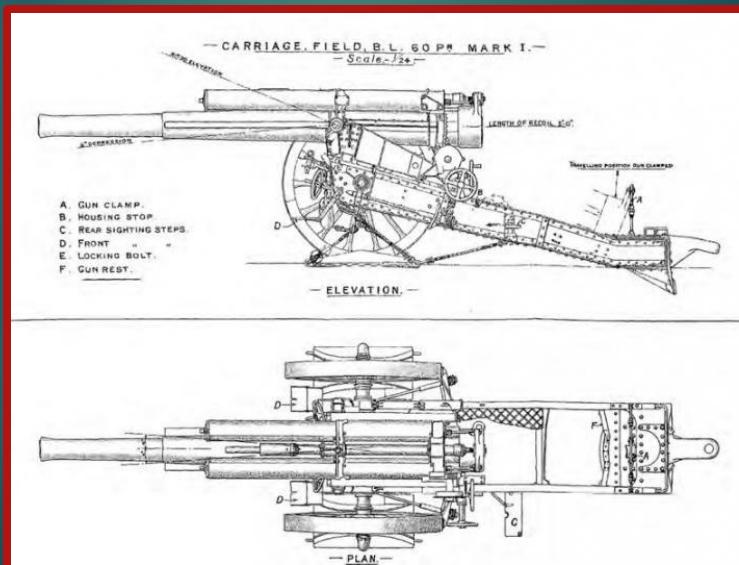


Project 2 Field Manual

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Step 1: Target Distance

- ▶ Estimating the range from the cannon to the target
- ▶ To do this some visual queue's will be helpful. For instance: 100m is the length of a football field.



Step 2: Outlying Conditions

- ▶ Determining if there's other things that could impact the final location of the shell that's fired
- ▶ Some key things that are important to note: Wind and whether the target is moving.
- ▶ After Identify outlying conditions you must estimate how fast and in what direction these forces are coming from

Step 3: Initial Firing Angle

- ▶ For targets that are within 300m we suggest an initial angle of 25 degrees. For targets between 300 and 900 try an angle of 35. For any target that's farther than 900m try any angle between 40 and 45
- ▶ For reference half a mile is about 805 meters

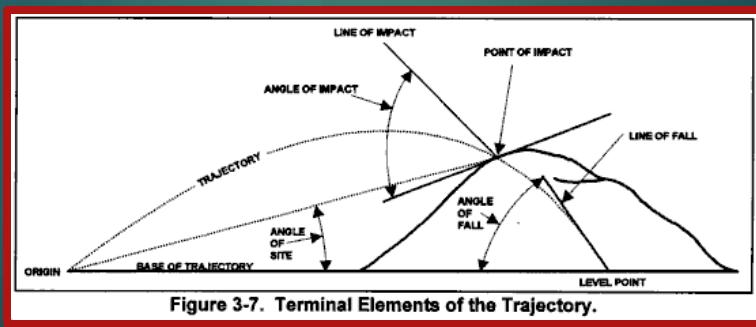


Figure 3-7. Terminal Elements of the Trajectory.

Step 4: Firing Power

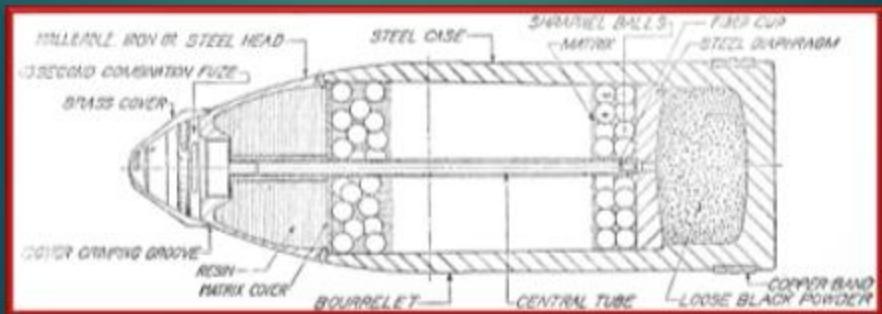
- ▶ With the range in mind comes with the proper amount of gunpowder to load the cannon with to achieve such distance
- ▶ To get around 300m use a low amount of powder, for ranges around 600m use a medium amount of powder and for ranges around 900m use a high amount of powder

Step 5: Adjusting

- ▶ With the now initial firing power and angle we need to account for the outlying conditions if there were any.
- ▶ For each case you can either raise or lower the angle, or you can use more or less powder that's used.

