**1813-7-31**, the ***Belfast Monthly Magazine***, vol.11, No.60, p41
A steam-boat, on Earl Stanhope's principle, is now fitting up in the bason of the Leeds and Liverpool Canal, near this place, by Messrs. Fenton, Murray and Wood, under the direction of a gentleman of the name of Wright, to ply on the River Yare, between Yarmouth and Norwich. Vessels of this description have been in use for some years on the rivers in America; and two of them, one at Manchester and the other at Bristol, have been launched within the last month. It is calculated that this vessel, when completed, will sail at the rate of eight miles per hour; and in the case of emergency, she will make way against both wind and tide. The impulse is given by a steam-engine, which turns a wheel placed on each side of the vessel, on which a number of paddles are fixed, that act as so many oars, and communicate a velocity little inferior to that of a horse at full speed. ***Leeds Mercury***.
**1832-7-20**, ***Liverpool Mercury***, steam boat on the Sankey, report from ***Liverpool Chronicle***.
To the Editor
Sir, Seeing in your paper on the 30th ult. an inqiry relative to the first inventor of steam-boats; also some inquires relative to one constructed at St. Helens by a John Smith, and having seen no answer I willingly give such information as I am in possession of, and shall have pleasure if it leads to any thing like a remuneration to the family, some of whom are still living in St. Helens, and are only in very moderate circumstances.
The engine in the boat alluded to, and which is generally supposed to be the first invented, was constructed for propelling boats by steam, as before stated, by Smith, at St. Helens, in the year 1793, and the first excursion was down the Sankey Canal, to Newton Races, in June of the same year, laden with passengers. On the Saturday following, she sailed to Runcorn, from thence down the Duke of Bridgewater's Canal to Manchester On her arrival there, such was the astonishment and curiosity at this wonderful (and, as some would have it) this mad idea, that thousands of people came from all directions to see what their eyes could not believe, nor their senses understand; and, indeed, such were the numbers, and such the curiosity this vessel excited, that Smith was obliged (for the safety of his property) to give notice that no one would be allowed to come on board her, excepting those who paid a certain sum. This exasperated the populace to such an extent, that a party of mechanics immediately got possession of, and almost destroyed her. Amongst the visitors was Mr. Sherratt, of the firm of Bateman and Sherratt, of Manchester; also several other respectable engineers of the same place, whom it is unnecessary to name.
So far as memory serves me (after a lapse of 39 years) the following is a short description of this wonderful discovery; but having made no memorandum of the circumstances at the time, and I may say, being then young, and to a certain extent, like the rest of my friends, incredulous, I never anticipated what is almost to every one in the present day so common. The vessel had on her an engine on the old atmospheric principle, was worked with a beam, connecting-rod, double crank, in a horizontal line, and with seven paddles on each side, which propelled her at the rate of about two miles per hour. John Smith was a rude, uncultivated, and self-taught mechanic, and was supported with money by a Mr. Baldwin, at that time of St. Helens; and was the first aeronaut who ever ascended in a balloon, either in this or the adjoining counties. Perhaps I may observe that the vessel or oat was purchased at Liverpool, and on Smith's informing the parties from whom he bought it what his intentions were, he was treated as some insane person; he was laughed at by one, insulted by others, and pitied generally; but having money with him, he was allowed to purchase her. So strong were the convictions of this self-taught mechanic as to the general utility of steam and the ultimate success of steam-boats, that on being questioned and laughed at by a merchant at the time the purchase was made, he replied. "Those may laugh who will, but my opinion is, before twenty years are over, you will see this river (Mersey) covered with SMOKE."
I feel pleasure in giving your correspondent these particulars, and the substabce of the

remarks I can vouch for as being correct, having been an eye-witness to most of them, and one of the party who took the first excursion.
Yours, &c., Wm. Bromilow, Merton Bank, near St.Helens.

**1834-10-15,** iron packet boat, ***Blackburn Gazette***

IRON TRADING BOAT.— Some days ago, and iron boat made by Reid and Hanna, for the luggage trade, was launched at the canal at Saucel Wharf, Liverpool. She is 70 feet long, weighs about 4 tons, and draws when light, six inches water. She is calculated to carry about 25 tons. The windings from the builders' yard did not admit of her being moved in one length, and she was therefore conveyed to the canal side in two, and speedily rivetted together. Iron boats, either for passengers or trade, will in a very short time wholly supersede the use of wooden ones for canal navigation. They draw less water, are much more durable, are not subject to shrinking, and consequent leaking in summer weather; and all continually recurring expense of sheathing wooden boats with iron to protect them from ice in winter, is saved.

