

regulation and so the best service which can now be rendered is to do everything possible to develop this agreement under which we may hope that all nations may come to have confidence that atomic energy will be used for peaceful purposes only. As part of this agreement it is proposed to set up a system of safeguards and controls which will in fact ensure that atomic war cannot be prepared or at the least that if any nation should attempt to do so then the situation will be promptly known and reported to all other nations so that they will be able to take timely action as required by the circumstances.

It has been thought by those who have studied all aspects of this problem that without undue restriction on the peaceful use of atomic energy and without the setting up of an unduly cumbersome organization, it would be possible to provide at the least several months' warning before atomic war could be launched by any nation on any significant scale. It is thought that the certainty of having such a period of warning during which appropriate counter measures could be taken should give the nations confidence to undertake the establishment of such a system, which, once established, could be expected to develop in reliability.

If confidence can once be established that atomic war is not being prepared, it may reasonably be expected to extend to all other weapons of mass destruction and ultimately to war itself. It seems therefore that the key to the situation in this troubled world is agreement for the control of atomic energy.

In the absence of an international agreement an alternative possibility of preserving peace, which is, I think, fully justified in the short term view by considerations of expediency and practicability, as well as of necessity, is that the present paramount ascendancy in this field, which is now held by peace loving and democratic nations, and in largest measure by the United States, should be continued and increased by every method which is open. The very progress which is made by these nations will be a strong inducement to other nations to join in the project for international control so that they may share in the benefits.

There can, of course, be no continuing monopoly in the facts of science; what one nation has found out, others can learn also by the application of appropriate efforts and granted sufficient time. In truth there never have been any real scientific secrets about the atomic bomb. The whole epic history of nuclear physics has been international in character from the first detection in France of the peculiar rays given off by uranium minerals, and in between these great events there have been very substantial contributions to knowledge from almost every country engaged in scientific research.

While I make the point that there are no real scientific secrets yet there are most important technological advantages and engineering know-how which are the exclusive prerequisite of those who have laboured and carried the burden of development. I would say that in the atomic energy project, like any other major undertaking, there is a phase where prodigious effort is required for little in the way of return; then there comes a point at which the returns increase very rapidly for a little additional effort and everything goes forward on a rising curve.

The United States is today on this rising curve with atomic energy. Its leadership is now in an unquestioned position and if those concerned maintain their research and development on the scale authorized by their Congress it seems that their ascendancy will remain for a decade or so at least. Meanwhile no other country on earth has as yet passed out of the difficult first phase to which I have referred and it will be a very arduous and long process to overtake the United States lead which is presented by capital equipment in atomic plants and research establishments estimated to have cost some billions of dollars mostly in payment in one way or another for skills which had to be taken