

VARIETY OF USES

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 subcontinent. 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 de-salting 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 de-salting 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 de-salting 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.

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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.

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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.