

most extraordinary mixture of pedantry and sound sense. The slow march is a burlesque on the strut of the crooked champion of the "barndoor" harem; still the left arm is allowed to swing. This swinging of the hand which does not grasp the rifle, strikes the military eye at once, and the impression carried is favourable. The men are not taught to "dress" by the touch of an elbow, they stand on twenty-four inches of front, and common sense points out this freedom of movement as a manifest advantage. Marching a line of men in contact, over rough ground, must be an absurdity. Do individuals keep their unoccupied arm close to their sides, and in contact with that of their neighbour, when enjoying pedestrian exercise? Yet their "dressing" is perfect enough to all intents and purposes when in step. In 1870, whenever the German troops had some spare hours, one observed them at drill, and almost always by companies under their captain or in squads. The company formed up in three ranks; but when for action, they immediately received the order to form two ranks. The author is unable to discover that any radical change took place in battalion drill between the years 1866 and 1870. Battalion commanders followed their own instinct in order to retain control over the four companies of their command. Nothing was laid down on the subject, no new book was published; but in practice they seemed to have carried out the principle of making the fractions more dependent one on the other, giving them cohesion to a limited extent. For instance, Nos. 2 and three companies might be ordered to form the skirmishers Nos. 1 and 4 the "repli" or support. Sometimes a whole battalion skirmished, and a second formed the supports. Again, if a small front had to be covered, No. 1 company might skirmish No. 2 support, with Nos. 3 and 4 in reserve. Thus a captain had not the independence of the officer commanding a company column in 1866; still evidence on this question is very contradictory, for the Germans are as proud of their company column system as ever—which means that companies under their leader are allowed great latitude.

The battles of 1870 were different in nature to those of 1866. The French invariably covered their front with a swarm of skirmishers, who, in face of their training, fired their ammunition away in the most reckless manner, commencing at a range of 1,200 paces or more; then the Chassepot recoils severely, so the men adopted a habit of firing from the hip, with the weapon in a horizontal position, their object being to envelop themselves in smoke and shake the "morale" of the enemy. The Prussians never wasted a shot, and the officers always succeeded in checking fire when they deemed it advisable. This fact speaks volumes in favour of the men and their discipline. Then the Germans placed a limit to the number of their skirmishers. They formed a line of double ranksmen, at about three paces apart. When this line advanced, as it invariably had to do against the French, the men who found cover in their front rushed forward and took advantage of it, the marksman and his comrade firing in turn, one crouched down behind the obstacle to load, whilst the other took aim over it. If, as often happened, a flat piece of ground was in front of one part of the line and cover abounded in another, the exposed skirmishers were not permitted to incline right or left. They had to run up to the alignment of those under cover and lay down firing when opportunity offered from this position. The German system is to rein-

force, but not to recall skirmishers. Private soldiers informed the author that it was very amusing to be a skirmisher, who seldom was hit at long ranges, but "the very devil" to be in column where one projectile might disable a dozen men. Two of these men were in the column of Guards which attacked St. Privat. The losses sustained by the Prussians on that occasion quite bore out their statements.

When the two opponents rivied within point-blank range the improvident Frenchman had expended his ammunition, and the *corp d'elite*, or front line, retired with some precipitation, giving place to the line regiment previously remarked on. The result is historical. Von Moltke once told his staff that the problem how to supply ammunition to the first line during an engagement was one he could not solve. In England, we think it is to be managed by relieving skirmishers. Doubtless, this method is better than giving ground in order to refill pouches in sheltered spots, but the question is how to feed the first line, not the skirmishers of the line only. The Germans decide on never wasting a round of ammunition; so as to prevent, in place of cure, the evil.

The German army seemed to have two principles from which they never departed. Their front attack was always supported by powerful reserves, and they never omitted a flank demonstration or actual assault. They were equally cautious about protecting their own flanks. If one discovered a rifle-pit made by a sentry on outpost, one might be sure another flanked it; if a garden wall was loop-holed, one might be sure that a flanking fire from behind a natural or artificial obstacle would take the assailant in flank. In an advanced guard, or even a main body, entered a town or crossed a bridge, flankers were sent out, even when the presence of an enemy was impossible. There is nothing like learning good habits, and a Landwehr force, even with a good staff, does not pretend to be an experienced army.

