kiyooka, Guido Molinari and Claude Tousignant

of Montreal; Greg Curnoe of London, Ontario; and Ken Lochhead of Winnipeg.

NOVA SCOTIA STEEL TO CHILE

Nova Scotia's Sydney Steel Corporation has been awarded a contract worth \$3 million by the Chilean State Railways. This is the first major transaction the Sydney Steel Corporation has obtained in South America. The firm has applied for support through the export credit facilities of the Canadian Government.

The contract calls for 20,000 tons of steel rails and tie-plates to be used on the line connecting the port of Arica, in Northern Chile, with La Paz in Bolivia. This contract is part of a continuing rail improvement programme being undertaken by the Chilean State Railways. It could lead to further substantial orders from Chile.

The Sydney Steel Corporation was formed recently to acquire the Cape Breton foundry owned by the Dominion Steel and Coal Corporation.

AIR TRAFFIC INCREASES

Air traffic at 39 major Canadian civil airports increased by 21.7 per cent during 1967, over traffic reported by 33 airports in 1966.

The 39 air-traffic control towers, which are operated by the Department of Transport, reported 4,037,749 aircraft movements (landings, take-offs and simulated approaches) during the year, a rise of 721,009 from the 3,316,740 recorded in 1966. Six new airports in 1967 were responsible for 440,094 of the total increase in traffic movements.

The increase in total aircraft movements was the fourth in the past five years and continued the present upswing which began in 1965. The volume of aircraft movements handled in 1967 by DOT control towers has risen 50.2 per cent since 1965 and 75.6 per cent since 1963.

For the sixth consecutive year, Cartierville Airport near Montreal was the busiest in total traffic with 326,916 movements, of which 228,852 were local (landings and take-offs of flights which did not enter or leave the tower-control zone).

For the fourth year in succession, Montreal International Airport led in landings and take-offs of flights entering or leaving the tower-control zone, up 25,746 movements to 151,502. This increase at Montreal occurred mainly during the months May to October when Expo 67 was in progress. During these six months, this traffic increased by 20,992 movements, or 30.4 per cent, compared to the figures for the same months in 1966.

Toronto International Airport reported the largest number of airline flights with 93,401 movements, followed by Montreal with 89,032.

During 1967, all international movements rose 32,080, or 23.2 per cent, to 170,310. Over half of these movements took place at two airports.

Toronto International reported 51,861 international movements, of which 46,651 were to and from the United States, and 5,210 were to and from points outside Canada and the U.S.

Montreal reported 51,523 international movements, of which 39,304 were trans-border and 11,949 were to and from other international points.

FLORA FOUND IN B.C.

British Columbia's Queen Charlotte Islands, home of the Haida Indians, were a happy hunting ground for five botanists who recently completed a study of the island flora.

The Queen Charlottes, which are the northernmost remnant of an almost completely submerged chain of coastal mountains, form one of the very few areas of Canada that escaped being covered by ice during the most recent glacial period.

During their exploration of the islands the scientists found the plant life much more varied than they had expected, listing 594 types of flowering plant — over 400 more than had previously been known.

Of particular interest was the discovery of 11 species of hitherto unknown flowering plant, whose ancestry is believed to go back beyond the ice-age, when similar plants were wiped out on the mainland. One of the 11, the monkey flower, was an attraction at the spring flower show of the Plant Research Institute held in Ottawa last month. The species,

which has showy yellow flowers, is being studied for possible ornamental use.

The wealth of scientific data obtained in the project is being published in a three-volume work entitled *Flora of the Queen Charlotte Islands*. The first two volumes are expected to go on sale in May, the third will follow later. While this work is intended primarily for professional botanists, it will also be helpful to naturalists and other persons interested in the flora of Canada.

SUCCESS AT LIMA TRADE SHOW

Exports exceeding \$4 million are expected this year as a result of Canada's participation in the fifth Pacific International Trade Fair in Lima, Peru. An analysis by the Trade Department, which sponsored Canadian participation at Lima late last year, indicates that this is the highest sales figure ever recorded by Canada from a trade fair abroad.

Forty-five Canadian companies in a new Canadian pavilion showed engineering, electrical and electronics products, as well as industrial materials, animal foods, vaccines and breeding stock.

There were 32 national pavilions at the Pacific International Trade Fair, which attracted some 500,000 visitors during its 17-day run. Officials at the fair estimated that over 50,000 of these were prospective buyers.

ARDA RESEARCH

Research is one of the basic aspects of the Agricultural and Rural Development Act (ARDA), which is administered by the federal Department of Forestry and Rural Development.

