

Using Artillery

There are three ways to use artillery:

Direct Fire: Shooting at targets visible to the gunner at ranges up to around 3,000 yards. This is mainly done with TL5 artillery, and with TL6-8 tank, antitank, and anti-aircraft guns. The gunner uses his Gunner skill (p. B198) for the attack roll, and the attack obeys *Ranged Attacks* (pp. B372-374) in all respects.

Observed Indirect Fire: Firing at targets that aren't visible to the gunner, who uses the Artillery skill (p. B178), as directed by an observer, who has the Forward Observer skill (p. B196). This is typical of TL6-8 artillery on the offense. The *Forward Observer* rules below replace the standard ranged-combat rules.

Predicted Indirect Fire: Attacking an area of ground, water, or air that the gunner can't see but that's identified on a map. This uses the Artillery skill and the rules under *Attacking an Area* (p. B414). This is often done by TL6-8 artillery on the defense or in preplanned surprise attacks (where the fire has been corrected *before* the battle begins), and by anti-aircraft artillery. The gunner already knows what area he'll hit and suffers no -10 for firing blind, but he can't react to the target moving out of the "beaten zone."

Weapons other than cannon – notably mortars (pp. 145-147) and machine guns (pp. 129-137) – *can* use indirect fire. Use these rules for all weapon types.

Forward Observer

Indirect fire is essentially "blind" – the gunner can't see his target or the effects of his fire. He fires at -10 to skill and doesn't benefit from his gun's Acc. A forward observer (FO) acts as the gunner's eyes, directing the fire from far away. To do so, though, he *must* be able to talk to the gunner! He can shout over short distances, but he'll generally require a field telephone or a radio. The FO also has to know his location and that of the gun, which requires a Navigation roll.

Modifiers: +1 for a compass or +3 for a GPS system; -10 without a map.

Locating the *target* then requires a Forward Observer roll.

Modifiers: All Vision modifiers (p. B358) except ordinary range modifiers; a special range penalty of -3 per 500 yards or fraction thereof between FO and target, dividing range by the magnification of any vision aid *and* by two for a rangefinder (up to *its* maximum range) before assessing the penalty; the targeting program bonus for any fire-control computer (including a TL8 handheld model).

Locating the target and reporting its coordinates takes 2d+5 seconds. The gunner may then fire his first shot at -10, modified by the margin of success or failure

on the Forward Observer roll. If the FO can observe the fall of the shot with respect to the target, he can provide the gunner with corrections on later shots; each correction requires another Forward Observer roll and 2d+5 seconds. Add the margin of the second roll to that of the first; failure *can* erase earlier bonuses. The FO may attempt as many rolls as necessary to whittle the -10 attack penalty down to 0, but can't give the gunner a bonus.

Critical success on any Forward Observer roll reduces the penalty to 0 immediately. Critical failure indicates a "friendly fire" incident of the GM's choosing. The FO might even bring rounds down on his *own* position!

Example: Corporal Calvin Knox is a FO with the Arkansas National Guard. He's looking at "The Thing" in Martha Johnson's kitchen garden. He has a grid map of the area and calls in corrections to his battery over a field telephone. His position is 1,500 yards from the target and he has 6x binoculars. Since $1,500/6 = 250$, effective distance is under 500 yards, for -3. His Forward Observer skill is 14, so he rolls against 11. He gets a 10, succeeding by 1. The first shot is at -9 instead of -10.

A DX-based Forward Observer roll can replace any Artillery or Gunner roll to use a laser designator to guide a "smart" shell or bomb.

Time of Flight

Long-range artillery fire often takes a while to arrive at the target. Flight time is subject to many variables: projectile shape and weight, propellant charge, propellant temperature and pressure, barrel length and wear, air temperature and pressure, etc. Cannon fire high- and low-angle "missions"; this also impacts time of flight.

High-angle missions use a high trajectory in order to clear intervening obstacles. They're typical of mortars and heavy artillery firing at ranges over 3,000 yards. Low-angle missions follow a shallower trajectory, and arrive sooner and with fewer variables. Low-angle fire is typical of direct-firing tank guns, autocannon, and artillery at ranges up to 3,000 yards.

In reality, time-of-flight calculations are complicated and apply even to long-range small-arms fire. For game purposes, *ignore* the issue for small arms. For heavy weapons, it's reasonable – if imprecise – to use a flight time of one second per 500 yards for low-angle missions or one second per 250 yards for high-angle missions. Thus, it can take a *long* time for a round to reach its target – which might not even be there any more!

Example: The Arkansas National Guard executes a low-angle observed-fire mission using a battery of M1897 guns (pp. 138, 140). "The Thing" is 6,900 yards away, and $6,900/500 = 13.8$, so it takes 14 long seconds for the shells to arrive. That's too late to save Corporal Knox from The Thing's tentacles . . .