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NOTES FOR AN ADDRESS BY
THE SECRETARY OF STATE FOR
EXTERNAL AFFAIRS OF CANADA,
THE HONOURABLE MITCHELL SHARP,
FOURTH INTERNATIONAL CONFERENCE
ON THE PEACEFUL USES OF
ATOMIC ENERGY, GENEVA,
SEPTEMBER 6, 1971

"NUCLEAR ENERGY AND WORLD PEACE"

Mr. President:

It is an honour for me and for my country that I should be the first foreign minister to address one of these important conferences. Canada has a long experience in the development of the peaceful uses of nuclear energy, going back to the late 1940s. The decision to concentrate our resources on this aspect of nuclear science is one we have never regretted and that through the years has enjoyed the support of an overwhelming majority of the Canadian people.

Sixteen years have passed since the first of these conferences opened in this hall. That first conference in 1955 caught the attention of the world and gave rise to great expectations. Until then the words "atomic energy" brought to mind only the mushroom cloud, the firestorm and the helplessness of man in face of this new catastrophic weapon. Until 1955 only a few scientists knew of the technical accomplishments and positive possibilities that had been shrouded in secrecy. It was here, in this Palais des Nations, that the shrouds were torn away and the world saw that man could use his new knowledge and this new power source as well for his betterment as for his destruction.

The new expectations of 1955 were balanced, perhaps overbalanced, by man's continuing fear of the nuclear weapons race. The public heard about the more fascinating uses of isotopes and about the prospects for megawatts of electrical power, generated by atomic energy. But for most of the next decade much more was heard about megatons and megadeaths than about megawatts. Fall-out was the new plague to be feared and ICBMs were targeted on many of the world's great cities and still are. To the age-old fears of war and oppression was added a new fear, of instant widespread destruction brought about by the pressure of a finger on a button, bringing into doubt the capacity of statesmanship and diplomacy to keep the peace.

In more recent years, our fears seem to have diminished. This is the normal human reaction to an ever-present threat; the farmer who tills the slopes of a volcano year after year learns to stop worrying about an eruption that may never come. Our fears have been lulled by our recognition that the two great military powers of the world are for the time being in a state of equilibrium, an equilibrium that neither can disrupt without risking its own and possibly mankind's destruction.

Canada welcomes the initiatives taken by the United States and the Soviet Union towards strategic arms limitation, the SALT talks. The two nuclear powers have begun to carry out their obligations under Article VI of the Non-Proliferation Treaty. The task they have undertaken is both complex and difficult. The joint announcement by the United States and the Soviet Union on May 20 last, that they had reached an understanding in principle to concentrate this year on working out an agreement for the limitation of the deployment of anti-ballistic missile systems

and that together with this ABM systems agreement they would agree on certain measures with respect to the limitation of offensive strategic weapons, is heartening evidence of progress. We shall all watch with eager anticipation their efforts to translate this understanding into concrete agreements in the coming months. It is to be hoped that the SALT agreements will include measures to curtail the nuclear arms race in its qualitative as well as its quantitative aspects.

The Non-Proliferation Treaty, which came into force on March 5, 1970, and the safeguarding procedures that have been recently worked out by the International Atomic Energy Agency's Safeguards Committee offer some hope that the further spread of nuclear weapons will be limited. The solemn declarations of states party to the Treaty to renounce this kind of military force and their agreement to allow international personnel to inspect their nuclear installations justify a cautious optimism. There are, however, states that have not signed the Treaty, and its effectiveness will be diminished if some important nuclear and so-called "near-nuclear" nations continue to stand aside. I am pleased to announce today that our negotiations are proceeding favourably and that Canada expects to conclude the Safeguards Agreement with the Agency before the end of the year.

The measure of confidence arising out of the Non-Proliferation Treaty will be strengthened if it is brought into smooth and effective operation. The states that have renounced nuclear weapons have done so in the belief that their own interests are best served by this renunciation; they recognize that they have less to fear from others when they show that others have nothing to fear from them. The mutual trust and confidence born of this renunciation will endure only to the extent that these same states now co-operate with the International Atomic Energy Agency and its inspectors in the operation of safeguards.

All of us must keep carefully audited records of our production, movement and consumption of fissionable materials if we are to feel confident that we have good internal control. The records that we need for good housekeeping at home fulfil most, if not all, of the requirements for international inspection. For this reason, I do not believe that safeguards impose a great new burden. I know that some organizations fear that in submitting to detailed inspections their commercial secrets might be compromised, but the real commercial secrets lie in unaffected areas, such as the design and manufacture of components, and these fears are exaggerated. It is now in the interests of each state to be generous in its co-operation with the Agency's inspectorate and to demonstrate to the rest of the world community that its intentions are wholly peaceful.

