

THE TEETH OF THE BRITISH LION.

Mr. E. J. Reed deserves well of his country for his single handed contest, in the *Times*, with those who have extracted the British lion's teeth, as we venture to designate the perforating guns which English ships of war ought to carry. In the long correspondence in the *Times*, nominally upon the comparative armaments of the unarmoured frigates *Raleigh* and *Inconstant*, principles are involved, which are equally applicable to vessels armored with different thicknesses of iron plating. Mr. Reed is of opinion that the gross weight of ordnance which a ship will carry had better be concentrated amongst guns large enough to perforate the walls of foes, rather than distributed in a larger number of smaller weapons capable of perforating her own sides but incapable of entering possible hostile ones. The armament of the whole British fleet is, on the contrary, conceived on the principle that the weapons with which individual ships are armed shall not perforate any walls thicker than those of the vessel carrying them. A British *Bellerophon* must run away from an Italian *Hercules*, a British *Hercules* must run away from a Russian *Peter the Great*, a wooden *Raleigh* must run away from a Japanese 4½ inch plate *Scorpion*, and so on, because the British lion's teeth will not bite. Mr. Reed thinks that British naval history is worth a few inches of armour—the exact number of inches depending upon the color of the hostile flag. And he thinks that the British seamen ought not to stop to inquire too closely into the exact number of inches of plate on the sides of, e. g., the hostile South American or Southern European iron-clad.

As against Mr. Reed's theory, we understand that a British captain, before entering on a sea fight, is to emulate the message of Sir Philip Broke, though not its spirit, and to politely ask the foe to inform him if his ship is armored or not? and, if so, what is the exact thickness of the plating? And should the contest appear scientifically unequal, the British Captain is to say to the foe, "Will you oblige me by slackening speed for forty eight hours, as my boilers are out of repair, and with Baxter's mixture the stokers cannot keep steam enough for getting away; and my guns are not intended for walls like yours?"

The upholders of this theory do not come into court with clean hands, but form "a gunnery ring" the personal reputation of each of whom is concerned in the lion having no teeth. Sir Leopold Heath is one of those primarily responsible for our having "the lowest velocity," and therefore weakest hitting guns, in the civilized world; and, if we mistake not, it is his name which is appended to the mathematical absurdity that if a shot have a fixed angle of rifling, and the gun an ever changing one, the exit of the projectile is best effected by a bearing "upon two points." Sir Wm. Palliser is naturally interested in the weak hitting 64-pounder gun of his own devising, which he parentally thinks the panacea for all ills. Sir Crawford Callin was a War Office official when the expensive blunder of 1865 was perpetrated which has given us the weak hitting, small shell power, and least enduring heavy ordnance in Europe. The audacity of the witnesses in claiming the consent of the naval profession to the loss of fighting power is marvellous. When, a few years ago, a naval officer exposed the "nursing" of the "Woodwich Infant," no reply was given; but the officials determined on better "nursing" so

that the "Infant" should have no more strong food, and, therefore, no more indigestion; and care was subsequently taken to hide from the profession the knowledge of all further "accidents." When, last year, another able young officer offered to read a paper on "Naval Armaments" to the Royal United Service Institution, the then Director of Naval Ordnance, the Naval Secretary to the Admiralty, and a naval lord, met in council at Whitehall and recommended the Admiralty to forbid his doing so. The whole professional prospects of naval officers liable to service depend upon their being supposed to have no minds of their own, hence silence, especially when opinions differ from Admiralty officials, is essential to advancement. Having thus muzzled the profession, this "gunnery ring" have the armament of the British fleet entirely to themselves, and then have the audacity to say that their brethren wish their ships so weaponed that no choice shall be left, but to run away from foes whom, with hard hitting guns, they could easily pound into submission.

