

tive service which those employed exclusively in coast defence would otherwise not get. You will scarcely see an officer or man in a Mountain Battery who does not wear at least one war medal and often several. The same remark applies in a less degree to the Heavy Batteries in India.

#### THE ARTILLERY MILITIA OF THE UNITED KINGDOM.

With regard to the affiliation of Militia Artillery with Royal Artillery, the Irish and Scotch are affiliated to Southern Division, and the Welsh to Western Division. They are under the General Officer Commanding and train in our forts with our guns. In 1885 the Hants Artillery Militia were embodied for nine months at Gosport and took over Fort Grange from the Royal Artillery.

#### RECENT IMPROVEMENTS IN "MATERIEL."

I began by speaking of recent improvements in 'materiel.' I will explain what they are; but, to make them more striking, let us take a glance at the armament of by-gone days. Not much more than 30 years ago the heaviest cannon, afloat or ashore, was the 68-pounder S.B., of 96 cwt, firing only two projectiles—a solid shot and a Martin shell—and taking a charge of 10 or 16 lbs. of powder. Rifled guns were unknown, and so were breech-loaders. Recoil was left unchecked by any appliances; there was only one class of cannon powder (L.G.) Guns were fired by pouring loose fine grain powder down the vent, and igniting it by means of a port fire lighted from a slow match, held in a linstock. Fuzes were of the old kind, with a single central column of composition, and to prepare the fuze its end had to be sawn off, and the composition bored out. Carriages and platforms were of the simplest kind, and so were the sights. The drill was very easy. The objective of coast batteries was a large sailing vessel, moving slowly.

Now, let us turn to the ordnance and appurtenances of the present day. No military science has made such strides in the present century as that of Artillery, and its development has affected the materiel of the Garrison Artillery much more than any other branch. There has been an enormous increase in the weight of metal of our guns, and all the resources of science have been enlisted to enable us to deal with such heavy weights. To-day we have guns of 100 tons, and a calibre of 17.72 inches, which take a charge of 450 lbs. of powder, and throw a projectile weighing 2000 lbs., which will pierce 22.75 inches of wrought iron at 1000 yards. The B.L. and M.L. systems are both in vogue. Some of our latest B. L. guns have a muzzle velocity of over 2000 f. s. To check the recoil of these heavy guns is itself a problem. Steam, hydraulics, pneumatics and electricity are applied to their service. Even the appliances for laying a gun, such as sights, tangent scales, index readers, traversing arcs and clinometers, are a study of themselves, and quite beyond the scope of an illiterate man. There are 28 natures of heavy guns and 32 natures of light guns and howitzers, exclusive of quick firing and machine guns. There are 17 kinds of gun-powder and 24 kinds of fuzes, some of very intricate construction. The ammunition is also much changed. The carriages and slides are full of machinery, and a drawing of a hydro-pneumatic mounting, bristling with valves and mechanical contrivances itself, speaks volumes. The objective at which coast artillery must fire is an iron-clad or torpedo boat under steam, moving at a high rate of speed. To determine the position and rate of speed of the objective range, instruments have been invented which require to be worked by carefully trained men. Electric search lights, under the Royal Artillery, are used, and there is electric communication between the Forts, range instruments, etc. In short, it is putting it too mildly to say that the Garrison Artillery materiel has been improved of recent years. It has been revolutionized!

#### GARRISON ARTILLERY NOT INTERCHANGEABLE WITH FIELD ARTILLERY.

Within the memory of many not very senior officers in the Royal Artillery the duties of Field and Garrison Artillery were considered so similar that a company of the latter used to be turned into a battery of the former ("put in battery," as it was termed) at a day's notice and *vice versa*.

I am not here, to-night, to talk about Field Artillery, but I daresay the nature of its duties are known to most of you and I venture to say, that by the time I have finished speaking, there will be very few present who will not have come to

the conclusion that an individual cannot be both an efficient Field Batteryman and Garrison Artilleryman at the same time, and that if he tries to, he will stand a good chance of resembling Dr. Johnson's Dragoon, who is defined by that great man in his dictionary, as a "soldier who fights indifferently on horse and on foot!"

#### FUNCTIONS OF GARRISON ARTILLERY.

The functions of Garrison Artillery are the defence of coast fortresses, and the attack and defence of land fortresses. Taking the latter first, the attack of a land fortress is carried out by the siege artillery, and as it is a study of itself, I do not propose to speak of it to-night. The artillery defence of a land fortress would, for the most part, be entrusted to the Garrison Artillery; but this also involves a study of siege artillery tactics, the converse principles applied, and therefore, I shall not dwell upon it more than to say that their duties would consist chiefly of firing heavier guns from fixed emplacements, and lighter guns of the moveable armament from selected positions at the attacking siege batteries, and at troops in the open. The term heavier is only used comparatively, and would apply to such guns as 7 in. R.M.L., or R.B.L., and 64-pounders. We now come to the defence of a coast fortress, which is a most comprehensive subject, and the one on which I propose to speak mostly this evening. The whole of the Royal Garrison Artillery is employed in coast defence in every part of the world (with the exception of one or two companies holding inland forts in India), and I give the following stations as instances abroad:—Cape Town, Mauritius, Malta, Gibraltar, St. Lucia, Bermuda, Halifax, Hong Kong, Singapore, Colombo and Aden. At home, Portsmouth, Plymouth, Dover, Sheerness and Cork. The official definition of a coast fortress is:—"An area of land and sea, provided at certain important points, or along tactically selected lines, with an artillery armament partly fixed and partly movable." The fixed armament is generally placed in forts, the movable in selected positions. As nearly every fort has one or more land fronts, so nearly every fortress may be attacked by land, or by sea, or by both. There are many different kinds of forts, but it is not my intention to go into the question of fortifications, as that would be trespassing on the domain of the Royal Engineers, though their charge in forts and batteries marches so closely with the Royal Artillery that the line dividing them is a very narrow one. For instance, guns, ammunition, carriages and slides, (slides is the new name for platform,) are in charge of the Royal Artillery, but the pivots on which the slides turn, the racers on which they run, and the traversing arcs by which they are given their bearing, are Royal Engineer stores, and are fixed by the Royal Engineers. I will dismiss this subject with the remark that every artillery officer should have a knowledge of fortification.

#### WAR SHIPS.

Taking the case of an attack by sea first, the natural enemies of the Garrison Artillery are foreign war ships and torpedo boats, and in this respect the Garrison Artillery differs from every other branch of the service. In the field we find men fighting against men, horseman in combat with horseman, and mixed bodies of infantry, cavalry and artillery opposing similar bodies of the enemy; but in coast defence we have forts versus ships. To despise one's enemy often leads to disaster, but confidence begets success, and it is, therefore, as well that a Garrison Artilleryman should know that he has a four to one chance in his favour in engaging a ship of equal armament to his fort. A naval authority tells us that ships do not want to attack fortresses, and will not do so unless they are obliged to for some good object such as getting at other ships which are sheltered behind the fortifications. Ships fight with three weapons, guns, torpedos, and the ram, but they are constructed to fight against other ships and not against forts, and fortunately for us two out of three of these weapons are of no use against a fort. Some of the disadvantages under which the ships suffer when engaging forts are (1), their guns are fired from an unstable platform (2), being low down and the forts generally high up, they cannot always get the necessary elevation, while the forts can fire down on their most vulnerable part, *viz.*: the deck. (3) They cannot work the Depression Range-finder. (4) A modern war-ship being, so to speak, a floating "box of machinery," every shot striking her tells, whereas many shots may strike a fort and do it no harm unless they hit a gun. (5) It is not possible