

on the defensive have become more unassailable without its aid; and, if unshaken by its fire, are practically invincible. The newest invention will render all fire more deadly, but will particularly favour the guns; and we venture to predict that the next big war will more than ever assert their value, and render their support more indispensable to the other arms than even it is at present.

Musketry Instruction.

(Volunteer Record.)

At the Royal United Service Institute, on the 22nd January, Major Mecham (Scottish Rifles, District Inspector of Musketry) addressed a crowded and enthusiastic meeting of the members of this Association, Major-General Philip Smith again testifying his approval of the work of the Association by his presence, in company with several other distinguished officers. The subject of this lecture was musketry instruction. Major Mecham said that he desired to make a few remarks as to the Volunteer training, and while bearing in mind the many difficulties in the way, would try to show how in a measure they could be overcome. The musketry instruction is divisible into three groups: (1) For the recruit, (2) The annual training or practice of the men, and (3) The field practice. These should be so carried out in peace training as to create habits which will unconsciously govern men's actions during the excitement of actual war. The leaders must also so train themselves as to be worthy to conduct and control their men, winning by careful work the entire confidence of the men, so that even under great stress they will render implicit obedience. Mere theoretical knowledge in a leader is not sufficient; by practice and actual contact and work with the men, he must gain their confidence. At the same time, before men were given to a leader, they should be taught the capabilities of the rifle and be put through a complete course of drill. Leaders should themselves be good shots, and able to take up a rifle and show, not merely tell, how it is done.

A recruit, on joining, should be very carefully grounded in the drill without, and with, the rifle. It is a great mistake to hurry him to the range. The instruction should be gradual in all its branches, and the various acts to be performed in firing carefully taught, special care being taken with any peculiarity of build, etc., in a recruit, accuracy rather than uniformity being the standard. The following points should be constantly attended to until they are acquired as habits: (1) To adjust the sights with rapidity and precision, (2) To select the mark before, not after, raising the rifle, (3) To come to the "present" by all the prescribed movements, (4) To "press," not pull, the trigger, and to hold the trigger back after giving the final pressure, (5) To keep the eye open while the trigger is pressed, and check the tendency to shut the eye on firing, (6) To remain a moment at the present after the rifle is fired; this especially at snapping drill, (7) To load and adjust the rifle without moving it about, (8) To restrain the breathing when firing, (9) To let the head sink forward to the butt and not turn to the right in taking aim, (10) To let the rifle rest in the palm of the hand, (11) To divide the weight of the body between each leg when firing erect, (12) To not fear or flinch at the recoil, but to control it. In all cases the instructor should very carefully note any faults, and point them out quietly, and in brief explicit language explain every detail, so that the man may see the reasonableness and necessity for everything he is called upon to do. The effect of wind at various distances and when firing from the different positions, the influence of light and other matters, should be explained, and the necessary precautions pointed out.

Men should certainly be practised, not only in firing straight to the front, but also to fire with rapidity to the right or left, and at objects crossing the front or advancing or retiring, and that at various speeds. It is well to get the men themselves to observe the effect of their shots. Let them first tell the Instructor. Seeing that so much depends on a recruit's first visit to the range, do everything possible to make him like shooting. Send a man home elated, and he will soon come again. Pouches ought to be kept at the ranges, and men trained to load with facility from the pouch. Instructors should, in squad firing, stand to the left front to see the mistakes, but should also go behind to accustom men to receive commands as in action.

With regard to the N.C.O.'s. Those passed as proficient in musketry drill are often insufficiently examined as to the application of their knowledge. They should be able to detect errors, and then to quickly correct them. Mere verbal repetition of the printed instructions should never be taken as sufficient. He should be tested in drilling recruits, not trained men; he will then have to use his eyes and stop to correct. He should know his work so that nothing will put him out.

