

Broad Arrow says:—"Another change in shipbuilding is to be made by the introduction of steel for the hulls of war ships, by which a great diminution of weight will be gained and consequent speed. The contract for the first six vessels of this new build has been given to the firm of Elder and Co., of Glasgow. They are to be corvettes of 2,300 tons, and will carry fourteen guns. The steel hull will be sheathed with two thickness of teak and coppered externally, and the craft is intended for service on foreign stations. The machinery and boilers will be protected by a strong armoured deck, and it is expected that the corvettes will be able to maintain the high speed of twenty mile an hour. Should this expectation be realised, we shall have in these strong and handy ships a most efficient convoy for our commercial Marine in wartime. The new vessels are to be named *Comus*, *Carysfort*, *Cleopatra*, *Curaso*, *Champion*, and *Conquest*. The steel plates will be supplied by the Bolton Iron and Steel Company, the London Siemens Company, and the Cyclops, Sheffield, and West Cumberland Iron Company. The builders are to be allowed two years to complete their contract. The total cost will be fully half a million."

AN article from the *Naval and Military Gazette* will be found in another page—it treats of the verdict of the jury in the case of the disastrous explosion on board the *Thunderer* in July last—and with all deference to our contemporary's opinion, we think it is most unfortunate that the system which led to the disaster—that of collective tests for the individual pressure in one boiler—should ever have obtained a footing in the stoke holes of a man-of-war; or that the duties of Chief Engineer should have been so feebly discharged. The error may be in the system, but its inventors are accountable for the wholesale slaughter.

"An official trial was made at Woolwich this week of an apparatus for working heavy guns by means of steam power, from which great advantages are expected to result. The machinery consists chiefly of a bevel wheel arrangement inserted in the bed of the platform under the carriage, and it is found that an engine of about eight horse power is sufficient to work it. The gun was traversed right and left with great facility; it was run back, spunged, and loaded, all by steam power alone, four or five workmen being sufficient to work the machinery. The shot was conveyed to the muzzle of the gun by an overhead traveller, and was there met by the head of the rammer, which is worked by a peculiar chain from below. The chain has its links united by a rule joint, which gives it flexibility on one side, but converts it into a stiff bar when turned on to its back, thus enabling it to drive the shot home, and then return to its place in a coil under the gun. Although not worked for rapidity, and in the hands of undrilled men, the whole processes of sponging, loading, and running up the gun to fire were performed in a minute and a half, the trial was regarded as highly satisfactory. The contrivance is adapted for working by hand in case the machin-

ery should at any time fail, and it is equally available for land or sea service. The trial was made at a full-sized model of a casemate battery which had been constructed in one corner of the Royal Carriage Department mounting-ground, and where had been placed one of the 38-ton guns recently fired at Shoeburyness."

The above paragraph is from *Broad Arrow* of the 2nd Sept., and is an instance of the facility with which modern mechanical ingenuity can adapt agencies at its disposal to almost any purpose, the only difficulty in the case appears to be that on war ships are likely to be transferred into as delicate and complicated pieces of mechanism as one watches, and quite as unlikely to resist the shock of battle.

It follows, nevertheless, if guns and projectiles are constructed of such a weight that they cannot be manipulated by mere muscular power, machinery of some sort will have to be substituted; but it points in ships at least to a recurrence to the old system of breech loading as being inevitable.

SOME time ago we called attention to the facility with which a powerful auxiliary fleet might be added to the British Navy by simply arming its mercantile marine. An English exchange announces that it has been determined to give subsidies to the Royal Mail Steamship Lines only on condition of being armed with one or more heavy armour piercing guns according to tonnage, and that the officers and crews were to be regularly trained to the use of great guns and naval manoeuvres.

In this connection we copy from the *Quebec Morning Chronicle* the recent voyage of the *Sardinian* steamship of the ALLAN (Canadian) line, in which a continuous run of fourteen and three-fourth miles per hour was made on the average from the day of departure to arrival—with such a speed and a well trained crew very few line of battle ships and no light armoured cruiser would dare to attack a vessel of her capacity; and the ALLAN Line alone would form a very powerful fleet greater numerically than any other power could bring together.

