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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, FEB. 17, 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.

In this day's issue will be found an article from the United States *Army and Navy Journal* of January 24th, on the subject of the accessibility of the harbour of New York to "Foreign Ironclads," which is instructive as shewing what a singular aptitude commercial men display in disregarding the plainest dictates of common sense, if it involves in the distant perspective the outlay of a single dollar for which there is not a prospect of immediate profit. Nearly two-thirds of the commerce of the United States centre at New York, and yet that port is so utterly defenceless that the Spanish frigate *Arapiles* could lay it under contribution or inflict such damage as half a century of prosperity would not repair; for let it once be visited in that way, one single hostile shot fired into it and the confidence

of foreign capitalists will be withdrawn for ever, while no advantages it possess could restore its departed commerce.

Under those circumstances it is amazing to find members of Congress indulge in spread eagle speeches on the power of the United States to improvise means of defence, naval and military, and plead those visionary projects as reasons why they would not sanction any outlay for the reconstruction of their naval force; at the same time they must be conscious that the temptation is offered to any unscrupulous power to resist insolent and unjust demands, which those demagogues are the first to make, by striking a blow at their principal centre of commerce which would not fail to lay all their boasted institutions in the dust. It is well for the people of the United States that naval supremacy is still maintained by Great Britain, and that a good deal of her surplus capital is invested in United States securities, because her interference would at any time turn the scale against aggression or even avert well merited chastisement, as it has done in the late disgraceful *Virginia* squabble.

With a sea board so vulnerable it is wonderful that even the impudence of the Congressional traders has not been long since checked, but the causes detailed have been more effective to protect the independence of the United States than any effort they have been able to make in a military or naval sense.

The patriotic element in that country must make their account to play a small game in the politics of the world, as long as the preponderating element in their Legislative and Executive is purely commercial. It is not against British ironclads New York needs defence.

The following account of experiments on artillery conducted under the auspices of the United States Navy Department on Nut Island, Boston Harbor, will be interesting to our readers; especially as the principle is identical with that which Captain O'HEA has so recently brought to notice, and which we have given to our readers from his interesting pamphlet. Its distinguishing features are the rifling of only a portion of the calibre in small arms. According to the results of Captain O'HEA's experiments, it is only necessary to subject about four inches in length of the inside of the bore at or near the muzzle to the operation of rifling to secure the requisite rotation which that mechanical contrivance imparts. Mr. WIARD appears to have caught the idea, and in this experiment seems to have arrived at the conclusion that it is applicable to smooth bore guns. From what we know of Captain O'HEA's theory it involves a bore gradually lessening in diameter from breech to muzzle, that the projectile must fit tightly at the portion *canalured*, and that it must have attained its full initial velocity at the same point.

In a rifled small arm all those conditions are easily fulfilled, the projectile being of soft metal readily forced through a space smaller than its own diameter by slight pressure. In large ordnance the case is exactly reversed, the projectile being designed for the demolition and penetration of hard substances is itself of harder material than the gun from which it is fired, therefore not compressible by any force applied in the nature of an explosive or by any resistance it may meet in the gun. As a matter of necessity it must follow the laws which govern all modern projectiles and the guns from which they are fired, and those laws involve the destruction of the latter in periods measured by thirty or one hundred and twenty rounds. Indeed it is very doubtful if the smaller number could be fired as rapidly from the monitor guns now in use as they could from the old iron 32-pndrs. without rendering the gun useless; and although the United States does possess the best cast iron artillery in existence, its period may be easily measured if experiments such as this detailed will insure its conversion into rifled guns.

It is curious that up to the present United States artillery officers were not cognizant of the fact, that rifled ordnance projectiles possessed greater force of penetration than spherical shot, at least the *New York Herald* reporter seems to intimate that the late experiment was necessary to enlighten them on that subject, but we happen to know that artillery officers of that service are accomplished scientists and are no doubt thoroughly alive to the importance of all the problems which its successful use demands to have solved, the principle being the elimination of windage altogether whether the shot is spherical or elongated, and on this Mr. WIARD's experiment sheds no light.

We see he has endeavoured to utilise the spherical shot on hand by applying the exploded Woolwich system of studs. Well, if our neighbours choose to take up such fallacies there is no one to prevent them doing so, but this is a part of the theory with which professional artillery men will have nothing to do.

There is, however, one curious statement which demands explanation: the conical shot from the rifled gun demolished the target completely which the 460 lb shot from the smooth bore struck at a depth of 6½ inches apparently without any injury beyond the indentation.

Hitherto it has been believed and indeed on the authority of Admiral PORTER, U.S.N., given to the world that the round shot was a smasher, that was calculated to crush in the sides of an ironclad without punching holes through its armour plates which the elongated projectiles was sure to do. This last experiment, if correctly reported, reverses the case, and would put the smooth bore out of competition altogether; but there is a tale behind—it appears subsequently that the round shot did demolish the