

of the measure proposed need not exceed \$600,000 per annum for three or four years, exclusive of the military outlay, at the end of that period the Indian would know enough to be able to hold his own.

It is not necessary to enter into any details of the internal regulations of the settlements; outside the most stringent enactments should prohibit the sale or use of liquors to Indians, and the markets held for agricultural or other produce should be managed by the white overseers of the settlements.

There is also a necessity of having a garrison of Canadian troops at Thunder Bay, another at Fort Francis, and probably one at some intermediate point for the purpose of repressing any movement of the United States Indians.

It is as well to remark that the officers of the United States army largely avail themselves of the services of Indians to keep their men from deserting—they are always enlisted soldiers and uniformed as the others are, but are mounted on Indian ponies.

The scheme proposed would be far cheaper than one month's hostilities. We must give over the idea that the aborigine is a child who can be amused with glass beads and begin to treat him as a reasonable man, and a shrewd one too.

In another column will be found an article entitled "the Doom of the Iron clads," from the *New York Times*, in which the conclusions arrived at long ago by the VOLUNTEER REVIEW with reference to the value of the heavily armoured vessels of the British Navy is illustrated and enforced.

Our readers will remember that the very simile of the man-at-arms and the introduction of the new projectile was used to illustrate our belief that armour would have to be abandoned for its weight alone if no other practical or mechanical objection existed, and our reason for all this was derived from a practical knowledge of the requirements of a sea-going man-of-war.

As far as *torpedoes* are concerned the *Times* prescribes their full value, they can only be used against slow vessels, defenceless and utterly unable to prevent a swift and light vessel from closing, conditions not likely to exist at any time where costly vessels are concerned, if they are properly equipped, but possible enough if the vessels are armed with guns of the pattern and value of those on board the *Hercules*.

The principal reasons why the experiment of heavily armored vessels will prove a failure, are their great size, rendering them utterly unmanageable in a sea-way; the *Mincitor* and *Bellerophon* are evidences of this, and all the recent disasters are due to the same cause; the rapid deterioration of the metal of which they are built renders renewal once in ten years a necessity, the life of an oak built vessel being fully fifty

years and often one hundred; the small amount of work they are capable of doing without an utter failure of their costly armaments, the impossibility of using them in any inshore operation, their utter want of stability, the impossibility of fighting them in a sea-way, and the difficulty of finding them sufficient water to keep afloat in within the effective range of their guns.

In effect they cannot be manœuvred in line of battle and are thoroughly useless as cruisers.

Having described all their short-comings we do not think that Great Britain should at once get rid of the nuisance, they are formidable and powerful looking objects and both qualities are often as valuable as efficiency.

The United States people are in the condition of the travelled monkey who lost his caudal appendage and wished all his friends to denude themselves of those useful attachments in order to hide his own deformity, the mass of old scrap iron at League Island should teach others to beware of a similar mistake.

Not only has the war vessel of the future to be constructed, but the Naval Gun has yet to be designed, the present costly failure is not even a step in the right direction, and it is evident that no attempt has been made to fulfill any of the conditions of the weapon required by the exigencies of Naval warfare.

Mechanical science has rendered it feasible to employ a gun of great weight and strength, in fact concentrating the power of a whole broadside in a single weapon; now the question arises whether under the changed conditions of affairs such ponderous engines are necessary, or even applicable to modern naval warfare?

A vessel mounting only two of the thirty-five ton guns would be far more heavily armed than the first-rate line of battle ships with 120 guns fifty years ago, but ten of those guns might be disabled in action and the offensive power of the vessel not affected materially thereby, if one of the larger guns were disabled half her fighting power was gone, and if as in the case of the *Holspur* she only mounted one she would be utterly useless.

All this points to the necessity for mounting a greater number of guns in the warship of the future, and it also directs attention to another peculiarity in modern artillery; the great danger to be encountered is the chance of the failure of the weapon from the energy of its charge—muzzle-loading guns—as all the heavy guns are, appear to be peculiarly liable to this disadvantage; the reason is not far to seek, the shot is less in diameter than the bore, cannot be centered with it and leaves the gun by a series of rebounds, shattering the internal surface of the bore, and finally destroying the machine.

Ingenuity has hitherto failed to devise a remedy for this, whether with studded pro-

jectiles, grooved or barred bolts, it was all the same, the shot was liable to break up or the gun to burst.

The only remedy appears to be something in the shape of a support of easily expanding material attached to the shot and resting on the powder which would receive the first impact of its energy, and before the shot had obtained momentum would fill all the grooves thereby preventing the expansion of the gas in or about it.

There are many mechanical difficulties not easily overcome in applying this to large muzzle loading guns, none at all to breech-loaders, many substances have been proposed for this purpose, but we confess that we see at present none so likely to fill all the conditions as a sabot of compressed saw-dust as prepared and tried by a Mr. MACKEY of Liverpool.

The value of rifled artillery as a naval weapon is more than doubtful, engagements at sea will be fought at comparatively close quarters, and a *smashing* projectile is the weapon required, a smooth bore with a spherical shot for short ranges and shell for long seems to be the best adapted to the service, but in order to preserve the gun, it should be a breech loader, and the shot armed with a sabot to fit the bore accurately.

Strong well-constructed vessels of wood to sail or steam indifferently, built in water tight compartments, are the war vessels of the future, and the armament breech-loading smooth bores.

Our lively neighbours appear to be rousing themselves to swallow a slice of Mexico in the vain and futile attempt to appease their insatiable earth hunger.

It would be a blessing to the Mexican people and to the civilized world if the United States would absorb or annex the whole of that unhappy country, its lawless and unruly population would give all the lawless ruffians in the Union employment for the next twenty years, and if, like the Kilkenny cats, they mutually annihilated each other society would not regret the event.

The Boston correspondent of the *St. John Globe* appears to know the ropes and is accountable for the following:

"A Congressional Committee is now engaged in ascertaining whether any outrages have been perpetrated by Mexican robbers and outlaws upon American citizens on this side of the Rio Grande. This is a far more important work than it would seem to be upon the surface. In fact, it is the first step towards the annexation of the Rio Grande country to the United States and the report of the Committee will be among the documents accompanying the President's message to the next Congress, with the view of calling the attention of that body to placing our relations with Mexico on an entirely new basis, and putting an end to the disorganized condition of affairs on the border. The importance of this *coup d'état* to the United States cannot be overestimated."