Department at Washington, the Engineer Department at Woolwich were indebted for the knowledge of an invention supposed to be used exclusively for their own service.

In fact the whole of this reticence is a mere sham, all general principles in military science is known to every educated soldier and sailor, and they preclude the possibility of any man having an invention that cannot be discovered.

"The second of the annual course of lectures was delivered on Thursday afternoon, January 22, at Aldershot, by Colonel Middleton, in the presence of a large number of the officers of the division, including General Sir James Hope Grant, G.C.B., and Lady Grant. The subject chosen was, "The effects produced on tactics by the gradual improvement in firearms and artillery."

"The lecturer first explained the meaning of the term tactics, which was, he said, derived from a Greek word signifying "the order of battle. The art had existed from the earliest days, as they all knew, and its principles were the same at the present time as they were in the days of yore, and always would be, namely, "To beat their enemy and to do so with as much loss to them and as little to themselves as possible." There was a much greater loss of life in the ancient wars than in the present ones, the object now not being so much to absolutely kill the enemy as to drive them from the field. To accomplish that, armies must be able to move with great rapidity, and consequently organization comes into play, or what is exactly represented by the meaning of the "mobility." The improvement in firearms had called for a corresponding improvement in tactics, but the idea of saying that tactics were changed, was, he thought, a mistake. They were always the same in their principles. They had, however, to be modified, which modifications were called "eras" in the military history of tactics and strategy. Another idea was that the improvements of weapons in war were productive of what was called "the Butcher's Bill," and when they considered the extreme care taken to bring the weapons to such a degree of precision and nicety, it could hardly be understood how greatly it lessened the number of killed and wounded on the field of battle, but such was the case. The fact was that the great improvements made in the firearms had made both sides more wary, and adopt tactics in order to avoid the effect of these arms. This could be proved true, by referring to the number of killed and wounded in the battles of the olden times, and comparing them with the losses of the present time. They had no real intelligence as to what they really did lose in ancient times, but allowing for all exaggeration, their losses must have been tremendous, being hand to hand combats. One instance was in the Punic war, where it was said that 2600 men were lost out of 3600. As gunpowder began to get more and more into use, the losses were greatly lessened, so that it was plain that the greater attention paid to firearms, instead of making battles more deadly, had the very opposite effect. After all, such men as Armstrong and others should be really members of the Peace Society, and if they were admitted as members, they would be only working ones in the country. It was evident that there was the the same style of tactics used in modern days, as in the ancient the slaughter, owing to the arms being so much better, and having so much longer range, would be much greater. During the Secession war in America, the most effective weapons were used by the men, but in consequence of the troops moving in heavy masses, instead of lines, the slaughter was on an average greater than any other battle in Europe, simply for want of tactical knowledge. The lecturer then gave a graphic sketch of the tactics used by the Greeks. Their mode of attack was by the well known formation called the "Phalanx." The next nation of whom they had any knowledge at all was the Romans. They at first used the Palanx but soon found that it was both heavy and faulty, and adopted the "Legionary Formation," which they found much better suited to their style of fighting, and enabled them to stand against the light armed troops of the enemies they were always fighting against. The organization was very much like that of the present time; they had their regiments, troops, and companies, and always fought in three lines, the second line to cover the intervals in the first, and the third to cover the intervals of the second, so that to the enemy in the distance the front line would appear to be unbroken. Each soldier had room to use his arms, and did not touch, shoulder to shoulder. In the old Roman wars cavalry was thought but little of, until they learnt it some time after. After the fall of the Roman Empire the military art as an art seems to have disappeared. The cavalry, then called knights and men at arms, became the only important part of the army, and the infantry was thought but little of. The battles were almost entirely carried on by these knights and men-at-arms. In the fourteenth century gunpowder was first introduced, supposed to have come from China, and was destined to work great changes in the art of war. It was first used for cannons only—the only