

THE MARTINI-HENRY RIFLE.

Once more, in a time of profound peace, has England taken the lead in the art of killing. After many months spent in careful investigation of the subject, the Special Commission on Breechloading Rifles has issued its report. The number of weapons tried, the thorough nature of the experiments, and the clearness of the result cannot but lead to the conviction that the arm recommended by the Committee is the best now to be found in existence. How long it may remain so is another question, for the speed of the mad military race to catch one prize after another seems unabated. On the 27th of June, 1864, Major-General Russell's Committee sat at the War Office to take evidence and "report upon the advisability of arming the infantry either in whole or in part with breechloaders." A popular error prevails that the campaign of 1866 caused the first introduction of breechloaders into the English service. This is very far from the truth. British cavalry have been armed with breechloading carbines for many years, and Major General Russell's Committee reported on the 11th July, 1864, that their opinion was "in favour of arming the infantry wholly with breechloaders." About the same time news came to England that the Emperor of the French had decided upon giving arms of the same description to his troops. Lord de Grey, who was then Secretary of State for War, immediately decided upon converting the old Enfield rifles into breechloaders, if possible, and appointed a committee on the 1st of August, 1864, to decide upon the system to be adopted. It was recognized that this was only a temporary measure, and that the questions relating to size of bore and best form of cartridge must be reserved for future consideration, when new arms were likely to be manufactured. Many inventors came forward in response to the Committee's invitation, and of the various systems seven were selected for thorough trial on the 11th of October, 1864. Six Enfield rifles were forwarded to each of the seven competitors, two months being allowed them for performing the operation of conversion. On the 19th December a Minute of the Director of Ordnance gave the President of the Ordnance Select Committee the conditions laid down in France "as required to be fulfilled in the breechloading arm of the French infantry." Among them was that of a cartridge carrying its own priming. On the 14th of March, 1865, more than a year before the Bohemian campaign, the Committee reported that the Snider was, on the whole, the system best fulfilling the conditions required. It was the only one adapted for a cartridge carrying its own ignition, Mr. Joslyn having failed to deliver his arms at the time named. The Snider shot badly, but that was the fault of the ammunition. Colonel Boxer set to work upon the cartridge and Colonel Dixon upon the rifle. The Snider system under their hands progressed rapidly in efficiency, and became the English arm of the present day. But this course, successful as it proved to be, displeased several inventors. Pressure was applied to the Government in the House of Commons, and a Special Committee was appointed to investigate the whole question of rifles and ammunition under the presidency of Lieut. Col. M. C. Fletcher, Scots Fusileer Guards. The members were—Captain J. Rawlins, 48th Regiment; Captain W. C. Mackinnon, 3rd Regiment; Earl Spencer, K.G.; and Mr. Edward Ross. The secre-

tary was Captain R. W. Haig, R. A. After certain preliminary reports, considered by the committee to be unsatisfactory, the Secretary of State for War decided that their labours might be extended and their powers enlarged, and this was made known to them on the 10th of December, 1867. Since then an elaborate series of experiments have been in progress, resulting in the recommendation of the Martini-Henry arm for adoption into the service. The report just published is very interesting, and forms a most valuable contribution to the history of military weapons. It cannot fail to be taken as a text-book by foreign Governments.

In their preliminary reports the Committee awarded the prize for breech mechanism to Mr. Henry, and for the cartridge case to Mr. Daw, because the Boxer or Government cartridge which was found to be best was not allowed to compete for the prize. In proceeding to solve all the questions which were to be answered before their decisions could be made the Committee agreed to separate the complex difficulty into its several parts. Previous experiments and a great weight of testimony enabled them to fix the weight of the bullet to 480 grains, the calibre at .45 of an inch, the weight of barrel at 4lb. 6z., its length at 35in., though we detect a desire to shorten the barrel still further, and with this desire we most cordially agree. The only objection to doing so is that the total length of the arm with bayonet would be shortened, and to this we reply that,—first bayonet work may be considered as almost obsolete in war; and, secondly, if the present length of stabbing apparatus must be retained in deference to prejudice it could be much more usefully attained by substituting for the bayonet a short sword similar to those already in the service with a saw back. Thus would be gained a weapon capable of cutting down small trees or brushwood and of performing all the functions of a saw and a knife as well as the sole purpose of a bayonet, that of stabbing. To these fixed data were added a powder charge of 85 grains and the Boxer cartridge case.