The peace of the world may not be quite as precarious as it was a few years ago, but the dangers are still real. The Moscow Partial Test Ban Treaty of 1963 has stopped many -- but

by no means all -- of the nuclear explosions that contaminate our atmosphere. To some extent this Treaty can be looked upon as a major public health measure rather than as arms control. Our newspapers no longer give us those daily fall-out readings to remind us that nations are developing nuclear weapons to even higher levels of effectiveness. But the testing goes on underground -- this kind of activity has accelerated since the signing of the Partial Test Ban -- and the development of ever more sophisticated nuclear weapons continues.

With these realities in mind, many states of the world, including Canada, have concluded that the time is ripe for a renewed and determined effort to achieve a ban on underground nuclear tests as an extension of the Partial Test Ban of 1963. Seismological investigation, investment in improved facilities, and the possibility of international co-operation in seismic data exchange have all begun to give grounds for believing that adequate seismological methods of discriminating between underground nuclear explosions and natural seismic events can be found. Problems and ambiguities remain -- particularly with explosions of extremely low yield, where verification trails off into the realm of the improbable. But the potential for seismological identification has sharply narrowed and made more manageable the issue of on-site inspections that has for too long bedevilled efforts to achieve an underground test ban.

The verification problem is in the last analysis a political rather than a technical question, and in our view, as well as that of a very large number of non-nuclear nations, the time has come for the two major nuclear powers to take up their efforts to resolve this problem where they left off eight years ago. At the same time, we should not ignore the desirability of all nuclear powers adhering to the Moscow Treaty and joining with others in an effort that would lead to a complete ban on all nuclear tests. Until such a ban can be reached I urge the two major nuclear powers to scale down their underground tests, starting with the biggest.

As I address you today I am aware -- uneasily aware -- of the fact that a quarter of mankind, the people of China, is unrepresented amongst us. I accept the assurance of Mr. Chou en Lai that Chinese intentions are peaceful but I am sure we will all be happier when the representatives of that ancient civilization and powerful modern state are taking part in our deliberations rather than observing them in silence. Canada will do all it can to ensure that this is the last conference on nuclear energy in which a quarter of mankind -- and a nuclear power -- goes unrepresented.

In the sixteen years since our first conference in 1955, nuclear scientists and engineers have forged ahead. In most situations, large quantities of electricity can now be produced by the fission of uranium as cheaply as by burning coal

or oil. Fears of a world energy crisis have been postponed, perhaps for centuries. It is now our task to apply the technology that has been developed to bring to all men a supply of energy sufficient to meet their needs. The technology is ready, the world needs electricity, and we can expect to see a continuing shift away from new fossil-fuel stations toward new nuclear stations.

A great and exhausting debate has been raging between those who question the safety of nuclear power plants and those who defend them. The emotion generated by this discussion must not be allowed to conceal the essential facts of the situation. The nuclear industry has an outstanding record of safe operation. No other industry -- and this for obvious reasons -- has been as conscious of its obligations to protect its workers, the public and the environment itself. In a world in which everyone every day is exposed to innumerable hazards, we must keep a sense of proportion. Man would be foolish indeed to deny himself a source of energy that he sorely needs. This planet has yielded up the fossil fuels that permitted us to launch our industries. But fossil fuels cannot sustain us through the centuries, and I say this in the full realization that mankind may have to learn to limit its energy consumption. When we consider the risks of nuclear power, we must also weigh against them the risks that will arise if we turn away from nuclear power. Not only the risks that arise from the alternatives that we can temporarily employ -- coal, oil and gas -- but also the risks that would arise were the nations, facing a global shortage of energy, to come into conflict over the sharing of what was left.

I do not wish to be misunderstood on this question. I do not suggest that problems do not exist or that they are capable of simple solutions -- rather that they are capable of management at an acceptable cost if adequate resources are brought to bear.

Peace is more than the absence of war. To have peace we must build a world society in which man can express his personality and develop his potential without attacking his neighbour or coveting his goods. That is why nuclear fission has such a great contribution to make to the building of a peaceful world, and to the eradication of poverty. Substantial efforts have been made by the United Nations, by the International Atomic Energy Agency, and by individual countries in this great endeavour. My own country has played an important part by co-operating with developing countries in their own nuclear power programmes.