guns then—being heavily constructed and simply used, instead of the old battering rams. It is said that the English used cannon at the battle of Cressy. The hand gun was not invented until the beginning of the fifteenth century. It was very rudely constructed, being simply held in the hand and fired off by means of a matchlock, and was a very uncertain weapon. At that time only a very small portion of the infantry were armed with the hand gun. The next improvement was giving it a lock, it was then called the harquebus. In that century a general appeared who really left his mark on the military science, namely, Prince Maurice of Nassau. During the sixteenth century the hand-gun got more into use as the weapon became more and more perfect, and additional improvements were made upon the lock. One remarkable feature was the gradual disappearance of armour, until at length it disappeared altogether. They had now got as far as the seventeenth century. Gustavus Adolphus, King of Sweden, next appeared as a military reformer. His improvements were made more with regard to equipment than in tactics. He increased the power of the military by the invention of cartridges. He (the lecturer) had no doubt but even then some wiseacres shook their heads, and said, "these cartridges are fearful things," the same as was said about their modern breech loaders. There were always people to find fault with new inventions. A great improvement made by Gustavus was the formation of brigades consisting of two regiments each. This system was very soon copied by the other European armies. During the early part of the seventeenth century the Dragoons were introduced, but they gradually fell into disuse, until nothing was left of them but the name. Their name was, as far as he could trace, derived from the weapon they used, a small harquebuss, with a large dragon's head upon it, so that they were called "Dragoons." About 1635 the infantry gave up the pike. He (the lecturer) was, however, old enough to remember seeing pikes carried by the military. Frederick the Great was another reformer of tactics. He accustomed his troops to march in open column with the utmost precision, and then to suddenly wheel in a line, without scarcely a single distance being lost. The extraordinary perfection to which he brought his troops was really marvellous. He took the clumsy firearms away from the cavalry and gave them the sabre instead, and taught them how to charge at speed, and and keep in tolerable order. He also taught his army to adapt itself to the ground, instead of making the ground adapt itself to the army; and when he found himself at war with three great military powers in Europe, he proved himself a match for them all. Frederick also introduced the use of the iron ramrod, instead of the wooden ones, previously used by the infantry. Frederick's tactics were soon adopted by all the continental nations. One great alteration was made by the First Napoleon, viz., in making a small army complete in itself, called the *corps d' armee*. He also massed his cavalry and artillery together. The gallant officer then alluded to the impossibility of getting other soldiers to fight in line, the same as the English. There was always a great support given by a mass, whereas when they were formed into line, and saw a heavy front coming towards them, they generally lost their confidence; but it was not the case with Englishmen. With regard to themselves, they were modifying their tactics quietly. There was some individuals wanted them to become thoroughly Prussianized; but if they adopted the Prussian system, one very important man amongst them would have to disappear—namely, the adjutant; and the present system had worked so well that it seemed a pity to upset it. After a few more remarks on the half battalion system the gallant officer concluded his lecture, which was listened to throughout with the greatest attention.

General Sir Hope Grant proposed a vote of thanks to the lecturer for the highly instructive lecture he had delivered, which was carried unanimously.

Our contemporary, the United States *Army and Navy Journal*, seems determined to give the torpedo system no quarter. The following review of a very valuable work on the material construction of artillery is copied from the issue of the 7th March:—

"The report of Captain Edward Simpson and Lieutenant Commander J. D. Marvin, U. S Navy, on "a naval mission to Europe more especially devoted to the material and construction of artillery," issued by the Government Printing Office, Washington, in two volumes, is a work chiefly made up of the reports and experiments of the English, French, German, and other foreign Governments. It is very handsomely printed with large clear type and ample margins.

"As the torpedo is at this time by far the most interesting matter with naval *materiel*, we searched through these volumes to see what they contained on the subject. After leaving the description of submarine mines, misnamed "torpedoes"—being the instrument advocated by Major Abbott, of the Torpedo Station at Willet's Point, for the defence of harbors—we come to the "Whitehead torpedo." Of this the report says: "No accurate description can be