THE

MECHANICS' MAGAZINE.

LONDON, FRIDAY, AUGUST 12, 1864.

THE FUTURE OF THE ARMSTRONG GUN.

In the opinion of a very few who know a little about the real merits of the question, and in the opinion of a great many who know next to nothing of the matter, the comparative success which has attended recent experiments with the 600-pr. casts a bright halo around the setting sun of Sir William Armstrong's fame as an artillerist. We have been content for a while to stand by and suffer things to take their course. We have read *usque ad nauseam* column upon column of dreary platitudes, each after each exalting and glorifying his great guns at Shoeburyness. We have heard the shunt system lauded, as though it bore the same relation to other systems of rifling that the philosopher's stone might to the ordinary methods by which the modern metallurgist wins gold from quartz or from auriferous sand. But the time has at last come when we would fail in our duty did we keep silence any longer. It is not good that Englishmen should be lulled into a false security by the gentle spiriting of venial journalists. The time has arrived when it is right to clear away the mists of newspaper nonsense which have enwrapped the future of the Armstrong gun. It is no doubt a good thing in one sense that the nation possesses a gun capable of burning seventy pounds of powder at a charge without proximate failure. That "Big Will" can also do a good deal in the way of smashing targets, we admit, and that cheerfully; but, with the statement of these two facts, all that is good about the 600-pr. is summed up, everything has been said which can be said in favour of Sir William's last venture, and it is all too easy to summon up a dismal array of other facts which prove that we do not as a nation possess a 600-pr. which it would be for a moment advisable to mount on the deck of an English ship, or on which it would be wise to pin the supremacy of the British navy. In a word, however successful as a Shoeburyness gun the 600-pr. may have been, it must prove a wholly impracticable piece on board ship, unless it is found susceptible of an extraordinary amount of modification from the present type. The exact diameter of the gun is 13·3 inches; the original windage allowed was ·005 of an inch. With this windage it was found to be next to impossible to load the gun after a very few rounds. The shot has, therefore, been reduced in diameter by yet another ·001 of an inch, and even with this, nine or ten rounds foul the gun so much that, even after the use of a bucket of water and a good deal of swabbing out, four men armed with a heavy rammer can scarcely drive the shot home. Is this the proper gun for the excitement of a naval action? is this the gun for use in a rough sea? We trow not. The shot is an elongated projectile merely in name. The turn of the rifling is only about 1 in 56. The resistance due to a sharper twist is more than the gun could stand, and the result is that long shot cannot be used—they turn over like a boy's arrow without a feather—and so the projectile has been shortened until it really weighs but five-hundred and twelve pounds, and, excluding the very short conical head, its lengt his very little greater than the diameter of the bore. The shells are, it is true, a little over twenty inches long and weigh a little more than 600 lbs.; but "Big Will" can do nothing with shells, shooting as wild as a London cockney the first three days of his first season on a Scotch moor. The gun, too, has in all fired but about one hundred rounds, and yet the interior shows shakes, cracks, and flaws. The fact may be denied, but it is not the less a fact. Verily the future of the pseudo 600-pr. is not very promising.

Let us take a step or two lower in the scale of guns. An account will be found elsewhere in our pages of the recent experiments with Professor Poles', or the "French target," as it has been called. In describing these experiments, the *Times* writes thus:—"No matter what the target or the system of coating, whether it be Chalmers's or the French plan, six-inch plates, a cupola ship, or one of the 'Warriors' or 'Minotaurs,' the guns we have now got of Sir William Armstrong's go through all alike." More absurd nonsense never was written. That any gun capable of burning a heavy charge of powder will pierce plates, was known long since; but the power of doing this is certainly not confined to the Armstrong gun of any calibre. The coil system is not, and never was, Sir William's, and this is the only feature in his guns which can have anything whatever to do with their powers of endurance. The guns of a great many other inventors "will go through all alike;" but this is a fact which the *Times* either cannot, or will not, know anything about. The 110-pr. breech-loading Armstrong absolutely failed, with 12 lbs. of powder, to penetrate Mr. Poles's target. The shot entered the front plate, it is true, but it stuck there, and did not even start the backing. For all we know to the contrary, the steel projectiles may be seen at this moment sticking half in and half out of the upper plates of the target; and be it noted that these were the three plates of the structure having a thickness of but 4.75 in., while the lower plates were nearly 6 in. We have not done yet with the 110-pr. Experience has proved that it is incapable of sustaining 14 lb. charges, and for some time past 100 lb. leaded shot has been made in quantities to suit the reduced charge of 10 lb. of powder, the greatest that the gun can carry with any approach to safety. We are in a position to state that the further manufacture of this shot has been arrested, and that it is all but decided that *all the* 110-*prs. made—some* 1,050—*at a cost of* £750 *each, are to be called in and altered into muzzle-loaders,* the immediate cause being a multiplicity of casualties, of which the public have been kept in profound ignorance. Among others, we may state that one poor fellow has recently had his leg taken off by the failure of a vent piece. Our sailors are afraid of Sir William's handiwork, let the press disguise the fact as it may; and those who use his guns are really the best judges of their merits.

