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The Volunteer Review,

AND

MILITARY AND NAVAL GAZETTE

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

OTTAWA, TUESDAY, JUNE 20, 1876.

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" placed thereon will pay the postage. No communication, however, will be inserted unless the writer's name is given, not necessarily for publication, but that we may know from whom it is sent.

WE have for the past *nine* years endeavored to furnish the Volunteer Force of Canada with a paper worthy of their support, but, we regret to say, have not met with that tangible encouragement which we confidently expected when we undertook the publication of a paper wholly devoted to their interests. We now appeal to their chivalry and ask each of our subscribers to procure another, or to a person sending us the names of four or five new subscribers and the money—will be entitled to receive one copy for the year *free*. A little exertion on the part of our friends would materially assist us, besides extending the usefulness of the paper among the Force—keeping them thoroughly posted in all the changes and improvements in the art of war so essential for a military man to know. Our ambition is to improve the *Volunteer Review* in every respect, so as to make it second to none. Will our friends help us to do it? Premiums will be given to those getting up the largest lists. The *Review* being the only military paper published in Canada, it ought to be liberally supported by the officers, non-commissioned officers, and men of each Battalion.

...icle is condensed from ... of the 15th April, the *Spectateur Militarie* ... ce between ... and gives a fine idea of the differen... ving the "Krupp and Woolwich Guns"—the a weight of 56½ tons, the latter of 81 tons—the former taking a charge of 297 lbs. of powder to throw a shot weighing 1144 lbs., the latter 229 lbs. to throw a shot of 1256 lbs.

The *Spectateur Militaire* forgets that while the heavier gun (the Woolwich) has to sustain a pressure of *twenty one* tons to the *square inch*, the lighter (Krupp's) will have to sustain a pressure of *twenty eight* tons—a difference not warranted by the ratio of tenacity of the respective metals on which the life of the guns depend, nor by the supposed advantage in propelling a lighter shot at an increased velocity—so far, the comparisons are not in favor of Krupp's system, more extended trials would likely disclose greater defects.

"It cannot be denied that Krupp's grand steel-foundry at Essen has sustained with advantage, and almost with glory, a contest with the greatest arsenals and foundries of the world—whether public or private. China and Japan, desiring to secure their coasts against the aggressions of European Powers, have employed Krupp guns for the most part. In Spain, the triumph of Constitutionalists over the Carlists has been mainly due to the employment of the former in the recent battles of Krupp field-guns of 87 mill. (3½ inches) and siege-guns of 15 cent. (6 in.). Austria, in hopes of being able to dispense with the Krupp steel, strongly encouraged the attemps of General Uchatius to discover a mixed metal which would produce equally good results, but experience has shown that his compressed bronze does not possess the necessary homogeneousness or tenacity, and that at least twice as many of these guns have to be rejected for fissures and erosions after long firing with high charges as are able to support the test. In Italy, the Government, in pursuance of the somewhat pompous eulogies of the press, instituted experiments with the compressed bronze at the Turin foundry, under the direction of the distinguished General Rosset; the results were so decisively unfavorable to this metal that the Government have definitely abandoned it, and have just ordered 400 field-pieces from Krupp.

...ich attended experiments with heavy Krupp guns, calibre 30.5 cent. (11 9 inches), in 1872-73, excited the zeal of the English, and Woolwich Arsenal turned out guns of eighty tons for piercing armour-plates. These were tried in 1875, and gave good, but not decisive, results. Upon this, Sir W. Armstrong concluded a contract with the Italian Government for eight 100-ton guns for armament of plated vessels now in progress, at the price of over £16,000 each (400,000 francs) for the gun alone, without carriage; these, however, have not yet been made.

"Hereupon Krupp has constructed a gun of the calibre of 35 5 cent. (13.9 inches), weighing 57.4 metrical (fifty-eight English) tons—that is, nearly a third less than the Woolwich guns, and little more than half that of Armstrong's. This gun, tried on the 27th December, 1875, appears to us (*Spectateur Militarerc*) to be the *ne plus ultra*, and to fulfil all required desiderata.

"This gun is of cast steel, and weighs, with Krupp's cylindro-conical breech closer, 57,500 kil. (56.5 tons); length, 8 metres, or 22½ calibres, the calibre of the rifled part being 35.9 cent. (14 inches.) The grooves are eighty in number. The carriage, which has the modern elevating arcs and hydraulic check, weighs 34,000 kil. (33 tons), making the total weight of the gun and carriage ...1 500 kil (90 tons); 10,000 kil. (9,8 tons) ... Armstrong's new gun, even without its carriage. ...les are shell of three kinds, ... less than ...

"The projec... and ordinary cast iron steel, hard cast iron, ... is 2.8 calibres (39 with a fuse. Their leng... ...el shell is 495 inches) The weight of the st... ...l (33lbs.); kil. (1089 lbs.), bursting charge 15 k...

of the ordinary cast iron shell is 80 kil. (836lbs.), charge, 30 kil. (66lbs.). The experiments were made at Essen with cylindical flat-headed projectiles of an average weight of 520 kil. (1144 lbs.). The best results were obtained with a prismatic powder with single channel, of which 100 prisms weighed 3.80 kil. (8.3lbs.) With the ordinary charge of 125 kil. (275 lbs.), the results surpassed even what had been expected; with 135 kil. (297 lbs.) the pressure of gas was not excessive. As compared with the Woolwich gun, the results of firing with maximum charges are as follows:—

Nature of Gun.	Weight. Of gun.	Weight. Of shell.	Weight. Of charge.	Initial velocity.	Total vis viva in metric tons
Woolwich 80-ton.	81,200 k. (80 tons.)	571 kil. (1256 lbs.)	104·3 kil. (229 lbs.)	470 m. (1615 f.)	6460
Krupp 35·5 cent	57,500 kil. (56½ tons.)	520 kil. (1144 lbs.)	135 kil. (297 lbs.)	407·1 m. (1709 f.)	6550 6

"From this we see, 1st. That the Woolwich guns weigh 29 in 100 more than Krupp's yet uses much less powder. 2nd. That although the Krupp projectile is only nine-tenths the weight of the Woolwich one, it possesses a greatly higher initial velocity; an incontestable proof of the superiority of the Krupp metal. The Woolwich experiments were upon this renewed with a heavier shell and charge, but with no greater success; the charge of 113·5 kil. (250lbs.), with a shell of 665 5 kil. (1466lbs.), having given an initial velocity of only 466m. (1533 feet).

"As only a limited number of such immense guns as these can be used, it is only fair to give M. Krupp credit for the noble spirit of patriotism and emulation which caused him to construct them. We (*Spectateur Militaire*) have it from good sources that they are to be used for coast defence, especially those of the chief ports of the Baltic, Kiel, Wilhelmshaven, &c., and for the armour-plated or turreted ships which are every day being added to the Prussian Navy.

"The enormous price of such guns will, no doubt, limit their use. The price of Armstrong's 80-ton gun, above given, makes its cost about four francs a kilogramme. The Essen Foundry, considering their steel much better than the English (Firth's), have fixed its price at five and a half francs. Taking into account the difference of weight, the Krupp gun, with carriage and all appliances complete, actually costs less than Armstrong's gun, without anything else.