Perhaps it is well, however, to add a word of caution based upon our own experience. Nuclear energy is only a tool for economic development. It has its limitations. It is massively expensive. Only the richest and most highly industrialized countries can afford the experimentation that is essential to the development of the technology.

For example, the production of electricity from nuclear reactors has now reached the state where it is possible to contemplate the building of large generating stations wherever there is a demonstrable need for large amounts of electrical power, and where the power generated can be brought to bear effectively on the solution of existing problems. The question is: how many developing countries can meet these criteria?

We have all heard of the "agro-industrial complex" and particularly the project that is under study in India. This would involve the use of nuclear power to pump deep underground water to the surface for irrigation. As I understand it, nuclear power would also be used for the local production of fertilizer. If successful, such a complex would offer the potential for a major new step in the "Green Revolution" that has already had such beneficial effects in the Indian sub-continent. Its success could open an important new chapter in the story of man's fight against hunger and malnutrition.

The application of nuclear energy to the large-scale desalting of sea-water is another, and a more difficult, question. The need undoubtedly exists, and this could be the concept that will start new Green Revolutions in the deserts of the world. But just as nuclear energy is not always the most economical means of generating electricity, so we must be careful not to mislead peoples and governments into believing that the dream of desalting sea-water is just about to become a reality.

In the course of the next days, you will devote much of your time to the large-scale use of atomic energy for the production of electricity and for the desalting of sea-water. You will also consider the numerous applications of isotopes and radiation -- in research, in industry, in agriculture and in medicine. There have been remarkable achievements, particularly with the new nuclear techniques for the diagnosis and treatment of cancer and of some of the other diseases that afflict mankind. You will seek to evaluate what contributions these can make to the improvement of life in the developing countries.

Isotopes and radiation are tools -- their use is not an end in itself. We must, as I have said, identify what our aims are and then see whether atomic energy provides the best tool for achieving them. For example, the developing countries have a great need to find better ways of preventing the wastage of food in storage. Pests and various forms of decay destroy a large fraction of what is produced. Irradiation may help to conserve this food, but until this has been demonstrated and its economic feasibility established, better known techniques -- dehydration, canning or refrigeration -- are still probably more appropriate in most situations.

Another problem is the provision of sterile medical supplies, often under adverse conditions remote from the facilities of modern hospitals. One technique is now well established: it involves first sealing medical supplies in hermetic packages and

then irradiating them to ensure complete sterility. The supplies are safe from any infection until the moment when the packages are opened -- and, of course, this can be at the moment they are needed for use. I believe this technique is ready for immediate adoption in developing countries. It is best if the choices can be made in the developing countries themselves -- by their own scientists and economists, their own entrepreneurs. To do this they must have their own centres of excellence where innovators are encouraged and where proper evaluations can be made in relation to local needs and local priorities.

We have come to Geneva to discuss the silver lining of the nuclear cloud, a happy circumstance that does not permit us to disregard the cloud itself. The achievements and possibilities of the peaceful uses of atomic energy on which I have touched this afternoon justify a sense of pride and hope. Nevertheless, we are discussing a force that, if misused, has a destructive capacity difficult for any of us, scientist or layman, to comprehend fully.

Meeting here in this ancient and free city where so many of mankind's hopes for peace have centred, you constitute a body of expertise on nuclear questions that is unique. As I wish you well in your discussions of peaceful nuclear technology I urge you to keep in mind your special responsibility to all mankind, and above all to the rising generations born into a nuclear world they did not make.

Today there is an equilibrium between the great nuclear powers, the United States and the Soviet Union. These powers are now seeking ways to limit the nuclear arms race; I hope to find an equilibrium at a lower and less menacing level. I have suggested to you that China may soon be a nuclear power to be reckoned with. This will call for a new equilibrium, and the sooner China comes fully into the councils of the world, the better for us all.

So I leave with you this thought. The peoples of the world need the energy and other benefits that nuclear science has to offer. They accept reluctantly the mutual balance of nuclear deterrence that offers them a measure of security. But many of those without the special knowledge and expertise you enjoy look upon nuclear energy as inherently dangerous and threatening, like a half-domesticated beast. You, ladies and gentlemen, as the managers of nuclear knowledge and technology, are uniquely equipped to bring home to your governments, directly and by moulding world public opinion, their responsibility to see to it that the beast is fully domesticated and kept at useful work for the benefit of all.