

take care of their horses, and go through the simple formations needed for the march. This subject is attracting much attention on the part of many of the most intelligent European officers, but nothing definite seems to have been done in regard to the permanent organization of such troops. It is evident, if the use of mounted infantry is important, that it is necessary to organize a special corps for the purpose, employing only men who can ride and take proper care of their animals, otherwise the latter would be destroyed after a few marches. It has also been suggested that it would be advantageous to organize trains of light carts or wagons for the rapid transportation of considerable bodies of infantry. However the details of the matter may be arranged, it is probable that in the next great war the question of mounted infantry will be practically solved.

THE ENGINEER TROOPS.

It is now time to consider briefly the organization and general duties of certain special bodies of troops few in number, but upon whom devolve duties of the highest importance on the march, in battle, in retreats and sieges, and for which a high order of intelligence and careful instruction are necessary. These troops are armed, and not infrequently are called upon to fight, as infantry; moreover their special duties are so often performed under the heaviest fire and most dangerous circumstances that they can be fairly regarded as coming within the category of combatants. Certainly the coolness and heroism displayed by these troops in hundreds of instances can justly be compared with the most remarkable actions of the three principal arms of service. Among the duties which they are called upon to perform or direct are the construction and repair of roads and bridges of all kinds, the construction of field fortifications, the works of attack against field and permanent defenses, and generally leading assaults of works in order to remove the obstacles placed in the way of the storming parties. The distribution of these duties, and the organization of the troops who perform them vary much in different armies. In some they are assigned altogether to the engineer troops; in others those relating particularly to the heavy guns employed in sieges devolve upon the artillery; again in others the construction of floating bridges falls to the artillery, or to a special corps of pontoniers; finally, there are cases where a particular corps is organized for the work of constructing and repairing roads and bridges on fixed supports. In this last case the engineer troops are confined pretty closely to the work of sappers and miners, *i. e.* the construction of the works of attack against permanent fortifications. As with regard to the artillery, so in this case we will take the German organization as a good example of a suitable composition of the troops in question, called by them pioneers, officered entirely from the corps of engineers. In times of peace these troops are organized in battalions of four companies each—one battalion to each army corps. The strength of the battalion is eighteen officers and 503 men. Of the four companies one is a company of pontoniers, two of sappers, and one of miners. On the breaking out of war one of the sapper companies is withdrawn from the battalion to serve as *dépôt* company, and of three new companies for garrison service in the fortifications.

The remaining three companies are brought up to a total strength of seventeen

officers and 708 men. From the three field companies are organized a light field bridge train, and a train of entrenching tools. Special heavy bridge trains, for the passage of large rivers, are organized from the permanent *dépôts* as necessity may require.

We have now given, in a general way, the organization of the different combatant arms of service up to the brigade. Before we can pass on to the composition of the division and the army corps it will be necessary to give a brief description of the organization and duties of the different staff corps and the non-combatants, for these form essential portions of the larger units. With this our next paper will commence.

(To be Continued).

THE CANADIANS AT WIMBLEDON.

The *Pall Mall Gazette* of July 11th says:—The presentation of an address by the Canadians to Sir Garnet Wolseley will be remembered as a pleasing event in the proceedings of this meeting. It took place yesterday in the garden adjoining Lord Ducie's quarters. The Canadians, twenty in number, under the command of Lieutenant Colonel Gilmor, were drawn up on either side of a table, and Sir Garnet was introduced by Lord Ducie. The gallant officer was accompanied by Lady Wolseley, and among the company who clustered round the table were Lady Ducie, Lord Carnarvon, Lord Lisgar, Lord Eversley, Sir Henry and Lady Alice Havelock, Sir John Rose, and Lieutenant Colonel Oxley. Colonel Gzowski read the address, which was handsomely illuminated and enclosed in a box made of Canadian wood and, Sir Garnet made the following reply:—