In 1966-67, the Government of Canada allotted \$333,655 towards the implementation of 16 nationwide research projects under ARDA. The most far-reaching is an intensive study of the problems of rural populations carried out at a cost of \$100,000 by the Canadian Council on Rural Development, which is an independent advisory body organized by Mr. Maurice Sauvé, Minister of Forestry and Rural Development.

The Federal Government shares also in the research carried out in the interest of the provinces. Of the total of \$727,000 required by Quebec to complete a research programme preliminary to the development of the lower St. Lawrence-Gaspé-Magdalen Islands pilot area, \$363,500 was paid by Ottawa. This study, undertaken by the Eastern Quebec Planning Bureau (EQPB), was completed in 1967.

All provinces have taken advantage of the part of the Federal-Provincial Rural Development Agreement (1965-70) dealing with research, the Federal Government having allotted \$1,306,247 in this area in 1966-67.

As explained by L.E. Poetschke, Director of ARDA Policy and Planning, in a paper submitted in Tokyo in September 1967, "the aim of the research phase is to define an area's main problems and potential, and to outline a resource adjustment and development strategy".

GROSS NATIONAL PRODUCT 1967

A seventh consecutive year of expansion carried the Canadian gross national product to a level of \$62.1 billion in 1967, an increase of 6.8 per cent following the exceptionally large advance of 11.3 per cent of the previous year. Prices continued to rise, but at a somewhat lower rate than in 1966 – 3.9 per cent compared to 4.5; the gain in real terms was reduced to 2.8 per cent. A dampening influence on GNP was exerted by a western grain crop much smaller than the record crop of 1966 which bolstered the rise that year; excluding the accrued net income of farm operators, the advance in GNP in value terms was 8 per cent in 1967, compared to 10.5 per cent in 1966.

For the year as a whole, the general profile of the economy was one of a widespread easing of demand pressures. Every major expenditure category showed a lower rate of increase than in 1966 except business gross fixed capital formation which dropped by 1 per cent; within this category divergent movements occurred, with residential construction expenditures rising much more strongly than in the previous year and outlays on plant and equipment declining by 3.5 and 2 per cent respectively.

Within the year, the pace of expansion in GNP was somewhat uneven – 2 per cent in each of the first two quarters, of .5 of 1 per cent in the third and 1 per cent in the fourth. Personal expenditure rose continuously during the year, while the capital formation aggregate declined throughout; other components fluctuated, with considerable volatility occurring in non-farm inventories and in the external sector.

PERSONAL SPENDING

A major source of strength was personal expenditure; buoyed up by outlays related to Expo, it increased by over 8 per cent, not much lower than the 1966 rate of advance. Both non-durables and services continued to show strength, while durables advanced only moderately in spite of a 3 per cent rise in new and used car purchases, which showed no change from 1966 figures. In real terms, the advance in total spending of over 4.5 per cent was also close to the

gain of last year. However, there was a shift in price movements; food prices were virtually unchanged, while a pronounced degree of price acceleration in durables and services accounted for half the increase in value terms.

EXPORTS AND IMPORTS

Developments in the external sector were among the highlights of the year. The current-account deficit on a national accounts basis narrowed substantially to \$549 million from \$1,207 million in 1966, as exports of goods and services increased by 11.5 per cent, while imports advanced 6 per cent overall, but declined in the last two quarters. An increase in merchandise exports of 10.5 per cent, combined with an 8 per cent advance in imports, more than doubled the merchandise surplus to \$480 million. Exports to the United States, where economic activity quickened in the second half of the year after a slowdown in the first half, rose 17 per cent, while imports advanced 12.5 per cent, substantially reducing the trade deficit; notable also was an increase of 45 per cent in exports to Japan. On non-merchandise transactions, receipts increased by over 17 per cent, while payments rose barely 2 per cent; thus the deficit was reduced by \$402 million. Prominent in this development was the tourist-and-travel account (affected by Expo), which switched from a deficit of \$63 million to a surplus of \$427 million, only the second surplus since 1950.

Government expenditures on goods and services rose considerably less than in 1966 – 9.5 per cent compared to 17.5. All levels of government reflected the reduced rate of advance: at the federal level, the rise was 8.5 per cent as against 19 per cent, while the increase at the provincial-municipal level was 10 per cent compared to 16.5 per cent. Inclusive of contributions to the Canada and Quebec pension plans, the combined government surplus was reduced by more than half to \$157 million. Excluding the pension plan contributions the provincial-municipal deficit narrowed by \$62 million, while the Federal Government switched from a small surplus to a deficit of \$256 million.

MUSEUM ACQUIRES AUTOGIRO

A 1931 autogiro – once a record-breaking aircraft and probably the only autogiro made before the Second World War still existing in Canada – is now on a long-term loan at the National Museum of Science and Technology. The aircraft will be restored by the Museum and will be displayed with the National Aeronautical Collection at Rockcliffe Airport, Ottawa, which is part of the complex of National Museums of Canada.

