

USE OF CUBE DISPLACEMENTS AS A MEASURE OF AIR BLAST

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In this paper the general technique involved in the use of cubes and their displacements as a measure of air blast will be presented. The results of several experiments on high-explosive tests will be described, but space limitations do not permit discussion of them in detail . The first use of the response of passive devices to infer information about blast is unknown, but may have been by those who originally developed fireworks and bombs, set them off, and assessed their power by the response of items in the immediate environment. On early nuclear tests many simple devices were used, including petrol cans, beer cans, cantilevered pipe, bursting diaphragm gages, and Jeep vehicles (Reisler, et al . . 1993) . In later tests, Bowen, et al.. (1963), exposed thousands of missiles, including stones, glass fragments, steel fragments, bricks and blocks, and spheres for debris creation and transport studies. They trapped missiles in calibrated Styrofoam or balsa wood to determine velocities imparted by the blast wave. They used small spheres impacting calibrated Styrofoam to measure ultimate velocity and hence dynamic pressure impulse on high-explosive tests that occurred after atmospheric nuclear testing ceased.