A LEVIATHAN INDEED.

(*From Dicken's Household Words.*)

We are in the habit of making occasional marine excursions to Woolwich, by Waterman Number One to Six inclusive. Sometimes, on a bright sunny day we extend our aquatic tripe as far as Erith or Gravesend, where, doubtless, many of our readers accompany us. Like us, they will not fail to have noticed an indifferent-looking, half-occupied spot of land jutting into the river opposite Greenwich, known as the Isle of Dogs, but having no sort of connection with Barking Creek.

Scattered over this island, at irregular distances, are factories, shipyards, store-houses, and timber-sheds, all unmistakable enough in character. There is one object, however, which has perplexed us not a little—a huge metallic erection, on which may be seen employed any day in the working week, hundreds of busy craftsmen, clustering, and humming, and buzzing about it like flies around a sugar hogshead.

It has puzzled a good many aquatic travellers besides the writer. We have heard scores of guesses made by wondering passengers on board Waterman Number Twe, perfectly at variance with the opinions of those on board Waterman Number Four. Some have not the slightest doubt as to its being a new sort of gasometer for supplying London with pure gas. Others believe it to be a pile of fireproof warehouses, on the Milner Safe principle, for the better custody of the national state papers and crown jewels. By some, it is said to be an enormous oven for baking bread and roasting coffee for our troops in the Crimea. One or two have heard on good authority that it is intended for Wombwell's menagerie, to be moved on a hundred wheels. Others, again, have the firmest belief in its being an iron incarnation of Lord Dundonald's mysterious plan for destroying Cronstadt and Sebastopol.

Now, it happens that none of these opinions are correct. Not one of the many guessers have ever dreamed of this object being the mid portion of a ship, which we have since learned is really the case. A ship! Talk of the Great Harry or the Great Britain, or any other great craft of the middle age or modern period! They shrink into utter insignificance by the side of our metal monster of the Isle of Dogs.

The wooden walls of old England are fast becoming myths of a by-gone age, embalmed in the ballad-poetry of Dibdin. They have given place to the iron-sides of young Britain. Canvass has yielded the palm to steam; and paddle-wheels in their turn are shaking their bearings in auxiliary fear of screws.

It is not so many years ago, but we remember it, that when a steamer of three thousand tons was first placed on the North American line, one of our then greatest scientific authorities predicted certain failure: it was hinted in a friendly way to passengers proceeding by her to the United States, that they had better insure their lives and make their wills before leaving the country. The ship was said to be too long for a heavy sea; she would break her back from the excessive weight of machinery in her centre, and would inevitably encounter a variety of other unpleasant contingencies. But, people remembered that similar failure was predicted thirty years before that time, when the first steamers plied between London and Calais. The General Steam Navigation Company nevertheless prospered, and so likewise have the American lines prospered; for one of which there are at the present moment iron steamers building on the Clyde larger than any yet afloat.

The huge fabric erecting at the Isle of Dogs, as yet bears no resemblance to any known kind of craft. At a distance, the eye is unable to detect any particular proportions about it, and if we were to be pressed on the point, we should say that it had no shape at all. A closer inspection, however, shows a line of uprights at each end, which mark the shelving proportions of stem and stern, and then one can perceive that the object before us is really intended for a ship.

Standing on the banks of the river Thames, with a vast open space on one side and Greenwich Hospital on the other, it is not easy to form a just conception of this marine monster, which, for want of a better name, we call the Leviathan. It is being built by Scott Russell and Company, from designs by Mr. Brunel, the engineer, whose conception the entire fabriee is. When we remind our readers, that the Royal Albert line of-battle ship, of one hundred and twenty guns, is something under four thousand tons, and about two hundred and twenty feet in length; and that the Simla and Himalaya, at present the largest steamers afloat, are only three hundred and twenty feet in length, or thereabouts; they may form some idea of the proportions of this Eastern Steam Navigation Company's ship, when they are told that it will be six hundred and eighty feet in length and of twenty-five thousand tons burthen; in other words, of more than six times the capacity of our largest men-of-war, and above double the length of the largest steam-ship afloat.