**1838**, ***Mechanics Magazine***, p176 and 283-6

**Steam on Canals**—A trial was lately made before the Navigation Committee of the City of London, of Captain Ericsson's ingenious invention for propelling vessels by means of machinery fixed at the stern by Messrs. Robins and Co., the Canal Carriers of London-wall, the owners of the patent. The experiment was attended with the most complete success. The boat, which was a common fly-boat, such as is ordinarily used on canals, left the wharf of Messrs. Robins and Co., Paddington, shortly before nine o'clock, and having arrived at Bull's bridge upon the Grand Junction Canal, at an average speed of five miles an hoar, proceeded to the Thames, along the Brentford Cut, and having taken on board at Kew-bridge the Chairman and other members of the Navigation Committee and the Water-balliff, continued her progress to Queenhithe, a distance of fifteen miles. which she accomplished with ease in one hour and forty minutes.

**Steaming on Canals—Ericcsson's Propellers**.

We copy from the Manchester Guardian the following account of a very successful experiment made on the Duke of Bridgewater's canal with Mr. Ericsson's propellers, described in our 751st Number. The account is defective and erroneous in many particulars, and in none more so than in the ascription of all "the merit" of the affair to Messrs. Robins and Co. (the well-known carriers), and the apparently studious omission of the name of the ingenious and indefatigable inventor, Captain Ericsson. We have subjoined, therefore, some notes which may help to set the matter in its true bearings before the public.

As our American neighbours would say, we are "going a-head" in the use of steam as a locomotive power. But a few weeks ago we noticed the starting of a small steam boat to ply on the Irwell, with passengers, between this town and Warrington; and we have now to announce the application of steam to carriers' canal boats for the transit of goods between this town and London. In canal navigation in this country, a long period of time has elapsed since any alteration or improvement of any great importance has been made. The boats are of the same construction, and so inartificial is the mode of working them, that the only means in practice, at the present day, for propelling them through the immense tunnels, of which one is nearly a mile in length and another three quarters of a mile, is for the boatmen to he on their hacks on the tarpaulin which covers the goods with which the boats are deeply laden, and, by pushing their feet against the roof of the tunnel, work the boat. onwards at a tediously slow rate, with great labour and fatigue, amidst the smoke from the boats' chimneys or funnels, which, to any one unused to its effects in a long tunnel, would seem wholly unendurable. This is what the boatmen term "legging through;" and in this way every boat-load of goods is

worked onwards through the tunnels on every great waterline of internal navigation in the country.

The first application of steam on canals has been made, not on a new form or construction of boat, nor even on an iron boat of similar form, but on one of the long narrow canal boats, with sharp stem and stern, which had for some time before been plying on the canals in the usual way. The experiment which has been tried, at little cost, and which, at best, is an imperfect one, has, however, been eminently successful; and there appears very little doubt that its results will be a revolution as complete in canal navigation as the introduction of marine steamers has worked in our coasting packets. The merit of making this experiment belongs to Messrs. Robins, Mills, and Co., carriers, of London, and of Castle Field Wharf, in this town. Into one of their canal boats, near the stern, they introduced a small high-pressure marine steam-engine, of only four horses' power, to which a boiler that had been used for one of the locomotive engines on the Liverpool and Manchester Railway was adapted (The boiler is not one that has been used for locomotive engines—It is one Invented by Captain Ericsson, and of quite a peculiar construction. It is besides only 5 feet 10 inches long, while locomotive boilers are never less than 12 feet. The cylinder is 12 Inches in diameter, with a 10-Inch stroke, making about 70 strokes per minute; the steam always kept at 80 lbs. per square inch. The scientific reader will allow that such power is good measure for "four horses.") As the narrowness of canal tunnels and the injury likely to result to the banks from the use of side paddles must always have thrown a difficulty in the way of applying steam power, in the ordinary mode, to canal navigation, it became necessary to substitute some paddle which should not be in the way, while it should not be liable to the objection of injuring the banks. This difficulty has been surmounted, as it seems to us, very satisfactorily and completely, by an ingenious application of the principle of the old fish-tail paddles (The propeller is by no means on the principle of the "old fish-tall paddles." See description in *Mechanics' Magazine*, No. 751. The *Guardian*'s process of reasoning seems to be this; the tail of a fish is (commonly) behind the rest of its body, Captain Ericsson's propeller is placed behind; ergo Captain Ericsson, propeller and a fish's tail are very much alike. By the same sort of logic it might with great ease be shown to be very like the famous pigtail at Charing Cross) These paddles are placed at the extreme stern of the boat, and this terminating in a sharp point, it was *necessary to lengthen the boat*, and make a square box to contain the paddles (The boat has not been lengthened. A square piece of wood has been attached to the stern part, but which does not project more than 10 inches further aft than the point of the stern of the ordinary fly-boats) They consist of two small wheels, placed *side by side*, not working parallel to the boat, but transversely, and revolving contrary ways (The paddles are not placed "side by aide." See above Number of *Mechanics' Magazine*) The paddle-boards or plates of iron, of which there are six on each wheel, have an inclination of about 45deg. When in action, therefore, it will be seen that, as one wheel of paddles strikes the water on the starboard side of the stern, the other strikes it on the larboard, thus producing an action on the water resembling that which sailors call "the double scull," and which is the best effort of art that we have seen in imitation of the mechanical action of the tail of a fish when swimming (The paddles do not "strike the water;" the propulsion being perfectly uniform, a gradual sliding of the water takes place from the stern) The defects of the present experimental engine, &c. seem to be rather in its adaptation and arrangement than in itself. In the first place, we should think a more powerful engine necessary to the fair development of the power of steam in this species of navigation, considering the great length of the boat and the bulk and weight of its cargo, which is probably eleven or 12 tons (The engine is by no means a defective one, nor has it been found not powerful enough; on the contrary, Its power is full 20 per cent. too great for the paddles, which ought, in point of fact, to have been much larger.) Then we have no doubt, that that form of boat which has hitherto sufficed for the slow

