330 yards; 10 to 12 at 440 yards; 14 to 16 at 550 yards; and 30 to 34 at 660 yards. Another French writer estimates that three times the above amounts of ammunition are required at the same ranges!

Hence it is very important not only to remember but also to warn the men not to expect very much from their individual fire in the field, and that they should not be discouraged even by a series of misses. Even at target practice a good shot may miss a standing man at ranges over 400 yards and yet be shooting well.

Here I must remind you again, gentlemen, that we must accept human nature as we find it and make the best use of what we have. The problem, therefore, is: Accepting the fact that individual fire in the field is, as a rule, especially at long ranges, inaccurate, how can we reduce this inaccuracy and make the best use of the fire of the troops?

Major Mieg, of the Bavarian army, offered a solution to this problem in about 1876, and his solution made public in 1878 was adopted first by the German army, and then by every European army, but our own, *in toto*. We are gradually adopting these ideas, which I will now explain.

In the first place, to reduce the inaccuracy of individual fire as much as possible, it must be confined to such ranges at which the bullet does not rise more than the height of a man above the line of sight. The limiting range for the Snider rifle is, under such conditions, 350 yards. Then by using the 300 yards backsight to make up for the effect of the full foresight which the men *will* always use in the field, and by always aiming at the enemy's feet, he will be hit somewhere so long as he is anywhere inside of 350 yards distant. In this way the range need not be guessed nor the backsights touched when the enemy is once within 350 yards. Some writers advocate the use of the 200 and even the 100 yards elevation throughout these short ranges, with low aiming, to counteract the well-known tendency to fire high, especially when men are excited.

Such a fire is a *grazing fire*, and is called a *fire of certainty*, relatively of course, to distinguish it from the collective fire at longer ranges, of which we are to speak of presently, and which is a *dropping fire* or a *fire of probability*. In a grazing fire we do not require to know the range; but it is essential to approximately know the range for a dropping fire if we desire even fair results.

Subdivision of Ranges.

Before passing on to consider the characteristics of a collective fire of probability, we must refer to the *subdivision of ranges* which is now usually accepted. These subdivisions are as follows:

	SNIDER. yds.	M. HENRY. yds
1. *Short*—up to extent of grazing fire - -	350	400
2. *Medium*—from the short up to double the extreme short range - - - - -	700	800
3. *Long*—from the medium up to highest graduation of enemy's rifles, about - -	1700	1700
4. *Extreme*—all ranges over the extreme long ranges.		