However accurate and careful the man's training may have been, it is still necessary that he should be annually tested at measured distances. It should be impressed on the men that this is necessary to keep them in practice, to ensure confidence in themselves and in their

rifles, and as a preparation to the more important field practices. Major Mecham advanced as his own opinion that the system of testing men on the range might with advantage be re-arranged to prepare men for the kind of firing they would be called upon to execute in the field. The range conditions are absent in the field, the differences are obvious. The field conditions might be arranged by sets of objects representing men standing, kneeling, or with head and shoulders exposed, their numbers should be uneven, and distances various; perhaps a higher value might be set upon hits of any particular object or objects. The number of rounds to be fired in given time should be fixed, and the hits assigned afterwards. The prize list might be so arranged that the crack shots do not get all. Such shots would very likely not do so well in the field. It is possible to encourage all to aim quickly, and hit a target somewhere. The paraphernalia of paints, &c., ought here to be vetoed, and it would be a good thing for the Service if the N. R. A. would put a limit of time, and insist that all shooting in uniform should be as nearly as possible under Service conditions.

The fact that collective firing is necessary in the field, ought to be more considered and trained for. Men must, for the field, be organized in fire units, to be directed and controlled by the leaders. A system of drill ought to be arranged to teach the unit commanders the methods of giving "fire" words of command, to exercise them in fire control and direction and to exercise the rank and file in the very necessary fire discipline.

The Future of Fortified Positions.

Gen. Brialmont, to whom Belgium owes her new defences in the valley of the Meuse and elsewhere (concerning which we shall presently have more to say *apropos* of the recent notable pamphlet of M. J. Girard), has just published a work of great significance, entitled "Les Régions Fortifiées." We shall, at least for the present, confine our remarks to that portion of the book in which he expounds and enforces his views as to the principles that rule, and are likely to rule, fortification in the new conditions brought about by the introduction of high explosives and guns of distant range. As is well known, there has been a tendency of late years for military men to lose faith in permanent fortification; and Major Shelbert, whose writings have gained some repute in Germany, has gone so far as to declare that they are generally useless, and must be replaced by temporary entrenchments and Schumann or Grünson cupolas. It is this contention that Gen. Brialmont directly attacks. Far from the defence being weakened, he argues, its superiority over the attack grows with the increase in the means of destruction. For this reason, he maintains that the present system of fortification need not be greatly changed. The defenders will protect their guns by cupolas and in casemated batteries, and their men beneath shell proof coverings, in safety from attack behind deep ditches with scrap and counterscrap, and flanked by quickfiring guns. They will be able with plunging fire to shell the enemy, protected merely by earthworks hastily thrown up; and this they can do, knowing every inch of the ground and the exact position of every local shelter, almost as well by night as by day.

Now that the *enceinte* has given place, as a means of defence, to the encircling belts of detached forts, the attack, says Gen. Brialmont, has lost its former great advantage of being able to envelop the enemy and destroy his guns by lines of converging fire. His remarks do not apply to small fortified places; but in large ones now existing he considers that masonry may be thickened and armor-plating added, and other changes be made to meet the altered conditions, but that in the future forts will be made smaller, because they will be equally effective and less costly. If it be said that the range of guns may be increased, Gen. Brialmont, replies that that will in no way assist the attack, since the range is long enough already. He holds that bombardment should end for mortars at 3,900 yards, and for guns at less than 8,000 yards. As to the possible increase in the power of explosives, he says that the bodies that can enter into their composition are apparently few, and in the combinations of them which we know the results differ little; and he adds that considering the great dangers and uncertainties in the production and storage of such terrible explosives as perchloric and ethylic ethers, we have no right to look for their employment for the charging of shells. These opinions, which he admits differ from those he formerly expressed, Gen. Brialmont enforces by an historical view of the question, and concludes by laying down a plan for the defence by fortifications of the European Continent.—*Army and Navy Gazette*

The immense works of Armstrong, Mitchell and Co. are fully established at Puteoli. Italy does not wish to run the great risks of carrying heavy ordnance on merchant vessels from Newcastle-on-Tyne. She therefore granted to Armstrong, Mitchell and Co. several acres of ground on which to erect works.