After 1866 great attention was paid to the Engineer department, the Artillery, and Cavalry, these arms having been found wanting. Every soldier of the standing Prussian army (not the Bavarian) seemed to have a knowledge of field engineering. Give a bungler a pickaxe and bid him loop hole a wall, and you will find on your return a series of windows as the upper row; and if you have also ordered him to make the more important lower tier of holes, your wall will contain certain gaps—if it has not ceased to merit the name wall. Again in cutting down wood to form an obstacle, a novice will pull the fallen wood about and fail to impede an enemy; a man of experience will fell the timber in such a way that an additional wire or two renders it impossible. How did the Germans learn all this in peace time? We can hardly risk the country to provide woods and walls for the practice of British soldiers in general, but a few out of every line regiment might receive instruction. The use of the spade is appreciated in this country, but we doubt whether many individuals exist out of the Ordnance Corps capable of transforming a ploughed field into a roadway in wet weather. How many soldiers in the British Army ever saw fascines used to repair a road? How many have ever seen a river bridged or a bridge destroyed? The writer thinks that the Royal Engineers on service might receive valuable aid from men instructed in field engineering, and that the Engineers ought to impart a little instruction in their art during peace. The "Pocket Red book,"

and every other aid, is of little value without practical instruction.

(To be continued.)

IRON IN CANADA

The New York *Iron Age* has a letter from a correspondent giving an account of the Hull iron mines, near Ottawa. These mines were purchased some time back by American capitalists the head of the company being Mr. A. H. Baldwin, who has for eighteen years past been extensively engaged in lumbering on the Ottawa river. The present owners commenced operations last spring, and before navigation closed a fair season's work had been done. Some ten thousand tons of fine black magnetic ore were shipped to Cleveland, and mixed with Lake Superior ore, made a good yield of iron. The iron so produced is of the best quality, such as is required for railway car wheels, and some of it has been used with very satisfactory results by the Toronto Car Wheel Company. In connection with all this, the inquiry seems a pertinent one, whether the valuable iron deposits of Canada are never to be of any use but for transportation to the States? The Marmora iron ore goes across the lake to Charlotte, the Hull ore to Cleveland, and ore from various places in Quebec goes to Albany and Troy. Most of the Canadian iron ores are remarkably pure and free of both sulphur and phosphorus, and on that account specially adapted for purposes for which a high degree of tensile strength is required.

There are in Canada deposits of iron, in extent practically inexhaustible, and in quality equal if not superior to the best Swedish. Yet Sweden makes iron while we do not, though it is not the want of coal either, that makes the difference, for Swedish iron is smelted with spruce and pine charcoal, made chiefly from such timber as is good for nothing else. We have the iron ore, and the wood too, in quantities beyond computation, while it is an important fact that just such iron as we might produce is every year more and more wanted, at high prices, for special purposes.

Again, if it "pays" to carry Canadian ore to the States why should it not "pay" also to carry coal to the iron? The plan has been suggested, of having two sets of furnaces, one near the coal, and the other near the iron ore, keeping a fleet of propellers carrying between the two. When will we have such a "national policy" as will keep both raw material and population at home, instead of exporting both to the States, as we are now doing?—*Telegraph*.

We have before us two very minute and interesting accounts of the late expedition from Toronto to Fort Garry. All this ground has been gone over so often that nothing now is supplied. One of our correspondents has made his experience more interesting by giving minute details; and it is in this way that we are enabled to obtain a full and an accurate account of the pleasures and hardships of the trip. Looked at from an impartial stand-point, we think we may point to the passage of the late expedition and challenge the world to exhibit such patriotism and such discipline as carried that force through the difficulties. No regular army could have existed under the strain; and none but Canadians engaged in upholding the honor of the meteor flag would have given such hearty and continued cheerfulness to a task so trying.—*Woodstock Times*.