Our readers will have frequently heard discussions as to the relative merits of paddles and screws. In the Leviathan, the screw will be combined with the paddle, worked by engines nominally of two thousand six hundred horse power, but in reality capable of being worked up to ten thousand horse power. To guard against accidents at sea to machinery, and to prevent any detention from such a cause, the paddle-wheels will not only be perfectly distinct from each other in their working, but each will be set in motion by several sets of machinery of superabundant power, so that at all times derangements or cleaning of one or two cylinders or boilers will not interfere with the progress of the ship.

Steam will be the sole propelling power, no canvass being contemplated in this vessel. In fixing the great size of the Leviathan, its projector believes that he has obtained the elements of a speed hitherto unknown in ocean-going steamers, It is confidently predicted that by the great length of the Leviathan, she will be enabled to pass through the water at an average speed in all weathers of fifteen knots an hour, with a smaller power in proportion to tonnage than ordinary vessels now require to make ten knots. The contract speed of most ocean mail-carrying steamers is eight knots.

We believe that the Eastern Steam Navigation Company intend making their first voyage to Australia. The actual distance from Milford Haven, the company's starting-point, to Port Philip, is less than twelve thousand miles, if no ports be touched at. A speed of fifteen knots or miles an hour averaged from land to land would take the Leviathan to the golden colony in about thirty-two days. This can only be accomplished, even at that high speed, by avoiding all stoppages for coals, which, besides detaining a ship many days in the different ports, carries her a great distance out of the direct steaming course. Here we find another novelty brought to bear by Mr. Brunel. A ship of this huge capacity can carry twelve thousand tons of coals: quite sufficient, it is stated, for her consumption on the outward and homeward voyages. Space will still be left for five thousand tons of cargo, the massive machinery, and four thousand passengers with their luggage and all necessary stores for use.

The advantage of this arrangement is two-fold. Besides the avoidance of stoppages for coalings on the voyage, the ship earns all the freight which must otherwise have been paid to sailing vessels for the conveyance of the fuel to the coaling depots, which, on three-fourths of the quantity consumed on one voyage would amount to a sum sufficient to build and equip a steamer of two or three hundred tons. In order to compensate for the great loss of weight caused by all this enormous consumption of fuel, and to maintain an equal immersion of the paddles, the coal will, to a certain extent, be replaced by water pumped into the water-tight compartments forming the skin of the ship, and of which we shall presently have occasion to speak. In addition to this arrangement, the paddles have been so adjusted on the wheels as to be as efficient at one draught of water as at another.

It is impossible to judge of the future finish or accommodation of such a gigantic ship as the Leviathan from the present state of the iron hull. Immense divisions of metal plates, reaching to an incredible height, with sub-compartments at right angles, appear to divide the monster fabric into a number of square and oblong spaces, each of which would contain an eight-roomed house of Camden Town build, or a semi-detached villa from Stockwell, at forty-pounds per annum.

We inspected a model of the ship in wood, and could scarcely believe that the unsightly mass of iron plates, rivets, and joints, just beheld, could by any possible ingenuity be wrought into anything so beautifully symmetrical as the long, arrow-like little craft before us, tapering off forward as sharply as a woodman's hatchet or a Thames wherry. From that model we were enabled to understand where the engines, coals, stores, and cargo would be placed, and moreover, where the two thousand first-class passengers would be berthed, in their five hundred state cabins, and where the two thousand second-class and steerage passengers would be placed, without nearly as much crowding as in an ordinary passenger or emigrant ship.

Large indeed must that steamer be, which can provide a main-deck saloon sixty feet in length, and forty in width, and fifteen in height: with a second-class saloon only twenty feet shorter, and a foot or two less in height. The Leviathan has these, and they appear but as small compartments of the huge interior.

It would prove a fortunate circumstance for our military authorities, who are so much in want of steam transports to the seat of war, if this monster ship were ready for sea at the present moment. There are just now two divisions of the French army, of ten thousand men each, ready to be conveyed to the scenes of their future operations. The Leviathan, with just sufficient fuel for so short a voyage, could take on board one of those divisions entire, with horses, fodder, artillery, and ammunition; it could land those ten thousand men, with proper arrangements, in the Crimea; could return and carry the second of those small armies; and could arrive back at Marseilles for the second time within one month from her first starting.