It has been urged before now that, although the success of the 110-pr. is to a certain extent admittedly problematical, yet the smaller guns are perfectly satisfactory. This is only another of the forms which the "thing which is not" can assume. Facts are better than opinions. Not very long ago 100 70-prs. were ordered from Elswick, at £450 per gun, and 160 of the like calibre were made at Woolwich. These breech-loaders are at the present moment undergoing the process of conversion into muzzle-loaders in the Government factories. Before the guns were completed the countermand arrived, but they were too far advanced to be altered without an outlay of, at a guess, £75 per gun. The first cost was, as we have said, £450, and, as the chamber or slot for the breech apparatus is already provided, it is easy to see that the almost total reconstruction of each gun is entailed by the alteration. This is what is being done to each unlucky cannon. It is being re-lined, fitted with a new breech, and the reinforce at the present breech taken off and shrunk on again nearer to the trunnions. There is not an engineer among our readers who will not admit that our estimate of £75 is too low. As to the rifling, nothing has yet been decided. About twenty of the altered guns were rifled with shunt grooves; a very few experiments sufficed to prove the folly of this course, as the guns were greatly damaged in firing. How the matter will be ultimately decided, we cannot state at present. It is probable that the nation will know in time.

The 12-pr., far famed for service in the field, is not more prosperous than its larger brother. Already it stands a fair chance of being completely superseded, and that, too, by the old fashioned brass gun, turned out of favour by Sir William's exquisite (?) mechanism. A vast number of brass guns are still in stock, and so far from finding their way to the melting pot, they are just now being prepared by the score for active service. For the present we rest satisfied with the simple statement of a fact, from which the sagacious reader will easily draw correct deductions.

A very few years have passed away since those in authority stated that the Armstrong gun required no allowance for deflexion, that is to say, the projectile deviated neither right nor left up to a range of one thousand yards. The 110-pr. has undergone a good deal since then, and it now appears that, in consequence of the reduction in the charge of powder from fourteen to ten pounds, it must be re-sighted to allow for the variation in the deflexion to the right which has always had existence, consequent on the reduction in the charge. Re-sighting costs only £12 per gun—a mere bagatelle, of course, like every item expended on the Armstrong scheme. All the shot delivered from Elswick, too, for these and various other guns require re-leading, the jackets having started or blistered to such an extent that they will no longer fit the chambers of the guns. The fact that this blistering takes place has been explicitly denied more than once; but facts are stubborn things, and the melting pots at Woolwich have had quite enough to do in clearing off old coats for some time back to prove that the "small pox," as the men expressively term the leaden epidemic, has been very bad indeed lately.

The future of the Armstrong gun looks dark and grim for those who take an interest in its success. After the expenditure of millions on his ideas and his schemes, Sir William has absolutely failed to provide us with a gun worth the first cost of the material used in its manufacture. Mechanically wrong in principle, his ordnance can never be right in fact, and we trust that the day is not far distant when his gun and the gigantic job which led to its construction will have alike become matter of history. There is evidence of a healthier tone, a better feeling in this matter on the part of the Government, and we acknowledge the fact with pleasure; but it will not do meanwhile that the people should be induced to believe that Sir William has yet great things in store for them, or that, for the gun of the future, the nation is to be in any way indebted to Elswick or its owner.

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