"You have been good enough to present me with an address stating that my services in Canada are still remembered by its people. My long stay in British America seems with pleasant recollections, and it is an honor to find that you regard me as identified with your people; for if a love for a country and intense interest in everything that concerns it can entitle a man to claim it as his home, then, indeed, I am as much a Canadian as any man born in your provinces. I can never forget the gallantry, the devotion to its sovereign and to duty displayed by that noble band of Canadians which I had the honor of leading through many miles of wilderness from Ontario to the Red River in 1870. I can never hope to be associated with better soldiers than with the militia regiments of that expeditionary force. They were well worthy of being brothers in arms of those men who lately fought their way so gloriously to Commaissie. I thank you most sincerely for your kind congratulations and good wishes, and I trust I may never forfeit in any way the good opinion of the the people of Ontario, to whom I am bound by so many endearing ties."

After the Canadian team had been introduced, the whole company walked across to the Canadian compartment, and were entertained at luncheon.

THE GATLING GUN.—In transmitting the official report of the Board of Officers appointed by S. O. No. 108 A.G.O., May 31, 1873, on Gatling Guns of Large Calibre for Flank Defence, the Board of Engineers for Fortifications give expression to their own views in the letter which follows, and the publication of which completes the discussion of the subject.

CONTINENTAL ARMIES AND FORTS.

The *Cologne Gazette* of June 14 intimates that it must be looked upon as an unquestionable recognition of the value of the German military organization that it has been almost the only pattern after which new military changes have been made in the different lands, among which may be named France and Russia. While the new French Military Constitution is nearly a complete imitation of the German, there were in the case of the Russian movement local peculiarities which made such an imitation in many parts impossible. The main features of the Russian system are these: The obligation to serve is general for the Russian population able to bear arms. Substitution is permitted in the case of young men upon whom the lot has not fallen, and who may serve instead of the next members of their family upon whom the lot may have fallen. Those who are freed from active service by the lot enter from their twenty-first to forty first year into the *Apaltshenie* or *Lands-turm*. The active service is for six, the reserve for seven years. Young people of superior education have the right of doing their time of service, (according to their amount of culture,) in from three to six months, two and four years. Freedom from service is secured only after fifteen years of age by having passed the number of years required in the army, or from being freed by lot from the obligation. The *Cologne Gazette* suggests that such an arrangement might be of advantage in Germany, where emigrants is going on so rapidly. Points of difference between the Russian and German plan are—(1) that the time of service in the former is about twice as long, which prevents so many men comparatively from being enrolled as in the German Army; (2) three years longer in the reserve; (3) various exceptions from service. The Prussian institution of *Dratz* reserves is made up for by those who are for the time not taken, being in the first place handed over to the reserve army. Carrying on the service to forty-one in the *Lundsturm* was intended largely to increase the strength of the army, but it is not likely that the Russian Army will soon gain an ascendancy over the German. The new fortification system of France commenced this spring. A beginning has been made with Grenoble, the works of which will be strengthened with five advanced forts. The acceptance of the new fortification arrangement of Paris was intended for the middle, or at least end, of April. There will be then eleven very advanced forts, and a new girdle line of the already existing fortifications. Probably at Lyons also the extension of the fortifications will this year be commenced. Besides, it is intended to raise Verdun, Soissons, and Rheims into military positions of the first rank. As flank positions, the works of Bel'fort and Langress, in the south, and in the north Douay and Lillie are to be extended. In the first direction, Besancon will form a first and Lillie a second reserve position. At all important railway points—as, for instance, where important railways cross rivers—stoppage forts will be erected, where the nature of the ground admits of this. Even the fortification of the entire passes and roads in the Morvan Mountains, between the Yonne and Cote d'Or, is in prospect. As early as last year comprehensive fortification works were arranged for in order to render the military manufactories at Bourges secure. As regards the modes of fortification, the polygonal glacis is that which will be adopted in these works.