SECTION 17

ENTRY HOLES

Estimating the Diameters of Small Bombs

1701. The diameter of the entry holes is usually about two inches greater than that of the bomb. For bombs weighing 500-lb or less which enter the ground cleanly, this measurement can be taken at the surface (Fig 17-1). Measurements are given in Table 3.

Fig 17-1: Entry Hole of a 500-lb Bomb in Grassland Diameter About 18 Inches

TABLE 3 – **DIAMETERS OF HIGH EXPLOSIVE BOMBS**

Weight in pounds	100	250	500	1,000	2,000	4,000	8,000	12,000	22,000
Diameter of bombs in inches	7-8	9-11	12-15	16-18	19-24	26-32	37-38	38	46

Note:

1. The figures given are for HE bombs of all nations used in the 1939-45 war. Armour piercing bombs are excluded.

Splash Craters

1702. a. A bomb weighing 1,00-lb or more which fails to explode usually forms a crater on impact. This is called a splash crater and may be large enough to be confused with a collapsed camoufiet or a true crater formed by the explosion of a small bomb. The dimensions of the splash crater of a 2,000-lb UXB in soft ground are approximately nine feet x three feet, that is the same as those of the Type A crater produced by an exploded 100-lb bomb.

b. A little debris may be scattered around the splash crater and some earth shock damage may be expected nearby. It should not be difficult to determine the cause of the crater, however, for no signs of explosion will be evident, the sides will not be consolidated as they would be in a crater formed by explosion, and it should be possible, by probing or by removing the loose rubble at the bottom, to detect the continuation of the entry hole (Fig 17-2).

Fig 17-2: Splash Crater Made by a 2,000-lb Bomb

The Entry Hole at the Bottom has been Located with a Probe

c. Occasionally, attachments such as retarding rings or carrying lugs break off on impact and are found in the crater. These may give an indication of both the size and type of bomb. Where no such evidence exists, the size of the bomb can be

estimated from the dimension of the entry hole, as before the measurement being taken at a point where the sides have become parallel (Fig 17-3).

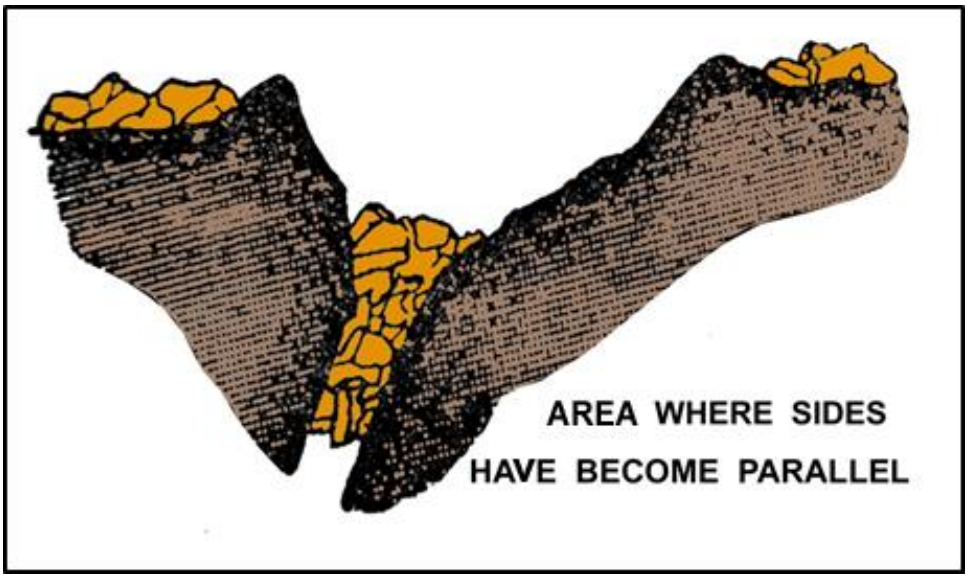

Fig 17-3: Measuring in a Splash Crater

Entry Holes Made By Unstable Bombs

1703. Bombs which are unstable and "wobble" in flight also create entry holes which are larger at the surface than the diameter of the bomb. Digging may be necessary or some form of calipers may have to be improvised in order to measure the true diameter of the hole.

