

them being double, and secured one skin to the outer and one to the inner edges, so that the bottom and sides of the boat were dovetailed into so many distinct separate compartments as there were spaces between the timbers, and in case of injury the water entered no further than the damaged compartment, and the efficiency of the boat was not perceptibly impaired. The number of the canvas skins could also be multiplied where needed. The boat being suspended in a collapsed state from the davits required simply to have a lashing cast loose, when they opened out by their own weight into a perfectly shapped boat. Planking for the bottom of the boats and seats were provided, and these, on lowering the boat, adjusted themselves, and were ready for use. Mr. Berthon exhibited working models of his boats, and showed (with the aid of these) the perfectly satisfactory nature of his system. He said that he had invented these boats twenty five years ago, and although the invention had remained in abeyance for so long the value of the system had at last been recognised by the Admiralty and the Indian Council, and he was now engaged in executing orders by which all Her Majesty's troopships would be abundantly supplied. The boats would be carried in a collapsed state between the ordinary troop boat and the netting on the upper deck. The system had also applied to boats for the conveyance of horses and artillery, and for sledge boats and pontoon bridges, with every promise of success.

In the course of a brief discussion at the conclusion of the lecture, Sir William Mends said that he had made a careful inspection of the boats which had been manufactured on this principle, and had delivered so favourable a report upon them that the Board of Admiralty, feeling that if any great calamity was to happen to a troopship, the loss of life would entail serious reflection upon its members, and they had therefore felt it to be their duty to order these boats to be supplied, so that provision might be made for the preservation of every life on board.

The following paragraphs are taken from *Broad Arrow*, they illustrate a new phase of the *Torpedo Question*, and remind us strongly of the fable of the Council of the Mice in which the burning question was as to "who should bellow the Cat."

That German diver who gets over the bows to fasten on the football will have a hot time of it—while the *twenty miles an hour* pace will require a taut hand to guide the machine.

It is sheer absurd nonsense to suppose that vessels of the description given, will have any appreciable effect on the naval actions of the future.

"Germany now possesses two torpedo vessels, the *Ziethen*, which was constructed in England, and launched last year, and the *Uhlán*, which was launched at Stettin the other day. It has cost close upon £30,000. The *Uhlán* carries immediately under its bows a torpedo which is intended to explode within the vessel at which it is directed, and the force of the charge of dynamite which will be exploded by the collision, is calculated to be sufficient to blow the other vessel to pieces, though the torpedo itself is no bigger than a football. Measures have been taken to protect as far as possible the *Uhlán* itself from being destroyed by the explosion; but the most remarkable point in connection with it, is the enormous power of its engines as compared to the vessel itself. They are

of 1000 horsepower when at high pressure, and take up so much room that there is little space left for the coal-bunkers and the berths of the officers and seamen. The unusual proportion of steam power has been given in order that the vessel may be able to travel through the water very rapidly. When the torpedo vessel is about to enter into action for the purpose of breaking the line of battle formed by the ironclads of the enemy, divers will attach to its beak, head the fulminating cartridge, and it will proceed at full speed, the crew having in the meantime lowered and embarked upon a raft which is to be kept on board for that purpose."

"The construction of a new fish-torpedo has been ordered by the War Department. It is calculated that it will travel under water at the extraordinary speed of twenty knots an hour. When the secret of this description of torpedo was purchased by the Government, the inventor, Mr. Whitehead, could only guarantee a speed of 9½ knots; but subsequent improvements at the Royal Laboratory in the Royal Arsenal, Woolwich, have produced an accelerated pace of 12½ knots; and certain alterations are now proposed which it is expected will furnish the additional power required."

The following account of the results of the latest trials of monster artillery will be interesting to our readers—it shows that British skill and science can construct a gun to stand a constant pressure of over twenty tons to the square inch; but we have as yet no proof of the gun's endurance; it would seem as if the next question should be—what is the length of the life of the gun?

