

5. The battery range takers should also be thoroughly practised, for though the ranges found can never be accepted for more than a guide, a reliable range taker enables the trial shot process to be shortened, by allowing a smaller bracket to be made at first. Indeed, if thoroughly reliable, it is allowable, at moderate ranges, to start with the small bracket.\* If the range takers are not reliable they are simply misleading the Commanding Officer, and should not be so employed. Every Commanding Officer is held responsible that there are reliable range takers in his battery.

6. Observation of fire should be undertaken by the Commanding Officer from the windward flank of the battery, or he may, if he has a man on whose powers he can rely more than on his own, use him as an observer. He should, however, always, if possible, do it himself, with an assistant trained to use the battery telescope from a point close beside him, to whom he can refer for an immediate decision if himself in doubt. This man must *never* report a round as + or -, unless perfectly sure: if in any doubt, he will report "doubtful" or "not observed" as the case may be. No blame should attach to him for being unable to do what his Commanding Officer has failed in.

Observation with the naked eye is usually valueless.

7. Observation of percussion shell is to be limited as to whether its impact was beyond or short of the target (+ or -). Any estimate of the amount + or - is quite untrustworthy, and should not be attempted; for such estimate to be of any value at all, the range must be short and the ground peculiarly favourable for observation. Under such circumstances the *relative* position of two rounds with regard to the target may *perhaps* be estimated, and elevation corrected accordingly.

8. Shrapnel fire is judged *entirely by the height of burst above the line of sight to the target* as laid down in the Field Artillery Drill, chap. iv, section iv, page 61.

If firing at a narrow or deep formation, the height should be half that therein laid down.

9. Observation being of the very first importance, it is the duty of the Commanding Officer to find out practically the best man he has for the purpose, and this should be done at Elementary Practice. If petards are used, this can be done at drill also. The men for trial should be selected primarily for good sight and intelligence. They judge and note down the position of impact of each shell, and their estimates are compared with the correct report signalled up by the range party after each series of not more than six shell, but more often if desired. The best man being picked out, he should be given every opportunity of practising.† Constant practice is required, as light, distance, state of atmosphere, &c., have most marked influence.

10. The following method of training is recommended to observe the height of burst.

The observers judge and note down the height of each shell. The telescopic sight is set to observe the maximum height, and the Commanding Officer after each round compares the estimates of the observers with the true observation, correcting them according as they are higher or lower than the maximum. The great to guard fault against is under-estimation of the height.‡

The observers can also practise when no firing is going on, by themselves looking through the telescopic sights set as above, and so training the eye to estimation of the maximum height, above various objects at various ranges and over varying features of ground.

11. But however well a man may be trained, appearances may often deceive him unless the ground is fairly level and the battery and target on the same horizontal plane. It is better, therefore, whenever practicable, to observe the height of the *trial* fuzes by means of the telescopic sights.

If the height of the target is known it may give a certain amount of guide to the height of burst.

A burst after graze, which occasionally occurs, may be mistaken for one before graze, but careful observation should prevent this error. The shell rises very rapidly after impact, and the height of such a burst would probably shew that if it was, as supposed, before graze, the trajectory is abnormally wrong of that round, and it should be disregarded as a basis for correction.

12. It would rarely be practicable on service to employ a flank

\* Attention must be paid to the results of the first few series for the purpose of arriving at the strength of the powder. The experience thus gained must be applied by modifying the elevation at the commencement of subsequent series if necessary.

† Observers might with advantage be sent to practise observation while earlier detachments of batteries are at practice.

‡ To set the sight to observe the height of burst, first lay the gun with the proper elevation for the range, and then take 8 minutes *off the sight*, or 4 minutes, according as the maximum height to be observed is two-thirds or one-third of the hundreds of yards of range in feet. A burst that appears on the pointer is the maximum height; if between the pointer and the target, it is less than the maximum; if below the pointer (the telescope being inverting) it is too high. The object of laying the gun with the proper elevation first, is that it may be ready to be fired when its turn comes. The same observation can be made with the tangent scales, but not with so much accuracy.

observing party; never except with a single battery in action. Their employment at practice is therefore not recommended.