Entry Holes In Homogeneous Surfaces

1704. A bomb passing through a homogeneous surface such as concrete or corrugated iron, forms a regular clean cut hole of about its own diameter (Fig 17-4). Under the concrete surfacing of a road or a structure of similar formation a small depression is usually created.

Fig 17-4: Clean Cut Entry Hole Through a Concrete Roof Compare with Figure 17-6

Incidents of this nature have frequently been discredited as being due to a small explosion. The right answer is given by the absence of signs of explosion, the continuation of the entry hole and the appearance of the damaged concrete. Fig 17-5 contrasts the appearance of concrete damaged by the passage of a bomb and by a small explosion.

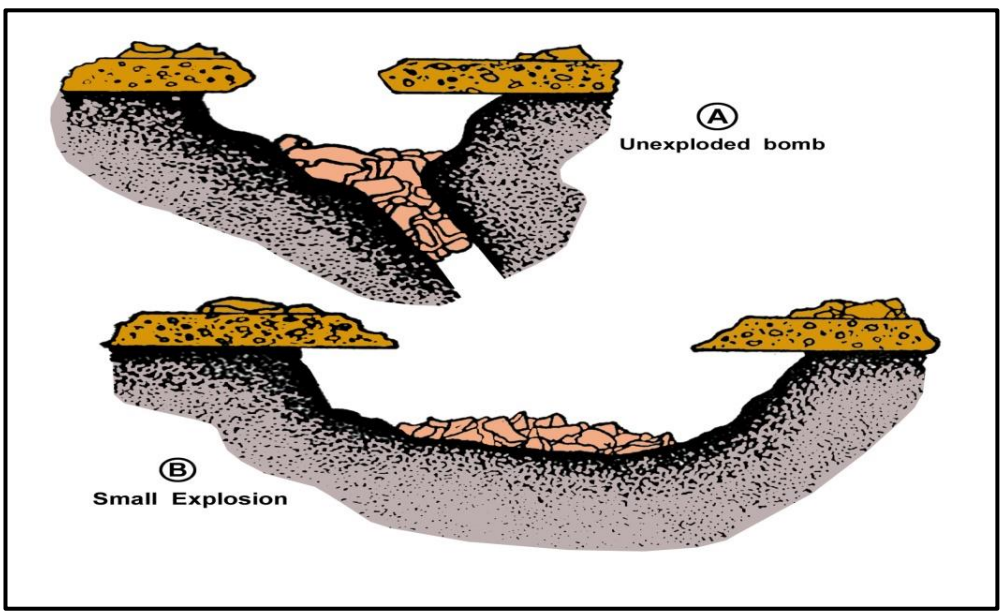

Fig 17-5: Damage to Concrete Slabs

Entry Holes In Inhomogeneous Surfaces

1705. Bombs passing through brickwork, tiling, pave or similar inhomogeneous surfaces form irregular holes which are usually larger than the diameter of the missiles (Fig 17-6).

Aids to Reconnaissance

1706. **Probing**. An entry hole may collapse a few hours after formation but the trace of the bomb can still be detected months or even years afterwards by the comparative softness of the soil in the hole. A long thin probe will pass easily through the disturbed soil in but is resisted by the virgin soil. Probing is sometimes also necessary to detect the entry hole among the rubble at the bottom of a splash crater. The probe must always be used with care lest the bomb be struck sufficiently hard to cause an anti-disturbance fuze to function.

Fig 17-6: Irregular Entry Holes Through Brickwork

1707. **Earth Shock Damage**. The shock of impact of large unexploded bombs sometimes cause slight local damage to buildings and may break windows within a radius of about 30 feet.

1708. **Paint Marks**. The sides of entry holes should be examined for traces of paint which may indicate the filling and fuzing of the bomb (Sec 4, para 3).

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