

**SHORT COURSE,**

**GUNNERY SCHOOL, QUEBEC,**  
April, 1874.

*Field Artillery.*

1. Describe the method of preparing and fixing the different fuzes, time and percussion, for the 9 Pr. M. L.R. gun. What percussion is used when the shells are carried filled in the limbers?
2. Give distances of close interval with horses
 

1/2	do	"	"
1	do	"	"
1 1/2	do	"	"
2	do	"	"
3. State movements of the different divisions in forming column of divisions in rear of the right from line, (with diagram)?
4. With four guns in action, change front half right on No. 3 for action. Shew the movement by a diagram?

*Harness.*

1. Name the different parts of a set of wheel harness?
2. How do you disengage a fallen shaft horse?
3. What shift would you make if the off shaft was broken and no spare one at hand?
4. What principal points are to be observed in adjusting collar, traces, belly band, breeching and side rein?

T. B. STRANGE, Lieut. Colonel,  
Insp. of Artillery and Com. G. S.

**SHORT COURSE,**

**GUNNERY SCHOOL, QUEBEC,**  
April, 1874

*Field Artillery Material.*

1. Describe the construction system of rifling, sighting, weight calibre, and charge of the 9 Pr. M. L. R. field guns.
2. Describe its case shot, and common Sharpnell shell, their action and the fuzes used with them.
3. Describe a common friction tube, give its diameter, and that of the vent. What substitute could you make if the supply ran short on service.
4. What are the ingredients of service gun powder, in what proportion are they used, and what is the specific action of each?
5. Is there any advantage in using gun cotton for the bursting charges of shells? Would you prefer dry gun cotton, or shells filled with water, with a little gun cotton pulp in it? What modification of fuse would be necessary?
6. Name the different parts of the gun carriage and limber, the number and nature of rounds carried in it, together with the stores carried on it in marching order.

T. B. STRANGE, Lieut. Col.  
Commandant S. G. Quebec.

**FIELD ARTILLERY.**

**GUNNERY SCHOOL, QUEBEC,**  
April, 1874,

*Tactics.*

As the Commander of a single field battery in action, give your ideas as to the solution of the following questions, and illustrate by diagrams:

- 1st. Where to fire?
- 2nd. When to fire?
- 3rd. What to fire at?
- 4th. What to fire?
- 5th. How to replenish your limbers?
- 6th. When to move?
- 7th. How to move?

9th. What advice to the officer in command of your escort?

T. B. STRANGE, Lieut. Colonel,  
Insp. of Artillery and Com. S. G.

**SHORT COURSE.**

**GUNNERY SCHOOL, QUEBEC.**  
*Gunnery.*

1st. Define the following terms:—

- Trajectory.
- Line of Fire.
- Line of sight.
- Angle of Elevation.
- Angle of Clearance.

2nd. What is windage? Why is it necessary, and what are its advantages and disadvantages?

3rd. What sights are used with smooth bore guns? How are the tangent scales graduated?

4th. What is the rule for elevation of S. B. guns having a point blank range of 400 yards? What is the elevation required for 1000 yards?

5th. Give rough rule for finding length of fuze for S. B. common and Sharpnell shell. How many tenths of a fuze for a Sharpnell at 1,200 yards.

6th. Give the rule which regulates the charges for cast iron mortars. What is the charge for a 13 in. mortar at 1,100 yards?

7th. What are the different kinds of fire into which gunnery practice is divided? Enumerate the different kinds of horizontal fire?

8th. Where is the greatest strain on the gun, and why?

9th. Why is the strain upon the metal of a rifled gun greater than upon that of a smooth bore.

T. B. STRANGE, Lieut. Colonel,  
Comdt. S. G.

**SHORT COURSE.**

**GUNNERY SCHOOL, QUEBEC.**  
*Artillery Material.*

1st. Into how many classes are projectiles divided?

2nd. What are the different conditions requisite in the construction of S. B. Common and Sharpnell shell?

3rd. Describe by aid of diagram a S. B. Sharpnell shell, its uses and most effective range, and what are its disadvantages as compared with a rifled Sharpnell?

4th. Enumerate and describe the miscellaneous projectiles and there uses?

5th. In what material are cannon cart-ridges made up, and why?

6th. Into what classes are fuses for S. B. ordnance divided? Enumerate the different time fuzes for S. B. shells, and at what rate does fuze composition burn?

7th. To what projectiles are wooden bottoms always attached, and why?

8th. What is the composition of gun powder? The proportions of its ingredients, and what are its advantages over other explosive materials?

T. B. STRANGE, Lieut. Colonel,  
Comdt. S. G.

**SHORT COURSE.**

**GUNNERY SCHOOL, QUEBEC.**  
*Practical Artillery.*

1st. How many orders of the lever are there? Describe them.

2nd. Detail the stores brought up by the different numbers in preparing for action with a 32 Pr. S. B. gun.

3rd. What is the disadvantage of using a gyn in siege operations? How many kinds of

triangular gyns are there, and what weight is each adapted to lift?

4th. Detail the general duties at a gyn.  
5th. Describe the method of dismounting a gun over the front of a carriage and mounting it by parbuckling up the side.

6th. In case of a garrison being disabled in action, describe the quickest method of shifting the gun to spare carriage.

7th. Describe in general terms the method of mounting a 10 inch mortar.

T. B. STRANGE, Lieut. Col.  
Comdt. S. G.

**GUNNERY SCHOOL, QUEBEC,**  
November, 1874.

*Gunnery.*

1. Define the following terms:

- "Axis of piece,"
- "Line of sight,"
- "Line of fire,"
- "Trajectory,"

and shew, with the aid of a diagram, of what forces the latter is the resultant.

2. Define windage. Does it exist in all guns? What are its advantages and disadvantages?

3. Explain why an elongated projectile from a rifle gun will penetrate an iron clad better than a spherical shot fired from a gun of the same calibre, and striking with the same terminal velocity.

4. Give the formula for finding the energy of a shot striking, in terms of its weight and velocity.

5. The accuracy of spherical common shell will not be as great (especially at long ranges) as that of shot of similar calibre, fired with the same charge. Will this also be the case with elongated shot and shell fired from rifled guns? Give reasons.

6. Show how you calculate the charge and length of fuze for mortars? Give charge and length of fuze for 13" mortar at 1,390 yards as an example.

7. Why does Sharpnell shell require a shorter time fuze than common shell? And give a rough rule to find length of fuze for ordinary S. B. guns.

8. How many tangent scales and sights are there for an ordinary smooth bore siege gun? Are the degrees the same length; if not, why?

9. It is sometimes required to render captured guns available. Give a ready rule to find the length of a degree for a tangent scale for any gun.

10. How is the derivation or constant deflection of the projectile from rifled guns arranged for, and the accidental deflection right and left?

11. Supposing the 7" breech loading gun gave an error of four feet to the right at a range of 1,500 yards, how would you set your tangent scale as regards deflection?

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(To be Continued.)

**OLD IRON.**—A wedge or plate of iron has been found imbedded in the masonry of the great pyramid in Egypt, indication being that it must have been wrought in the age of Cheops, placed by some authorities as far back as 5400 years ago. This makes the use of iron about 2660 years more ancient than it is supposed to be, and affords opportunity for explaining the cutting of the shaft and well defined hieroglyphics or porphyry granite, and other hard stones employed in the construction of Egyptian pyramids, temples, and tombs. How these could have been cut before the age of iron has been a puzzling question to many. Further investigation may show iron to have been in use 6000 years ago.