The aircraft, officially called the *1931 Pitcairn PCA 2 Autogiro*, is on loan from the Connecticut Aeronautical Historical Association. It will be

restored in the markings of a well-known Canadian machine, CF-ARO. This was the first autogiro registered in Canada and the first to “loop-the-loop”, a feat accomplished in 1931. It also established a record for autogiros by twice flying across the continent in Canada in that same year.

CF-ARO was used in Canada in the 1930s and performed a wide range of duties, the most spectacular of which was the towing of very large signs over heavily populated areas. It was also used for the spraying of crops.

This type of aircraft was fitted with a massive undercarriage capable of withstanding a parachute-type landing in an emergency.

FITNESS FILMS ABROAD

Four films produced for the Department of National Health and Welfare have been chosen by the National Film Board of Canada for distribution abroad.

The Drag, which was used for the Department's smoking and health programme, was nominated in 1966 for an Academy Award and won a prize at the Tokyo Film Festival in 1967. The film will be dubbed into Japanese, German, Finnish and Portuguese.

Dubbed into Japanese will be *Family Camping* and *Lacrosse*, both of which were made for use by the Fitness and Amateur Sport Directorate of the Department, and *Shyness*, a film produced for the Mental Health Division.

SHEEP REPORT '67

Registration of pure-bred sheep in Canada increased in 1967 for the second year in succession. Pure-bred registrations of 18 breeds rose from 8,622 head in 1966 to 9,526 last year. A decline had occurred from 11,152 in 1960 to 8,017 in 1965.

The federal Department of Agriculture, attributes higher registration partly to the increased incentives in the prize lists of agricultural fairs introduced three years ago and partly to the greater interest in pure-breds that can be used for economic production of lamb meat through the "three-way cross" programme.

This meat, says Livestock Division Director Ralph Bennett, is in demand by many new Canadians at Easter.

To produce three-way cross commercial market lambs, two white-faced pure-breds are crossed first. The resulting hybrid ewes form the basic flock and are mated with a third pure-bred to produce the market lamb. It is important to market all the progeny and not to retain any for breeding. Fleeces from the basic flock are free from coloured fibres and therefore are not discounted. The ram of the third pure-bred can be either white or coloured, since all its progeny are to be slaughtered as soon as they reach market weight.

The total number of sheep declined again last year from 1,006,000 on Canadian farms by the middle of 1966 to 962,000 - but lamb slaughter was only slightly down. Carcasses graded in federally-inspected and approved packing plants totalled 333,657, some 3,000 fewer than in 1966.

Live imports from the U.S. were 23,038 head compared to 18,872 in 1966.

WORKERS BASE-RATES

The federal Department of Labour has just released the results of a study of wage developments under major collective-bargaining agreements in force in 1967. The 514 agreements studied covered about a million workers, in major negotiating units of 500 or more employees in industries other than construction.

During the year, the average straight-time hourly wage-rate for unskilled or semi-skilled workers (that is, the base-rate) provided in these agreements rose by 15.3 cents, or 7.5 per cent. In some cases these increases resulted from wage settlements made in 1967, but more frequently they represented deferred increases that were negotiated in previous years. During 1966, by comparison, the average hourly base-rate increase was 12.8 cents, or 6.5 per cent. (The base-rate is defined as the straight-time hourly wage rate for an unskilled or semi-skilled occupational group in a negotiating unit.)

The consumer price index rose 4.5 per cent in 1967 and 3.4 per cent in 1966. Thus, in real terms, the average hourly base-rate increased by about 3 per cent both in 1966 and 1967.

SETTLEMENTS IN 1967

Of the 514 major agreements in force on December 30, 1967, approximately 36 per cent, or 186 agreements, were new or renegotiated during 1967 and covered nearly 400,000 workers. About 17 per cent of these 1967 settlements are of one-year duration (6-17 months), 50 per cent are of two-year duration (18-29 months), and the remaining 33 per cent are of three-year duration (30 months and over).

The one-year agreements settled in 1967 provide a 9.7 percent increase in their base-rate during their one year. The two-year 1967 settlements provide increases of 11.9 and 6.9 per cent for their first and second years respectively. The three-year 1967 settlements provide increases of 9.0 per cent, 7.9 per cent, and 5.1 per cent respectively for their first, second, and third years.

CORRIGENDUM: On Page 1 of the April 24 issue of the Canadian Weekly Bulletin, the date of appointment of Mr. Sharp, and the date of all other Cabinet changes, should be corrected to read April 20, 1968.