It has been deemed an achievement worthy of mention, to convey an entire regiment of light cavalry from Bombay to the Crimea, by way of the Red Sea and Egypt, in about two months. If the calculations as to speed of the Leviathan be correct—which more learned heads than ours declare them to be—then the iron ship could have conveyed at least half a dozen regiments of cavalry from Bombay to Balaklava, by way of the Cape of Good Hope and the Straits of Gibraltar, in two-thirds of the time, and at not much greater cost than was required for the one regiment conveyed through Egypt.

Had the old system of ship-building still prevailed with regard to sea-going steamers,—had our shipwrights worked on the wooden-wall principle instead of the plate-and-rivet method, we should never have possessed such noble steamships as are owned by our large commercial companies. Certain it is that the Leviathan could not have been built, on the wooden system. The mightiest giants of Indian forests, of fabulous age, in countless numbers, would not have sufficed to produce a ship, of half her size. Strength enough could not have been obtained with the most ponderous masses of timber-work, braced as they might have been with iron and copper, to have floated so mighty a load of cargo, machinery, and living beings. Yet the monster of which we are now writing, so new in its various appliances of power, so wonderful in its unheard-of capacity, is composed of plates of iron, less than one inch in thickeness.

The secret of the great strength attained by this comparatively small amount of metal is in the peculiar structure of the hull. It is built throughout, in distinct compartments, on the principle of the Britannia Tubular Bridge, and when finished will be in fact a huge tubular ship. The principles of that structure need not here be dwelt upon. It will suffice to explain that the whole of this vessel will be divided into ten huge, water-tight compartments, by means of iron-plate bulkheads carried up to the upper deck, thereby extending far above the water-line. In addition to this great safeguard against accident, the whole length of the ship, except where she tapers off at either end, is protected by a double skin of metal plating, the outer one being distant three feet from the interior. These double tubular sides are carried to far above the deepest water-mark, and inasmuch as the transverse bulkheads extend to the outer of these skins, they are divided into many water-tight subdivisions, any one or two of which, though torn or fractured, and filled with water, would not affect the buoyancy or safety of the ship.

Besides the great transverse divisions before alluded to, there are two enormously strong longitudinal bulkheads of iron running from stem to stern, each forty feet from the inner skin, and carried to the upper deck: adding greatly to the solidity and safety of the vessel. The main compartments thus formed by the bulkheads, have a means of communication by iron sliding doors near the top, easily and effectually closed in time of need. In this way, not only are all the most exposed portions of the ship double-skinned, but the body is cut up into a great number of very large but perfectly distinct fire-and-water-proof compartments, forming, indeed, so many colossal iron safes. If we can imagine a rock to penetrate the double skin, and make its sharp way into any one of these compartments, it might fill with water without any detriment to the rest of the ship.

One of the most terrible calamities that can befal a vessel at sea is undoubtedly a fire. The iron water-tight bulkheads would seem to defy that destructive element sufficiently; but, in order to make assurance doubly sure, the builders are experimenting with a view to employing only prepared uninflammable wood for the interior fittings.

Such is the Leviathan. She is to be launched, unlike any other ship, broadside on to the water by means of hydraulic power, and early in next spring, is expected to make a trial trip to the United States and back, in less than a fortnight. In contemplating this Brobdignag vessel, our small acquaintance with things nautical, dwarfs down to Lilliputian insignificance. Before reaching the Isle of Dogs, we had imagined that we possessed some acquaintance with ship-building and marine engineering. One of the Leviathan cylinders was sufficient to extinguish our pretensions.

With a Brunel for designer; with a Stephenson for approver; a Scott Russell for builder; with Professor Airey in charge of the compasses, and Sir W. S. Harris looking after the lightning conductors; the Leviathan may well be expected to turn out the floating marvel of the age. Fancy the astonishment of the South Sea islanders when they behold her, rushing past their coral homes!

THE U. S. ARCTIC EXPEDITION.