*Engineering* gives an account of the latest proofs of the 31-ton gun with the bore enlarged to 15 inches. The results obtained indicate increased velocities and reduced pressures in the gun. It will be noticed too, that the pressures were very uniform, with the exception of that in the third round, which rose above the 25 tons per square inch assumed as the safe working limit, and compares with those exceptional pressures recorded in the fifth and six rounds of the first series where with charges of 230 lb. and 240 lb. of powder, the pressures were 29.5 and 27.3 tons per square inch respectively, and with the eleventh round of the second series, in which with a powder charge of 220 lb. of 1.5 in. cubes, the pressure mounted to 28 tons per square inch. The record is as follows:

Number of Round.	Size of Powder.	Weight of Powder Charge.	Weight of Projectile.	Muzzle Velocity.	Total Energy in Foot-Tons.	Foot-Tons of Energy per Inch of Bore's Circumference.	Foot-Tons of Energy per Pound of Powder.	Mean Pressure in (tons).
1	1.7	120	1250	1513	19,991	424.32	60.53	22.1
2	1.7	120	1250	1546	20,789	441.19	60.53	22.1
3	1.7	120	1460	1471	21,997	461.92	60.53	22.1
4	2.0	230	1250	1536	20,697	437.33	60.53	22.1
5	2.0	230	1470	1531	18,822	389.59	53.58	14.4
6	1.7	120	1460	1421	20,523	435.60	60.53	22.1

Arrangements will shortly be made for the transfer of the gun to the long range where it will be tried against armour plates. The ultimate capacity expected when the maxi-

mum bore of 16 in. is reached, is a penetration of 27 in. of solid armour at a range of 1000 yards, and with a shot weighing 1800 lb. If the statements recently published in the *Times* be correct the performance of the great Krupp gun recently tried has given higher results than those recorded above. The weight of this gun is 57.5 tons, and its calibre is 13.78 in. The projectile weighs 1210 lb., and the powder charge is 237 lb. In recent experiments it is stated that an inflexible target with 24 in. plate was pierced at a distance of 1968 yards. The muzzle velocity is given as 1640 ft., which would give a total energy in foot-tons of about 22,600, and per inch of circumference of bore 523 tons. The foot-tons per pound of powder charge, however, falls to 76.1, showing that the weapon is strained far more severely than our 31-ton gun, and it is to be regretted that the pressures per square inch are not published; they must be of necessity very great.

THE NEWS in regard to Turkish affairs is so conflicting that one is at a loss what to make out of it. However, one thing is certain, that the firm and decided stand taken by England, has taken the would-be belligerent powers by surprise, and has completely spoiled the little game of Russia in her contemplated attack on Constantinople and the seizing of the mouth of the Dardanelles.

Austria, it is said, was to back Russia in this enterprise, but the moment *John Bull* heard of it he said no, and sent out his fleet, Austria took fright and backed out. Germany also, it would seem, was in the plot, as Russia made demands on her in support of her Eastern policy which Bismark is not now inclined to sanction.

The new Sultan speaks the French language fluently, which is the diplomatic language of Europe, and consequently he will be the more able and inclined to listen and probably accede to those remedial measures that may be brought before him by the Foreign Representatives at his Court. It is also said that the parties who have helped him to power, are bitterly opposed to Russia, and possibly may precipitate matters somewhat, especially if the present policy of Russia is persevered in in fomenting discontent in Rumania and the other outlying provinces of the Turkish empire.

The latest intelligence from Turkey say that the Prince of Montenegro has openly assumed command of the insurgents; that Serbia has declared her independence and marched her army across the frontier, and that all the Slavonic provinces are in a state of rebellion. Yet, we hope, wise counsels may prevail, and that after all a general European war may be averted.

The Paris correspondent of the *London Times*, generally allowed to be a well informed authority, vouches for the correctness of the statement that the Porte accords full amnesty to all insurgents who will offer their submission, and that to give them time to do this, the Sultan grants a six week's armistice, subject to the movements necessary to maintain the concentration of troops, and the re-equipping of Nicia. He also states