This, "gunnery ring" gives us, for heavy guns, weapons with exceeding little shell power, and then Sir William Palliser steps in, with his "light" gun of 3½ tons as the remedy. Why not supply these heavy ordnance with adequate shell power? Because the rotating power of the absurdly short bearing rifling will not admit of long shells being employed. No sane mechanical engineer would dream of using the same extent of bearing surface in each groove for a shell of 100lb. weight, and for one of 700lb. weight; for a shell of 12 inches long, and for one of 36 inches long. This insane arrangement limits the application of rotating power to that which these short bearings will stand, and it is evident that, as the projectile increases in weight, proportionate length cannot be given to it. Moreover, the rifling agencies are so contrived as to weaken the walls, which require internal thickening to resist compression. Hence follow flimsy shell with small bursting charges, and Sir William Palliser's panacea, "take my weak hitting light 64 pounder." Then certain mathematical soldiers tell these sailors, and they are foolish enough to believe it, that ten bursting charges of 71lb. each, exploding independently, are quite as destructive as one bursting charge of 70lb.

The following table shows what the shell power of certain guns was originally, and what, for lack of rotating force, they have been reduced to:

| Gun. | Bur. ster. | Total wt. | Bur. ster. | Total wt. |
|---|-------------|-----------|-------------|-----------|
| | | | | |
| 10-inch 18-ton gun. | 1b. 32 5/8 | 41 | 1b. 40 4/8 | — |
| 11-inch 23-ton gun. | 1b. 40 2/8 | 161 | 1b. 50 4/8 | 123 |
| 12-inch 23-ton gun. | 1b. 60 8/8 | 104 | 1b. 60 8/8 | 84 |
| 12-inch 35-ton gun. | 1b. 700 2/8 | 84 | 1b. 700 2/8 | 84 |
| Original shell. Red'd shell. Loss by short-bearing. | | | | |

It will thus be seen that the 12 inch shell of the boasted 35-ton gun contains 71lb. less bursting charge than the similar shell for the 25 ton gun, before its "wabbling" in the bore and "dancing in the air led to its being discarded. And of the 10 inch shell it should be observed that the Royal Laboratory superintendent himself considers it unsafe with the so called "battering" charges even after thickening its walls and taking out 4½lb. of powder, and strongly advised ten more pounds being taken out of it and the flimsy walls further strengthened.

As to the hitting power of "the most magnificent guns in the world," it may be remarked that the true standard of comparison is the weight of the gun, and the work which can be got out of a weapon of that weight. Here, again, we find that British ships are obliged to carry ordnance of greater weight than other nations, in order to strike equal blows, but such is the ever increasing loss of endurance that the "gunnery ring," conscious of this weakness, decries the employment of "Infants" altogether—not, however, alleging this, the true cause. The following table, taken from Colonel Reilly's report and other official sources, speaks for itself:

| Gun and Country | Penetrating figure, per inch of shot's circumference. | |
|------------------------------------|---|--------------|
| | At muzzle. | At 2000 yds. |
| | Foot tons. | Foot tons. |
| 35 tons, English..... | 220 | 153 |
| 34½ tons, French..... | 230 | 163 |
| 36 tons, German..... | 232 | 170 |
| Do, (according to Herr Krupp)..... | 280 | 215 |
| 40 tons, Italian..... | 253 | 198 |
| 22 tons, French..... | 185 | 123 |
| 25 tons, English..... | 187 | 132 |
| 27 tons, German..... | 200 | 142 |
| 15 tons, Italian..... | 162 | 106 |
| 18 tons, English..... | 166 | 110 |
| 22 tons, German..... | 170 | 114 |
| Do, (according to Herr Krupp)..... | 192 | 136 |

Whether the lion is to have his hide thickened or not, let him have his teeth. No one can foresee where, or under what conditions, British ships may be compelled to fight. Give our sailors the power of hitting hard whoever attacks, even though the foe be one against whom they would not willingly assume the offensive. People who want to run away must have legs, and we cannot always insure each individual ship will have the best boilers and the best coal at every moment of her existence; moreover, it is an uncommonly bad notion to put into even British seamen's heads that running is to result from a nice balancing of inanimates forces. As Blake taught the seamen of his day to condemn stone walls, so must the Blakes of the future hold iron walls cheap when these have not Anglo-Saxon blood for backing. But that they may do so, it is essential that they should be provided with hard hitting, destructive shell power, and long enduring ordnance—in short, that the British lion should have his teeth.

All the powers having accepted the invitation to the International Code Conference, Russia has issued a circular asking them to present their recommendations for the time of meeting.

During a furious storm to day the 21st. the lightning struck the powder magazine in Soutari and caused a terrible explosion; a portion of the city walls was overthrown, many houses were demolished and 200 persons killed and wounded.