

most of you read it at the time of its release. With the information that has been given in this release it is a matter of simple arithmetic to calculate very approximately the number of such weapons that would be required to wipe out most of mankind. There are obviously many uncertainties in such a calculation but it is alarming to find that whatever reasonable assumptions are made the result is to conclude that the number of weapons required is not beyond the conceivable limits of production or the known availability of raw materials.

Man is making almost equally spectacular progress in perfecting methods for the delivery of these terrible weapons. The United States Air Force have announced that they are beginning to produce the B-52, a huge bomber capable of flying at very high altitudes and close to the speed of sound and of dropping these huge weapons anywhere in the world. Last May the U.S.S.R. demonstrated for the first time the prototype of a very similar aircraft.

During the last war the Germans demonstrated the possibility of delivering substantial quantities of high explosive by guided missiles. The German bombardment of London with the V-2 was unsuccessful because of the small explosive power of the warhead carried. Had the V-2 carried even a nominal atomic bomb as a warhead London would have been destroyed. The V-2 carried a ton of high explosive over a range of 200 miles at speeds exceeding 3,000 miles an hour.

Most scientists and engineers are convinced that there are no theoretical reasons why this weapon cannot be scaled up to produce the so-called 'inter-continental ballistic missile' capable of carrying a thermonuclear warhead to any part of the world with quite acceptable accuracy. But there are some very formidable practical difficulties to be overcome before such a possibility becomes reality and even the most enthusiastic weapon designers are very reluctant to name the exact dates at which these difficulties will be overcome. However we cannot take too much comfort from the existence of these difficulties since the very advent of the thermonuclear warhead has brought the possibility of inter-continental missiles perceptibly closer by tremendously reducing the requirement for accuracy.

Effective weapons systems for use against the high flying subsonic bomber already exist, and equally effective means of dealing with the supersonic bomber are beginning to come into being. The evolution of an effective defence against inter-continental ballistic missiles poses some very difficult problems which are not yet completely solved. However history suggests that provided we avoid the disaster of an all-out atomic war an effective defence will ultimately be found. Nevertheless we must recognize that the existence of thermonuclear weapons and the possibility of inter-continental ballistic missiles has given the offensive in war tremendous superiority over the defensive. We are in fact faced with the scientific possibility of reaching some time in the future a state in which there exist offensive weapons of power and number adequate to destroy our whole civilization with no adequate means of defending against them. From the purely scientific