Step 6: Preparing to Fire

- ▶ When preparing to fire make sure all safety checks are complete along with making sure the correct amount of powder is being used and that the angle is correct



Step 7: Firing and Recording Data

- ▶ After firing the cannon record how far the shell managed to go so you can more accurately gauge the distance of new targets

FM 6-40

**CHARGE
4G**
TABLE I
FT 155-AM-2
ROTATION - AZIMUTH

PROJ, HE, M107
FUZE, PD, M57

CORRECTIONS TO AZIMUTH, IN MILS, TO COMPENSATE
FOR THE ROTATION OF THE EARTH
0 DEGREES LATITUDE

RANGE METERS	AZIMUTH OF TARGET - MILS											
	0 6400	400 8000	800 8600	1200 8200	1600 4800	2000 4400	2400 4000	2800 3800	3200 3200			
200	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1500	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2500	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3500	R0.1L	R0.1L	R0.1L	R0.1L	R0.1L	R0.1L	R0.1L	R0.1L	R0.1L	L0.1R	L0.1R	L0.1R
4000	R0.1L	R0.1L	R0.1L	R0.1L	R0.1L	R0.1L	R0.1L	R0.1L	R0.1L	L0.1R	L0.1R	L0.1R
4500	R0.1L	R0.1L	R0.1L	R0.1L	R0.1L	R0.1L	R0.1L	R0.1L	R0.1L	L0.1R	L0.1R	L0.1R
5000	R0.1L	R0.1L	R0.1L	R0.1L	R0.1L	R0.1L	R0.1L	R0.1L	R0.1L	L0.1R	L0.1R	L0.1R
5500	R0.2L	R0.2L	R0.1L	R0.1L	R0.1L	R0.1L	R0.1L	R0.1L	R0.1L	L0.1R	L0.2R	L0.2R
6000	R0.3L	R0.3L	R0.2L	R0.2L	R0.1L	R0.1L	R0.1L	R0.1L	R0.1L	L0.1R	L0.3R	L0.3R
6500	R0.3L	R0.3L	R0.3L	R0.2L	R0.2L	R0.1L	R0.1L	R0.1L	R0.1L	L0.1R	L0.3R	L0.3R
7000	R0.4L	R0.3L	R0.3L	R0.3L	R0.2L	R0.1L	R0.1L	R0.1L	R0.1L	L0.3R	L0.3R	L0.4R
7500	R0.5L	R0.4L	R0.3L	R0.2L	R0.2L	R0.1L	R0.1L	R0.1L	R0.1L	L0.2R	L0.3R	L0.4R
8000	R0.7L	R0.6L	R0.5L	R0.3L	R0.3L	R0.1L	R0.1L	R0.1L	R0.1L	L0.3R	L0.6R	L0.7R
.....
8000	R1.3L	R1.2L	R0.9L	R0.5L	R0.5L	R0.1L	R0.1L	R0.1L	R0.1L	L0.9R	L1.2R	L1.3R
7500	R1.7L	R1.6L	R1.2L	R0.7L	R0.7L	R0.7L	R0.7L	R0.7L	R0.7L	L1.2R	L1.6R	L1.7R
7000	R2.1L	R2.0L	R1.5L	R0.8L	R0.8L	R0.8L	R0.8L	R0.8L	R0.8L	L1.5R	L2.0R	L2.1R
6500	R2.7L	R2.6L	R2.0L	R1.2L	R1.2L	R1.2L	R1.2L	R1.2L	R1.2L	L1.2R	L2.0R	L2.1R
6000	R2.8L	R2.3L	R2.0L	R1.1L	R1.1L	R1.1L	R1.1L	R1.1L	R1.1L	L1.1R	L2.0R	L2.6R
5500	R3.2L	R3.0L	R2.3L	R1.1L	R1.1L	R1.1L	R1.1L	R1.1L	R1.1L	L1.2R	L2.3R	L3.0R
5000	R3.6L	R3.4L	R2.6L	R1.4L	R1.4L	R1.4L	R1.4L	R1.4L	R1.4L	L1.4R	L2.6R	L3.4R
4500	R4.0L	R3.7L	R2.8L	R1.5L	R1.5L	R1.5L	R1.5L	R1.5L	R1.5L	L1.5R	L2.8R	L3.7R
3200	2800	2400	2000	1600	1200	800	400	0				
3200	3600	4000	4400	4800	5200	5600	6000	6400				

AZIMUTH OF TARGET - MILS
0 DEGREES LATITUDE

Figure 7-18. Table I.

Step 8: Corrections if Required

- ▶ If the cannon shell missed the target, you can do the following
- ▶ For cannon shells that didn't get close enough to the target try either increasing the firing angle or increasing the amount of powder used. For cannon shells that overshot the target either decrease the angle or decrease the amount of powder used