LADY FRANKLIN'S TABLET TO HER HUSBAND, & C

The Propeller *Arctic* and Barque "*Release*" left the Quarantine station, New York, on Friday 2d inst. for the Arctic ocean, in order to search for Dr. Kane and his companions. These vessels have been fitted out by the U. States Government, and the expedition is under the Command of Lieut. H. J. Hartstein, a native of South Carolina. *Release* has a complement of 24 officers and men, and *Arctic* 22 do. do. From a lengthy description of these vessels and their outfit, in the New York Herald of 5th inst, it would seem that no pains or expense have been spared to render the expedition as perfect as possible. The ships are provisioned for upwards of two years. It is thought they will first make for Holsteinberg, and thence to Disco, where the sledge-dogs will be bought. They will then run to Upernavik, and on to Cape Alexander. Here Kane was to leave a supply of provisions, and here Hartstein was to find him. Prior to the sailing of the expedition, Mr. Grinnell received from John Barrow, Esq., of the British Admiralty, the subjoined communication, accompanied by a set of maps and a copy of all the notes made and taken by all the Arctic explorers, previous to the year 1854, which he presented to the officers in command of the vessels:—

Sir—I almost fear the expedition will have sailed before this reaches you, but I send you the enclosed on the chance. One is a chart on which Capt. Inglefield has made some notes which may be useful, the other is the Arctic papers, which contain the brief summary of the voyage up to Smith's Sound, which I have not previously sent, I think. I wish I knew what way I could be of any service to the expedition. Wishing them all the success they deserve, and that they may return with Dr. Kane and his party in the autumn, I remain, yours faithfully.

JOHN BARROW.

Lady Franklin also sent a request to Mr. Grinnell, hoping that the American expedition would take out a humble tablet in memory of her devoted husband, and place it on Beechy Island. Time did not permit her to get the memento executed in London. This fond wish was at once complied with, and the tablet was finished in New York, and given in charge to Lieut. Hartstein. It bears the following inscription:—

TO THE MEMORY OF
FRANKLIN,
CROZIER, FITZJAMES.
AND
all their gallant Brother Officers and faithful
companions who have suffered and
perished in the cause of
science and the ser-
vice of their
country.
THIS TABLET
IS
ERECTED
near the spot where
they passed their first Arc-
tic winter, and whence they issued
forth to conquer difficulties or to die.
It commemorates the grief of
their admiring countrymen and friends and the
anguish subdued by faith, of her who had
lost in the heroic leader of the
Expedition the most devoted
and affectionate of
husbands.
And so He bringeth them into the Haven where they would be.
1855.

This stone has been intrusted to be affixed in its place by the officers and crew of the American Expedition, commanded by Lieut. Hartstein, in search of Dr. Kane and his companions.

Dr. Edward Kane left the U. States in the first expedition which sailed from that country in search of Sir John Franklin and his missing companions. Kane returned unsuccessful, but not hopeless, and owing to his exertions, aiding the promptings of a humane heart, Grinnell was induced to again fit out the *Advance*, and send her on another mission of philanthropy and scientific discovery. The *Advance* sailed in 1853, under the command of Dr. Kane, having sixteen men for a crew. He has been absent since that time; and when the harrowing narrative of Dr. Rae, respecting the ultimate fate of Franklin was published, a feeling of universal alarm for his safety was at once exhibited, which has been extending daily up to the present period. Capt. Collinson did not bring any tidings of the *Advance*, the conviction is now settled on the public mind that he has either perished in the icy regions or left them a good while since, and is now on his way home. It was this that induced the United States government to appropriate the sum of $150,000 to be expended in fitting out, manning, and maintaining, another force of navigators, ready to venture their lives in a search for their missing countrymen. It is earnestly to be hoped, that their efforts may be crowned with success; and that there may be no further occasion for visiting the inhospitable and dangerous regions of the Arctic ocean.

NEARLY TWO MITLIONS AT A SINGLE DASH.—The Steamer which left this port yesterday for Liverpool, carried out nearly two millions of specie, or to be more precise, her shipment in hard cash was $1,894,406 89.—What for? England has made a loan of sixteen millions of pounds. It has been taken up according to the terms, she must be furnished with cash from this loan to the extent of about eight millions of dollars a month. Her capitalists, therefore, are calling in their money from all quarters on account of the pressure of this loan. Hence this extraordinary shipment. Very astonishing this; but thus it appears, that without having anything to do with this horrible European war, we are compelled to contribute our quota for the siege of Sebastopol. If this state of things continues another year, what will be the result?—A sudden collapse on both sides of the Atlantic, or a flood of paper money, to be followed by another explosion, perhaps. If we feel so directly the cost of holding the Allies before Sebastopol, what will it cost to take the town? The news Europa brings is said to be very interesting.—*New York Herald.*