Should it be desired to send one out, their use and duties will be found in chap. iv, section 8, Field Artillery Drill, Vol. II.

They should not be distant from the battery more than about 5 per cent. of the range.

13. Rapidity of fire depends upon the excellence of the general service of the guns, the rapid handling of ammunition, on skill in boring or setting of fuzes, and in action, upon the readiness with which the renewal of ammunition is carried out.

Instructions on these points are given in chap. iv, sections 6 and 9, and chap. v, section 2, sub-sections 6 and 7, and section 4, Field Artillery Drill, Vol. II.

14. with regard to the renewal of ammunition, the gun limbers should be inspected occasionally before changing target or position, to ascertain that their complement of ammunition has been made good from the first line of waggons. They should be found ready for immediate movement.

15. Rapidity also depends on the facility with which the Commanding Officer can make up his mind as to the alterations of elevation, fuze, &c., required. Delay is more especially noticeable when passing from a fire of common shell to that of Shrapnel, on this account.

16. *Hurry and rapidity are widely different.* The former is sure to produce unaimed and ineffective fire; time must always be given to make the necessary corrections carefully, and if the fire discipline of a battery is not such that accuracy and rapidity can be combined, the latter should not be attempted until the former is sufficiently advanced. It is expected that every battery will be thoroughly fit in this respect before leaving Elementary Practice.

Rapidity must never be allowed to interfere with correct observation.

17. Before going to practice, batteries can and must be exercised in the whole system of ranging and fire discipline as a drill. On arrival at the Practice Camp, they will be inspected by the Commandant or by the Lieutenant-Colonels Commanding Brigade divisions, with the view of testing the thoroughness of their preliminary training.

(To be concluded in our next.)

### Correspondence.

This paper does not necessarily share the views expressed in correspondence published in its columns, the use of which is freely granted to writers on topics of interest to the Militia.

#### QUEBEC MILITARY SCHOOLS.

*Editor Militia Gazette*,—I notice in your last issue a paragraph reflecting on the usefulness of the School of Infantry at St. John's, P.Q. From its situation it seems to fail to meet the requirements of the force in Montreal, a force without doubt one of the most important in the Dominion, to which it is in every way a credit, and from which it should receive every consideration. Permit me to suggest a solution of the difficulty. The Province of Quebec has only one School of Infantry, the Province of Ontario two. Give then to Quebec what she is fairly entitled to, *viz.*, two schools, the one in Montreal, the other in Quebec. Move the present School of Cavalry from Quebec to St. John's, a place in every way especially adapted for cavalry, and so easily accessible that it is within fifteen hours by rail of almost any cavalry headquarters in both Provinces.

Were the suggested change carried out the existing troubles would, the writer submits, be at once removed, and the cost of the establishment of another School of Cavalry saved.

Now, as regards a most important matter, the question of expense: The barracks at St. John's are in perfect order, and could at a trifling cost be adapted to cavalry. The barracks at St. Helen's Island could very soon, and without great outlay, be fitted up for an Infantry School, and thus the means of qualifying for promotion would be brought almost to the doors of the officers of the Montreal corps. PAVILLON BLANC.

The latest argument in favour of the proposed bridge over the St. Lawrence at Quebec is that it is a military necessity, and some of the local papers are quoting, with great unction, the statement of the *Railway News* of London, that in the event of a war with the United States, the two bridges at Montreal would probably be seized by the enemy in a few hours, while the Quebec bridge, within the sweep of the guns of the citadel, would be safe from attack and would be the only means of communication between the Intercolonial and Pacific railways.

At the annual boating tournament of the naval and army forces stationed at Gibraltar last month, an unprecedented feat was accomplished by the artillerymen over the representatives of the ships and other military bodies stationed at the great fortress. The artillerymen distinguished themselves by winning the four-oared race. This result is extremely gratifying to Canada inasmuch as three members of the crew are graduates of the Royal Military College, Kingston, their names being Messrs. Vanstrubenzie, Piddington and Cayley.