

CONTENTS OF No. 22, VOL. VIII.

POETRY.—

William and Susan..... 232

EDITORIAL:—

Torpedo Attack and Defence 233

Electoral Warfare..... 234

Military Bridges..... 235

Queen's Birth Day Celebration in Ottawa..... 236

The News of the Week..... 237

CORRESPONDENCE:—

Captain R. Y. Ellis..... 237

RIFLE COMPETITION:—

Ingersoll Rifle Association..... 237

SELECTIONS:—

Annual Report on the State of the Militia for 1873..... 238

Electric Torpedoes..... 239

Royal Engineers..... 239

Tallot, Earl of Shrewsbury..... 239

Lecture on the Connection between the Ordinary Work of Soldiers, &c., by Lieut. Maurice, R.A..... 240

REVIEWS..... 243



The Volunteer Review,

AND

MILITARY AND NAVAL GAZETTE.

"Unbribed, unbought, our swords we draw,
To guard the Monarch, fence the Law."

OTTAWA, TUESDAY, JUNE 9, 1874.

TO CORRESPONDENTS.—Letters addressed to either the Editor or Publisher, as well as Communications intended for publication, must, invariably, be pre-paid. Correspondents will also bear in mind that one end of the envelope should be left open, and at the corner the words "Printer's copy" written and a two or five cent stamp (according to the weight of the communication) placed thereon will pay the postage.

LIEUT. J. B. VINTER, of Victoria, is our authorised Agent for Vancouver Island, British Columbia. As is also Captain H. V. EDMONDS for New Westminster and adjacent country.

OWING to the illness of the Proprietor of the REVIEW last week, who was confined to his bed during the entire week, several errors occur in the General Orders, which were not detected until the entire edition was worked off. We have therefore, deemed it advisable to republish them in a corrected form—they will be found on 12th page of to-day's paper.

BELOW will be found the translation from *Revue D'Artillerie*, October 1873, of a "Note upon recent experiments with

the *Vasasseur* Rib-rifled Gun and the *Woolwich* steel gun carried out by the Bourges Commission."

The *Vasasseur* gun is not grooved—it is ribbed; the projectile shot or shell is grooved so as to fit the projections or ribs on the inside of the bore accurately, the object being to give the projectile the necessary rotation demanded by the physical laws which govern its flight.

As is well known the *Woolwich* gun is grooved—the centering of the projectile and its rotation is attempted to be secured by studs of soft metal which fit the grooves. There is a third system proposed by Captain SCOTT, R.N., in which the projectile is ribbed. In the present experiments the *Vasasseur* gun has proved itself inferior to the *Woolwich* gun in one essential particular—both are muzzle-loading guns—and it appears that the *Vasasseur* is more difficult to load than the *Woolwich*, a very material difference indeed, and one for which no accuracy or length of ridge would compensate; nor does it appear there is any likelihood of this evil being obviated except by the introduction of another evil of corresponding magnitude—i.e. increasing the windage—as the theory of value of rifled artillery over smooth bore depends altogether on the total elimination of windage, it follows that the *Vasasseur* gun is so far a failure as indeed is also the *Woolwich* system in the same particular, and all muzzle loading rifled cannon using projectiles that cannot be forced home by the rammer partakes of the same fatal defect. There is very little to be heard about the Scott system lately but it must inherit the same constitutional and radical defect from which there appears to be no escape except a return to the breech loading system devised by Sir W. ARMSTRONG.

It would appear as if that system had been too hastily abandoned—its defects seem to have been a tendency to strip the leaded sabot of the projectile and the rifling was faulty in design. It is reasonable to suppose that such comparatively trivial defects would be rectified while the main features of a system so applicable to the requirements of Modern Ordnance should be preserved, especially as subsequent experience has proved that in order to obtain the greatest possible effect from gunpowder in propelling rifled projectiles the chase or barrel of the gun must be abnormally long, and to such an extent must that feature be carried, that in the latest improvement of the iron clad fleet, of Great Britain arrangements have to be made for loading the gun on the outside of its port which is not only a defect but a source of weakness as well as serious danger. As the improvements in gun carriage by Major MONCRIEF and Capt. SCOTT, R.N., have diminished or totally absorbed recoil, it is very evident that in either ship or fortress the gunners will have less labor and less men as well as machinery will be required to train and fire a breech-loading than a muzzle load-

ing gun, therefore *Armstrong's* system is first in point of material economy—its defects are merely mechanical, and there can be little doubt but patient perseverance would entirely obviate them; indeed the system adopted in its stead has quite as many radical defects and has the further disadvantage of employing the maximum of manual and mechanical power wholly exposed—whereas in the breech-loading system nothing should be exposed save the muzzle of the gun.

"Note upon recent experiments with the *Vasasseur* Rib rifled gun, and the *Woolwich* steel gun, carried out by the Bourges Commission. Translation from '*Revue d'Artillerie*,' October 1873, p.p. 81 to 88.

The experiments previously made with the *Vasasseur* rib rifled gun, firing projectiles of 12lb., and the *Woolwich* gun of the same calibre, fired with projectiles of 9lb., suggested the idea to Mr. VASSEUR of making the comparison more conclusive by firing the two guns with the same projectiles. For this purpose Mr. VASSEUR altered, in order to adapt them for his rib-rifled gun, 200 *Woolwich* shells already fired, by turning off the buttons, and forming grooves in the cylindrical part suitable for the ribs of the gun to go in.

The Bourges Commission has tried these new projectiles, together with the 12lb. shells previously used in the rib rifled gun and the ordinary *Woolwich* shells (fired from a steel gun), with three different charges of English powder, R.L.G., viz.:

1 lb. 12 oz service charge for the *Woolwich* gun.

2 lb. charge adopted by Mr. VASSEUR; and 2 lb. 3½ oz. (1 kilo).

It has been determined that the altered *Woolwich* shells should, in the practice, receive the same bursting charge as ordinary *Woolwich* shells. From the mean weight found for the empty projectiles they have been filled to weigh 8lb. 10½oz. including a wooden plug to represent a Boxer time-fuze. As in the previous experiment, the *Woolwich* shells were filled to weigh 9lb. including a similar wooden plug, and the *Vasasseur* shells to 11lb. 4½oz., including a metal plug.

The results ascertained from taking the velocity, from the firing, and from the examination of injuries and enlargements caused in both guns have allowed of:—

- 1st. The determination of suitable service charges for the *Vasasseur* rib-rifled gun and the *Woolwich* steel gun.
- 2nd. The comparison between the two guns firing the same projectiles, viz. 9lb., with the same charge, viz. 2lb.
- 3rd. The comparison in the rib-rifled gun between the modified *Woolwich* shells and those of the pattern first adopted by Mr. VASSEUR.

I. It has been found that the service charge suitable for the rib-rifled gun is 2lb., the same as that adopted by the manufacturer.

This charge gives with the modified *Woolwich* shells an increased initial velocity of 82 feet per second, an increase of 284 yards in range at 14° elevation as compared with the charge of 1lb. 12oz. The accuracy is rather greater with 2lb. than 1lb. 12oz.

The advantages of the 2lb. charges are therefore very marked. The gun seems as if it would stand a very great number of rounds with the 2lb. charge. It is advisable