

ly not again occur, unless under some very exceptional circumstances, for where the ground is sufficiently open for them to form and act as they will be fully exposed to such a fire as will prevent their advancing, or even retaining their position. The experience of the war of 1870-71, as far as it went, proved that cavalry could not attack good infantry armed with breech loaders without incurring certain destruction. Again, in reference to the other duties of the cavalry, such as escort and patrol duty, it is quite certain that the breech loader will enable very small parties of infantry to at least annoy cavalry parties so much as to hamper them exceedingly in their operations. The fact that small parties of the German cavalry ranged so far and freely in France will not serve as a rule for other cases. In a moderately broken or wooded country two or three good men with breech loaders could, with entire safety to themselves very soon put an end to the movements of ordinary cavalry patrols. It is quite probable that the future changes in the cavalry organization will be in the direction of assimilating a large part of it to mounted infantry.

While the cavalry has lost something of its importance, the artillery, on the other hand, has gained in power and independence. The breech loading field guns can be so readily placed under cover and fired so rapidly that it is possible to place them in positions that the old muzzle loaders could never have held, and also to trust them to themselves with very slight infantry supports. In 1870-71, especially in the latter part of the war, the German artillery was usually in advance of the infantry line, and often really decided the battle when practically entirely without their infantry supports. The changes now being made in Europe seem to be in the direction of small calibres, heavy charges, flat trajectories, and long ranges; all this accomplished by means of a material so light that it can pass over rough ground, and find positions almost any where. A consequence of all this will probably be a large increase of the relative strength of the artillery. In regard to the mitrailleuse and similar inventions for the rapid and concentrated discharge of small arm bullets opinions vary exceedingly. There is reason to believe that the last war did not impress the Germans with a very high idea of the value of such weapons, but that they have reached the conclusion that in face of active and accurate and long range artillery the mitrailleuse can accomplish very little. There seems good ground for believing, however, that for the defence of works, of defiles, or of a position of limited extent the mitrailleuse, or still better, the Gatlin gun, will prove to be a very reliable adjunct.

The effect of the modern improvements upon the infantry has been no less marked than upon the other arms of service. If, on the one hand, their new weapon has freed them from all danger from the once dreaded cavalry, on the other hand the new artillery is so formidable as to render a resort to new formations and new methods of attack obligatory; for the dense columns and successive parallel lines of former years cannot withstand the distant, rapid, and accurate fire of modern guns. Neither can those old formations possibly succeed in the attack of positions held by good infantry armed with breech loaders. Destruction and wild disorder must be the results of any such attempt.

Before touching upon the measures now being adopted in Europe to meet the new

conditions of modern warfare, it is necessary, for the benefit of the general reader, to describe very briefly what is meant by strategy and tactics.

Strategy is the highest and most important branch of the art of war, requiring an accurate and extended knowledge of all branches of the profession of arms, and the highest intellectual gifts. Although its principles have guided great commanders from time immemorial, it has been reduced to the form of a science, and its principles clearly expressed in a scientific form, only within a century. Wars have been successful where the victors violated the requirements of strategy, but only when the conquered departed still more widely from them, were greatly inferior in respect of quality, or number of troops, or some other vital need. It is the province of strategy to arrange plans of campaign, and to regulate the movements of armies in such a manner that their operations may produce the greatest possible results. For example, when war is about to break out, it is within the domain of strategy to determine whether to take the offensive by marching into the enemy's country, or to assume the defensive, receiving his attack on the frontier, or in rear of it, as the circumstances of the case may determine. Again, when an army is about to assume the offensive, there are usually several lines of operations available; strategical considerations decide which shall be used, and, if more than one, how the disposable forces shall be distributed between them. It is also within the domain of strategy to select the objective points or lines, the possession of which—as the result either of strategical movements or of battles—will probably prove decisive in the campaign. While strategy thus occupies itself with the general movements of masses, tactics concerns itself with detailed movements. For example, under the head of tactics come all the measures necessary to move troops from the encampment or bivouac and set them on the march; to pass from the order of march to the order of battle, and the reverse; to pass from one order of battle to another; from one part of the battle field to another; to attack the enemy, or receive his attack, etc.

Modern improvements have not changed the principles of strategy in the slightest degree, although they have modified the application of those principles, through the introduction of railways, steam ships, the telegraph, etc. With regard to tactics, however, the case is very different. The principles of tactics and the formations of troops for combat must, of course, vary with the weapons employed. As fire arms have been gradually improved during the last thirty years, the systems of tactics of most nations have gradually but insufficiently changed, tending toward quicker movements and looser formations; but with the development of the full power of the breech loader we are on the eve of a very great change in tactics; and, strange to say, the nation that led the way in the use of breech loaders is also leading the way in the adoption of the new tactics proper to meet the changed state of the case. Let us separate, in our hurried description, the defensive from the offensive tactics.

When acting on the defensive against troops armed with breech loaders, the new system requires infantry and artillery to seek cover as much as possible. If the nature of the ground permits them to find it behind the brow of a hill, that is availed of; if otherwise, then it is obtained by the hasty excavation of a shallow ditch—throwing the

earth in front to form a parapet—in which the men lie, or the guns are placed. In a wooded country timber answers the same purpose. In this disposition of the troops it is no longer so necessary to preserve continuous lines, and, instead of massing large reserves in a few points, more numerous and smaller reserves are posted wherever the accidents of the ground will afford them shelter. In regard to the offensive, the problem is to expose the men as little as possible to the enemy's fire. This end is accomplished by bringing the artillery into action as soon as possible, and after its work is effected, sending forward the infantry in parties of such size that each can readily find shelter and move rapidly from cover to cover. Experience seems to have proved that the large company is the most convenient unit for the kind of work; and according to the orders now in force in the German army, no larger column than that of the company is to be used by infantry under fire. Thus, under the new system, infantry attacks will be made by swarms of company columns, each covered by its own skirmishers, every four companies under the superintendence of the battalion commander, every three groups of four companies under their regimental commander, etc., etc. This kind of work requires great intelligence on the part of the captains and their men in finding the best and most sheltered routes to their objects of attack, as well as in securing harmony of the action with the adjacent companies. Again, such fighting necessarily means loose order and a departure from the conventional formations of the drill ground, whenever the field of battle is wooded or broken; hence arises necessity for a discipline of the most strict and highest nature, which will preserve authority and mutual reliance even in the most scattered order, will cause the men to rally to and obey the nearest officer or non-commissioned officer, and in the first pause of the fighting to seek their own company, or if that be impracticable, the nearest company of their own battalion or regiment.

So also with regard to the artillery, in the new state of affairs more independence of action will be left to the individual battery commanders, all working together toward a common end under the general direction of the division commanders. The cavalry also will no doubt find its most useful action hereafter, as a rule, in small bodies, where the squadron will play a principal part as an independent unit. While stating clearly the changes in tactics that have resulted from the introduction of the breech loader, and the additional importance gained by the company, the battery, and the squadron, we desire again to lay the strongest possible emphasis upon the fact that this change renders necessary the strictest and most intelligent discipline, and that, far from reducing the importance of the battalion and regimental commander, it simply modifies the character of their duties, really rendering them none the less important; for while they no longer interfere in the details of the captain's work, so long as he does it properly, it is their duty to watch that their captains commit no errors, and to direct all the efforts of the companies to a common end, and to co-ordinate the movements of each battalion with those of its neighbors. To dispense with the regimental or battalion organization would be a fatal error.

In closing these papers upon army organization, the writer feels that it is just to himself to state again that they are intended