effect, it suggests that the whole trend in nuclear policy since the early 1960s has been wrong, and that it is necessary radically to reorient policy on the part of all the nuclear powers towards a dramatic reduction in the total number of nuclear weapons deployed. The thesis is seemingly a powerful one, the conclusions that flow from it appear persuasive; and yet, in many ways it is irrelevant to the political and strategic realities of the world in which we live.

It should be noted first of all that the nuclear winter thesis rests on a methodology based on modelling, and that the conclusions result from the assumptions built into that model. Many of these assumptions have been challenged, and the possibility of their verifiability questioned. In short, the scientific validity of the thesis has been challenged; and, certainly, using this methodology different assumptions of equivalent plausibility would produce different results. More significantly however, whatever its scientific status, the nuclear winter thesis is redundant. Using readily available information about nuclear weapons effects, anyone of sufficient diligence and acumen could construct a Doomsday model; there are many possible permutations of nuclear weapons use by which we could conceive of the elimination of life on this planet. Some people of some imagination understood this in 1945; far less imagination was required after the testing of the hydrogen bomb in 1952. A more complete scientific explanation of how nuclear weapons could bring about Doomsday may serve to heighten our emotional reaction to the possibility, and may also serve to remind us of the ethical imperative of conducting our politics in such a way as to keep the risk of nuclear war as low as possible, but it does not tell us anything important that we do not already know.

Regardless of the scientific validity of the modelling on which it is based, the nuclear winter thesis and the conclusions and prescriptions which flow from it are crucially deficient in a very important respect. Like much thinking about security in the nuclear age, the Sagan arguments are completely apolitical; politics as a relevant variable is simply not considered. There is nothing in the model to account for the outbreak of nuclear war, or to assess the prospects of why a decision to go to nuclear war would be taken. Again, there is no explanation of why anyone as a matter of policy would wish to conduct nuclear war on such a scale as to risk nuclear winter. We are left with purely mechanistic explanations of the possibility of accident and inadvertent escalation to disaster. These explanations have been around for a long time, and we do not need a nuclear winter thesis to give them credibility, for their credibilityor lack of it --- rests on grounds other than those suggesting the possibility of climatic catastrophe. The possibility of conceiving of a catastrophic nuclear war, even in the absence of a theory or description of how it might occur, is regarded simply as sufficient justification for the policy prescriptions offered, and for the criticisms made of current policies and doctrines.

Many of these criticisms have been directed at the supposed trends towards counterforce targeting, pre-emption, limited nuclear strikes and the like. But the publicists of nuclear winter fail to establish the functional status of these policies because they fail to distinguish between declaratory and operational nuclear doctrines, and because they ignore the relationship between deterrence and the need to plan for the possible use of nuclear weapons. No account is taken, for example, of the impact on US strategic doctrine of the political need to provide for credible extended deterrence, or of the fact that large numbers of warheads may be necessary to meet the criteria of assured destruction under a wide range of possible contingencies.

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Much is made of the argument that the prospect of nuclear winter further discredits the notion of limited nuclear war by making planning and the actual resort to limited nuclear war even riskier in its potential for catastrophe than would otherwise be the case. However, the parameters of what constitutes a limited nuclear war are usually unspecified, or are established in such a way as to confirm the thesis of climatic disaster. Just as it is possible to conceive of nuclear winter, so also it is possible to conceive of a managed limited nuclear war occurring below the disaster threshold. To conceive of something does not by itself tell us anything about its plausibility, which is something that has to be worked out in an appropriate context. It may be that the "limits" in limited nuclear war are more constraining than has been thought in the past, but in terms of practical consequences of this, I know of no responsible political leaders (including members of the Reagan administration) who have advocated putting any form of the perceived limits to the test of experience.

## Static view

The prescriptions that flow from the nuclear winter thesis represent responses to what is an essentially static view of the problem of security. That the dynamic and complex strategic interactions of the nuclear powers might be a necessary component of such security as we possess is not taken into account. The positive security implications of such political objectives as maintaining alliance cohesion, providing for flexible options in a crisis, and maintaining existing structures of security fall outside the purview of the nuclear winter theorists. They are content with a simpler view of the requirements of deterrence and security in the nuclear age.

This simplicity is reflected in the prescription that strategic arms limitation should bring strategic arsenals below the nuclear winter threshold. At one level, it is difficult to see how much further this goes beyond the basic arms control premise that it is desirable to bring about the lowest possible balance of nuclear forces consistent with security. At another level, given the value-laden and political complexity of the concept of security as it operates in international politics, simple nostrums such as "more weapons mean less national security" are at best misleading, and at worst downright dangerous. Essentially, they represent attempts to "freeze" the fluid relationships that have characterized the political and strategic interactions of the nuclear powers. Fortunately for some of us "who love this planet" these attempts have failed in the past, and are unlikely to be successful in the future. What is important, is that the relationship between the nuclear powers be managed in such a way as to reduce the political risks of nuclear war to a minimum. It is imperative that we conduct our political relationships in such a way as to avoid nuclear war, but it is surely still worthwhile to try, through nuclear