Nothing now remained but the rifling of the barrel and the breech mechanism. It was decided that all the different barrels should be tested with the same breech mechanism, and as Mr. Henry was prepared to apply his system to all the barrels quicker than the Snider action could be applied to them at Enfield, they were placed in his hands. Meanwhile the trial for breech mechanism was proceeded with.

First, the Committee tried the breech actions for rapidity, 20 or more shots being fired. Then they threw sand over them, both open and shut, to represent the effects of a sand storm in India. Their next test was proof with cartridges purposely damaged so as to insure a burst in the barrel. If all was satisfactory so far, and there were no defects as a military arm, the rifle was put through a long course of long continued firing, being allowed to rust at intervals between the days of shooting. Not only were the rifles left exposed to ordinary atmospheric effects, but water was thrown over them both when the breech mechanism was closed and when it was open, and they were left unwiped for several days and nights, then fired without cleansing. It was recognized that, in spite of every care in manufacture, isolated cartridges are liable to be unsound, and besides ammunition may be accidentally damaged, so the Superintendent of the Royal Laboratories prepared a series of cartridges containing 12 different

defects. It is not to be wondered at that many systems failed to stand these extreme trials, nor are they on that account to be pronounced radically bad; but certainly the arms that passed through such crucial tests cannot be otherwise than first-rate for all conditions and climates.

The bolt system, including the Chassepot, needle-gun, and all modifications of both, was rejected, after careful trial, as liable to miss fire or accidents. It would be an invidious task to declare the reasons for the rejection of various private arms, but the defects noticed in those already adopted by foreign Governments may be stated without offence. The Berdan, a system numerous examples of which have lately been imported by Russia from the United States, was tried in two forms, with side lock and with sliding-bolt. In the first, great care is required lest the hammer should fall on the hinge that closes the breech instead of on the striker. The apparatus becomes fixed if exposed to rain. The second has the various disadvantages of bolt guns. The Chassepot was found to miss fire and foul about the point of the breech bolt. The needle was sometimes clogged. After a miss-fire the ramrod must be used to push out the cartridge. In the latest patterns submitted to the Committee only a few days ago some of these defects had been remedied, but after a few rounds there was a difficulty in forcing the cartridge into the chamber. The ammunition does not resist rain. The Peabody was withdrawn because the Committee preferred other systems on somewhat similar principles. The breech action jammed in rapid firing. The Prussian needle-gun was slower and more difficult of manipulation than any other systems before the Committee. All the objections to paper cartridges apply to this famous arm, which has been superseded in the rapid progress of breechloaders. There was a great escape of gas at the breech. The Russian converted arm—Carl system—became unserviceable when fine sand was thrown over the breech. The French conversion is liable to the same accident. The Austrian converted arm—the Wänzel—is liable to occasional miss-fires, and the cartridge case is sometimes left unextracted. The Austrian new rifle—the Werndle—becomes choked by sand or dirt, and the action of the extractor is uncertain.

After careful elimination of all rifles showing defects as military weapons, two very excellent ones remained—the Henry, which had won the prize in the previous competition, and the Martini. Certain modifications in both the one and the other had suggested themselves during the trials. An improved Martini and an improved Henry were manufactured for the final competition. Again were they subjected to elaborate experiment, and the Martini was finally selected. The Committee found that in safety the two systems were equal; in strength there was nothing to choose between the two; in number and simplicity of parts the Martini had the advantage, the pieces being 30 (by latest improvements 27), while the Henry had 49 parts. The Henry had, besides the disadvantage of an extractor plate soldered on to the barrel. The committee considered the Martini superior in simplicity of parts. In facility of manipulation either system seemed almost perfect, but the Henry has a side lock which might become wood-bound on exposure to wet, while the Martini action is completely enclosed within the metal breech block. The cost of the Martini is slightly less than that of its competitor. But while definitely