

might happen that one bomb, or perhaps two or three for good measure, set off in the harbour of this city would force its immediate evacuation. By immediate I mean a time interval measured in minutes and hours -- not days.

The intensity of the radioactive products of the explosion, the persistence with which they cling to some of the substances used in buildings etc., the vast quantities of the materials which would be required for their removal, the difficulties, verging on the impossible, of protecting persons engaged in this task from the radiations are among the considerations which render it quite impracticable to decontaminate a city which has been immersed in a radioactive mist. The only thing which could be done by the survivors would be to wait, with whatever patience they can muster, for the long years required for the radioactivity to decay to a tolerable level.

In World War II up to the time atomic bombs were employed against Japan, the most destructive instrument used against life and property was long range heavy aircraft armed with high explosive or incendiary bombs. Scales of attack of the order of ten thousand tons in a single raid were realized. There is no doubt that with air raids on this scale the target was "saturated", which means that anti-aircraft gun fire and other forms of defence were completely subdued.

There is no doubt also that immense damage was done in these raids by fire and blast, but it is likewise not open to doubt that, despite the enormous quantities of explosive used in the larger attacks, the paralysis of enemy activities in the target area was only of very temporary duration. Once the raid was over many people were recovered from the ruins -- road and railway communications were quickly restored -- factories managed somehow to get back into production in a few days.

With the scale of effort represented by air raids of greatest intensity results show evidence of diminishing returns. That is, it probably will not be worth while -- even if it could be done in future wars -- to increase the intensity of bombing. Also the cost to the national effort represented by expenditures in bombs, aircraft, trained personnel etc. tends to become of the same order of magnitude as the cost of replacement of damage done.

From what we know now of the new counter measures which were under development in the closing phases of World War II including, among others, rocket armed jet fighters and high velocity ground to air rockets, both with proximity or target-seeking fuses, it can be concluded that the counter to the large bomber raid was in sight and that very probably these raids would shortly have become too expensive in aircraft to be continued. That is, like so many other weapons and methods of warfare, defence was at last on the threshold of catching up with bombing aircraft as a weapon of attack.

Now, the question we must ponder is this. Is the atomic bomb like bombing aircraft and other weapons, which were decisive in their day, in that in due course we may expect that its possibilities for offensive use will be limited by some form of defence which may be evolved?

As is now generally known, an atomic bomb consists of two or three or so pieces of Uranium 235 or Plutonium or Uranium 233, each of which is below the critical size, that is, below the size at which the generation of neutrons by fission could become cumulative.