

## A NEW CANNON.

The "Woolwich Infant" is no longer a prodigy. The public has become familiar with its appearance and performances, and also with some ugly rumours about the effect on it of charges which were probably unduly and unfairly large. We have now nine or ten of these monsters. But a new gun is about to be produced—a gun of 36 tons, which will be some three feet longer than the "Infant" and be otherwise greatly improved in shape. Any one who has seen a member of the Infant family must admit that whatever may be their strength, a more ugly, squat, thick set race never existed, while on the other hand the proportions of the newly designed cannon will be so slender and tapering as to be almost graceful in appearance. It will be calculated to stand a greater charge of powder and be doubtless more true in aim at long distance than the 35 ton gun. The new gun is to be employed on land for harbour defence, most probably in some of the new forts at Plymouth, while the use of the Woolwich Infant will be confined to the navy. Of these latter it will be remembered the ironclads *Devastation* and *Thunderer* are each to carry four, in armour turrets, the guns being mounted in pairs, side by side two in each turret, so that their whole force may be brought to bear at one time, if necessary. In this way nearly a ton and a half of metal—for the shot weigh 700 lbs. each—will be discharged at once, a greater weight than was ever thrown in a broadside by the old first class men-of-war carrying their 120 or 130 guns. And how much more effective the projectiles from these heavy rifled guns will be, it is easy to imagine. The reasons which have led to the construction of a still heavier gun are based, no doubt, on the desire to employ more powder, and thus to expel the shot with greater velocity, and perhaps more certainty. As it is, the penetrative power of the present gun is equal to piercing an armoured plate 1½ inches in thickness at 50 yards while at the distance of 1,000 yards or more the shot would go clean through the side of the *Hercules*, one of the stoutest ironclads afloat, which has solid iron walls 12 inches thick. These results are obtainable with 80 or 90 pounds of powder, and if this charge is increased in the "Woolwich Infant" to any great degree—say to 110 pounds—no corresponding energy is put forth, for much of the powder is then thrown out of the muzzle unburnt. By lengthening the gun, therefore, and without enlarging the bore, it will of course be possible to burn more powder before the shot issues from the gun and it is hoped a higher velocity and greater battering force will be obtained; the full power of the weapon being, in fact, put into requisition. Instead of 90 pounds of powder 110 may be employed, while the strain upon the inside, or core, of the gun, will not be

greater than before. Again, it is feared by many that the bore of the present 35-ton gun—twelve inches—is greater than is compatible with its perfect safety. It will be remembered that in the first instance its diameter was but 11 6 inches, but that afterwards the tube was bored out (and consequently weakened) in order to take a 12 inch projectile. No divided opinion, however, appears to exist as to the capability of the new 36 ton gun to throw with such a projectile, and, therefore, while this weapon will perform a heavier task than its predecessor still that task will be performed with more efficiency and safety. As the gun will not be employed afloat, there need be no restrictions as to length, and consequently all conditions requisite to its proper manufacture can be complied with. It is to be built like the other upon the Frazer system—that is to say, with a steel tube and wrought iron jacket. The solid pillar of steel, which is bored out to form the tube, is a very costly affair, and by itself is valued at £500. About 50 tons of wrought iron will be employed for the outside jackets, or cylinders, to clasp round the steel tube, as much as 30 tons of metal being required for one part alone. These cylinders are made, as the readers may know by heating long bars of iron, somewhat resembling railway iron, and coiling them when at a white heat round a huge reel, so as to form a spiral of glowing metal. This spiral is afterwards put into a reverberatory furnace, and then hammered or welded under a steam hammer until it forms a hollow cylinder, and these cylinders are then placed round the steel tube, thus forming the gun. The bar of iron for making the principal cylinder in the 36 ton gun will be upwards of 1,200 feet in length, and the furnace in which it is placed, when twisted into a spiral or coil, is a roomy apartment, in which twelve or fourteen people might dine comfortably. As a matter of course, forgings of this gigantic nature necessitate machinery of a most stupendous character, and arrangements are being actively carried on at the Royal Arsenal at Woolwich for the erection of a 30 ton steam hammer which with a full jet of steam, will be capable of striking a blow of several hundred tons.—*London Daily News*, May 11.

It is creditable to the Prussians, remarks the *Pall Mall Gazette*, that in Prussia itself is published the severest criticism of the Prussian army, which abroad, and especially in England, finds too many indiscriminate admirers. In reference to the new version of the military penal code in preparation, Prussian captain has published book called "Education and Discipline in the Prussian Army," of which some account is given in a late number of the *National-Zeitung*. One of the chief aspirations of the author is that the good understanding which has existed in Prussia between the army and the civil population since 1866 (but which notoriously had no existence before that date) may be perpetuated; and this condition of things is only he thinks, to be secured by developing the

patriotism of the citizens and raising the moral tone of the soldiers. He protests against the popular saying that "the Prussian schoolmaster beat the Austrian schoolmaster at Sadowa," which he considers not a true observation but merely an effective phrase in the French style. The Prussian soldier has no time, he says, for study during the short period that he remains with the colours; and in spite of compulsory education, he often joins his regiment with only the slightest smattering of rudimentary knowledge. Examining his soldiers year by year as they joined his company, this officer found that out of forty, about five or six could read and write well, and were in a position to continue their education. From sixteen to nineteen could read and write moderately well; while ten or twelve were only beginners, and one or more, generally Poles—who can scarcely be expected to profit much by German schools—had learnt nothing whatever. Out of fifty recruits only one could say a single word about the war of liberation in 1813; and at most five were acquainted with the principal points in the national history of the eighteenth and nineteenth centuries. It is surmised that these five had not pursued their studies so far as to reach the history in detail of the 1813 campaign. The published statistics on the subject of education in the Prussian army are, it seems, very misleading, inasmuch as every soldier who possesses the least knowledge of reading and writing figures on the list of those able to read and write.

Horse Guards, 18th May, 1872.

My dear Colonel Scott,—

I have just read your most interesting report of the journey you made in command of the party that went last autumn to Fort Garry, and I take the liberty of writing to congratulate you upon the successful manner in which you carried out your orders. You had a dangerous and a difficult duty to perform, and you did it well and ably. I have always had the highest opinion of the Canadian militia, and indeed I never desire to command or to serve with better men. What any other soldiers can do, those of Canada can do likewise. I am glad to find from your report that notwithstanding the great hardships your men were exposed to, all reached Fort Garry safely. I always look back with the greatest pride and pleasure to my connection with Canadian soldiers, and take the utmost interest in everything regarding their welfare. Again congratulate you upon the success of your expedition.

Believe me to be,

Very truly yours,

G. J. WOLSLEY.

*Broad Arrow*, in an article on Lord John Hay's offer to be in the *Glutton's* turret which it undertakes the *Hafspur* fire, says— "It is the opinion of many of our ablest seamen that the concussion caused by the blows of heavy projectiles will greatly hinder if not paralyze, the crew, and make it impossible for them to work the guns. Our readers may not generally be aware of the effects produced upon the Southern ram *Albemarle* by the ramming she got from the United States Squadron. We may state for their information that the crew were reduced to the state of a pitiable crowd of paralytic patients, and the vessel at last surrendered, not because of the damage she had received, but because the stoutest men on board were like the little doll's dressmaker