If not thoroughly available for purposes of offence their defensive powers would be such as to ensure perfect impunity not only for themselves, but for any craft under their protection—and very probably for all craft on their cruising grounds. Our contemporary says:—

"There is nothing more suggestive of the progress of the age than the remarkable strides made by human ingenuity towards the virtual obliteration of space. The voyages which were once regarded as the great events of a lifetime are now viewed in the light of mere holiday excursions, for they are no sooner commenced than they may be said to be ended, however paradoxical the statement may seem. Transit from *terra firma* in the old world, *Ultima Thule* of the ancients, to staple footing in the new, which was once an affair of the greatest moment to individuals, is no longer counted by long and dreary weeks, but by swiftly speeding days, to such an absolute pitch of perfection

has ocean steaming been brought. The last trip of the steamer *Sardinian* affords a forcible illustration of this truth. Leaving Moville, Ireland, on the 1st instant at 11.10 p.m., she reached Quebec on Saturday at 11.45 a.m., thus making the run in the unexampled brief period of 7 days, 12 hours, and 35 minutes—the shortest and quickest passage yet on record, between land and land, across the Atlantic. While we cannot but take a natural pride in this extraordinary triumph of human mechanism over forces which have hitherto been considered as surmountable only to a certain extent and no further, we deem it specially due to the Montreal Ocean Steamship Company and to the master mind which so ably directs that huge concern, as well as to the officers in charge of their splendid boats, to record our admiration of the running in general of their craft and the skill and prudence by which the same is characterized. The following reliable statement of their sailings this season will show the excellent timemake:—

SAILINGS AND ARRIVALS—ALLAN LINE—SEASON 1876.

Polynesian, sailed from Moville April 21, at 6 p.m.; arrived at Quebec May 6, at 9.35 a.m. Passage 14 day, 15 hours, 35 minutes.
Sardinian, sailed from Moville April 28, at 6.20 p.m.; arrived at Quebec May 8, at 4.45 p.m. Passage, 9d. 22h. 25m.
Circassian, sailed from Moville May 15, at 6.35 p.m.; arrived at Quebec May 25, at 6 p.m. Passage, 9d. 23h. 25m.
Sarmatian, sailed from Moville May 12, at 5.55 p.m.; arrived at Quebec May 21, at 3 p.m. Passage, 8d. 21h. 5m.
Moravian, sailed from Moville May 19th, at 5.40 p.m.; arrived at Quebec May 30th, at 4 a.m. Passage, 10l. 19h. 20m.
Peruvian, sailed from Moville May 26th, at 5.35 p.m.; arrived at Quebec June 6th, at 5.40 a.m. Passage, 10d. 12h. 5m.
Polynesian, sailed from Moville June 2nd, at 6 00 p.m.; arrived at Quebec June 13th, at 7.00 p.m. Passage, 11d. 1h.
Sardinian, sailed from Moville June 9th, at 5.55 p.m.; arrived at Quebec June 19th at 1.35 p.m. Passage, 9d. 19h. 40m.
Circassian, sailed from Moville June 16th, at 6.00 p.m.; arrived at Quebec June 26th, at 7.35 p.m. Passage, 10d. 1h. 35m.
Sarmatian, sailed from Moville June 23rd, at 5.50 p.m.; arrived at Quebec July 2nd, at 1.25 p.m. Passage, 8d. 19h. 35m.
Moravian, sailed from Moville June 30th, at 6.15 p.m.; arrived at Quebec July 10th, at 6.55 a.m. Passage, 9l. 12h. 40 m.
Peruvian, sailed from Moville July 7th, at 10.45 p.m.; arrived at Quebec July 16th, at 10 a.m. Passage, 8d. 11h. 15m.
Polynesian, sailed from Moville July 15th, at 2.45 a.m.; arrived at Quebec July 23rd, at 1.20 p.m. Passage, 8d. 12h. 5m.
Sardinian, sailed from Moville July 21st, at 6.05 p.m.; arrived at Quebec July 30th, at 9.49 a.m. Passage, 8l. 15h. 44m.
Circassian, sailed from Moville July 28th, at 6.30 p.m.; arrived at Quebec Aug. 6th, at 4.10 p.m. Passage, 8d. 21h. 40m.
Sarmatian, sailed from Moville, Aug. 4th, at 6.00 p.m.; arrived at Quebec Aug. 13th; at 11.10 a.m. Passage, 8d. 17h. 10m.
Moravian, sailed from Moville, Aug. 11th, at 6.00 p.m.; arrived at Quebec Aug. 20th, at 9.45 a.m. Passage, 8d. 16h. 40m.
Peruvian, sailed from Moville Aug. 18th, at 5.45 p.m.; arrived at Quebec Aug. 28th, at 8.25 p.m. Passage, 8d. 3h.
Polynesian, sailed from Moville Aug. 25th, at 5.40 p.m.; arrived at Quebec Sept. 3rd, at 1.40 a.m. Passage, 8d. 8h.
Sardinian, sailed from Moville Sept. 1st, at 11.10 p.m.; arrived at Quebec Sept. 9th, at 11.45 a.m. Passage, 7d. 12h. 35m.