Annual Report on the State of the Militia for 1874.

(*Continued from Page* 267.)

APPENDIX NO. 2.

GUNNERY SCHOOL, QUEBEC,
November, 1874.

Artillery Material.

1. What do you mean by the term ammunition?

2. How many kinds of incendiary projectile are there? Describe them and their uses.

3. At what rate does fuze composition burn?

4. Into how many classes may ordnance be devided, and sub devided? State the uses of each class, and the fuzes they will take.

5. State the most effective ranges for the various projectiles used with the 32 pounder S. B. Guns, and if your supply of case and grape ran short, what makeshift would you use on emergency, at close quarter?

6. Describe Pettman's general service fuze and its action; make a sectional sketch of it; has it any defect for siege purposes or coast defence?

7. Describe the segment and Sharpnell shell for rifled guns; give a sectional sketch of each; state the circumstances for which each are most applicable, and the fuzes you would prefer to use with each of them.

8. Describe the rifle gun mounted in the King's bastion; its sights, ammunition, and small stores; its advantages and defects, and the service it is most suited for.

9. In what proportion are the component parts of gunpowder mixed? What are the various kinds and classes of service powder, and with what natures of ordnance are they used?

10. Do you know any curious fact, as regards initial strain and velocity, lately brought to light by the bursting of the inner tube of 35 ton gun a Woolwich with pebble powder?

11. What deduction may you draw from the experiment, as regards the relative values of steel and wrought iron, in resisting the strain of the explosive force?

12. What are the lines of least resistance due to the forms of S.B. cast iron ordnance, what is the cause of these planes of weakness; and has this construction been modified of late?

13. Explain the advantages of the Palliser system for converting guns, over that of Blakely, and the method adopted by various continental nations.

14. Describe in general terms the American method of casting heavy iron ordnance, and the advantage gained by it over the ordinary system.

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

GUNNERY SCHOOL, QUEBEC,
November, 1874.

Practical Artillery, Cordage, &c.

1. Give an approximate rule for calculating the strength of new rope. As an example, find the breaking strain of a gun sling of six inch rope.

2. Describe how you would sling a budge barrel, or any barrel of gunpowder that was open for use.

3. Supposing you find a weak or damaged place in a rope, on which you expect a steady strain, how would you temporarily overcome the defect?

4. Leaving friction out of the question, give a rule to find the power of tackles, and state the powers of the following:
Ordinary gun tackle,
Heavy gun tackle,
Gyn tackle.

5. Is there any drawback to using a gyn in siege operations? Give reasons for or against its use, and calculate the mechanical power gained in terms of P. W., taking levers as seven feet, a. d diameter of windless eight inches.

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

November, 1874.

Heavy Gun Exercise and Shifts, &c., S. B. Ordnance.

6. In preparing for action with a smooth bore gun, on garrison carriage, give a detail of the stores brought up by each member, and his duties at the gun.

7. State what stores are not interchangeable for the same natures of the above guns and carriages, and how you know the right ones?

8. A standing carriage, bearing a gun of 56 cwt. or thereabouts, has been disabled while run back; describe the quickest way of shifting the gun to a new carriage, with no material but gun stores, and two short skids a yard long. Could you do it without the short skids? How many men would you want, and how long would it take? Detail the duties and position of members, with the aid of a diagram.

What is the readiest way of dismounting a 50 cwt. garrison gun, without any material but the gun stores? How long would it take with fifteen men?

9. Detail the general duties of the gunners in shifting ordnance.

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

OFFICERS' LONG COURSE.

GUNNERY SCHOOL, QUEBEC,
November, 1874.

Artillery Material.

1. Classify the armament of the fortress in which you have been serving. State the number of projectiles per gun, for land and sea fronts, and how long do you calculate they would last in case of active operations?

2. What kind of armament would you suppose most likely to meet the requirements of modern war with the least cost? Give reasons for your opinion.

3. Describe the rifle guns mounted in the salients, their sights, fittings, ammunition, their advantages and defeats.

4. What are the proportions of the component parts of gunpowder, and what are the various kinds and classes of gunpowder in the service?

5. Would the result be different in two gun cotton mines, one exploded by a slow match, and the other by a detonating tube, and could you explode a wet gun cotton torpedo?

6. What ammunition should *not* be placed in a magazine, and why?

7. Describe the process of examining ordnance as you have seen it done.

8. What number of service rounds may be fired from a cast iron serviceable gun without examination? Where do fissures in the metal first show themselves, and what do you consider the nature and extent of flaws that would render a gun unsafe?

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

GUNNERY SCHOOL, QUEBEC,
October, 1874.

Fortifications and Sieges.

1. Trace briefly the progressive stages of fortificaton and attack *from the early ages* to those of Vauban, including the siege of Ath, 1697.

2. What were the *principle causes that* led to the brief defence of most of the French fortresses in war of 1870 71?

3. State the leading points of difference in the attack and dentence consequent upon the introduction of rifled guns and breech loading small arms.

4. What do you consider the five most important principles of modern defence of fortresses?

5. How do the above principles apply to the fortress of Quebec and its defence.

6. Make a free hand rough sketch from memory of the fortress of Quebec.

7. State in general terms the advantages and disadvantages attributed to the Moncrieff system compared with the modern structures of granite and iron.

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

GUNNERY SCHOOL, QUEBEC,
November, 1874.

Field Fortification.

1. State what *are the principal objects of* field fortification, and describe what are the general means adopted to obtain those objects?

2. State approximately the thickness of parapet required, in earth—pine logs—or masonry to resist rifled artillery?

3. Draw rough profiles to scale (10 feet to an inch), of hedges made defensible on level ground, on ground sloping downwards towards an enemy, as well as on ground sloping upwards towards the defenders, should it be absolutely necessary to hold such a position as the latter?

4. In loopholing walls what is the minimum height they should be towards an enemy?

5. In tracing a work, what are the principal points to be considered?

6. Draw to scale, 20 feet to an inch,—marking dimensions and lettering so as to describe the technical names of slopes—the profile of a field work on the most favourable slope for the action of field artillery, with a tickness of parapet sufficient to resist that of the enemy, the terreplein for a distance of 20 feet behind the crest must be defiladed from a distant hill, the enemy's fire descending at an inclination of one in six. The remblai must be proportioned to the deblai, allowance for the increase in bulk of excavated earth not being taken into the account being utilized for traverses?

7. Describe the preparation of a village as an advanced post for defence—with the aid of a sketch shew your *arrangements for* defending the house or building you had selected as the keep or central point—

8. In *street fighting it is desirable to get* from house to house by demolishing partition walls. What would be the best way to utilize lithofracteur?

9. Make a sketch of a double lever bridge of pine spars, to span 40 feet of blown up arch of a masonry bridge; give a rough estimate of materials and tools required, no nails being available?

10. Empty casks are procurable from the Commissariat of every army that carries pork, flour, beer, wine or spirits. Describe in general terms the construction of a cask-