dragging of horses and a towing line, is not precisely the shape and build, nor, perhaps, is timber the best material for canal steam navigation. Again, it appears to us that the engine was rather too far from the paddles to exercise its full available motive power (The power of the engine is communicated to the paddles by means of a straight shaft of about 12 feet In length. Does the *Guardian* suppose that if this was reduced to 6 feet the power of the engine would be increased?) But these and several other points, into which we have not time to enter, will, doubtless, receive a full and sagacious consideration from scientific and practical men when once their attention is directed to the subject (The Inventor, Captain Ericsson, being neither scientific nor practical!—and all "the merit" in the case consisting in the introduction by Robins and Co. of the "old fish-tail paddles " if our contemporary will but condescend to advise with some of the many "sagacious, scientific, and practical men" to be found in his own neighbourhood, he will be surprised to find how little he really knows about the whole matter.) That the time for this, we think, bearing in mind the power and force of competition in every branch of trade and mode of communication, cannot be far distant. But to return to the *Novelty*, which is the new name the boat received when from a [tow] liner she became a steamer, the first voyage she made very recently from London to this place with very considerable success. Like her great prototypes, the *Great Western* and the *Sirius*, a log was kept of her rate of steaming during this her first outward voyage; but we have not been able to obtain a sight of this log, and can, therefore, only very generally notice her performance, which, we understand, was at the rate of nearly eight miles per hour. She left Paddington on Thursday week, at noon, with about eleven tons of goods, but was detained for several days on the Grand Junction canal, waiting her turn to proceed: notwithstanding this delay, she reached here about half-past three o'clock on Wednesday afternoon last, without having sustained the least injury, except that, having been lengthened, she was a little too long conveniently to pass some of the locks; and the result was, that her paddle-boards were a little bent and put out of order.

They were speedily put to rights; and, on Monday last the proprietors, with a party of friends, proceeded with the boat on an excursion down the canal, we believe as far as Runcorn, when her speed was tried, with the favourable results already noticed. On Monday evening she took on board a cargo of bale or pack goods for London, and, we believe, started on her homeward voyage the same night. We understand that when going at the rate of eight miles an hour she does not occasion the least swell. It is anticipated that she will be able to deliver goods in London in three days from her departure from this place. On one occasion shortly before her first canal voyage, the *Novelty* towed the city barge, on board of which were a hundred and fifty gentle- men, up the Thames as far as Teddington Lock, at the rate of about eight miles an hour; and her performance then gave the highest satisfaction to all who witnessed it.

Since penning the preceding notes, we have seen a subsequent notice in the *Guardian*, which we also insert, in which we are glad to observe tardy justice is done to Captain Ericsson, and the character of the improvement is a little more correctly appreciated. It is not a little amusing, however, to note the pertinacity with which our contemporary sticks to his fish-tall resemblance, while in the same breath he does his best to show that there is no resemblance at all.

(Second notice in the *Manchester Guardian*.)

In an article under this head in the *Guardian* of Saturday last, we noticed the first down voyage to this town from Lon- don, through the canals, of a steam-boat named the *Novelty*.

We have already stated that the *Novelty* is the hull of an old canal boat. Her form, to those unacquainted with the build of these boats, will be better understood when we state that her length is about 74 feet, with a seven feet six inch beam; she is heavily constructed, and when loaded draws about two feet water. We noticed that her engine was high pressure, and of four-

horse power, supplied with steam from a small locomotive boiler. The boat is fitted with a species of paddles, already described, but perhaps better known as "Ericsson's" propellers, in substitution of the side paddles of the old steamers, which are constructed so as to propel without raising a surge injurious to canal banks, and so as to pass through the narrow locks with ease and safety objects hitherto unattained, and deemed impracticable. The main peculiarity of this invention is the construction of the paddle, so as to secure an action resembling that of a fish's tail, or of a perpetual sculling through the water. The difference between the operation of these propellers and that of the fish or double scull is, that instead of the force being alternate from side to side, the propellers' strokes upon the water are simultaneous. As these propellers work with the greatest effect when submerged, no waste of power is incurred, and no shaking motion communicated to the boat. When in motion, with her propellers submerged, there is little to distinguish the *Novelty* from other canal boats, the old wooden funnel being retained; there being little smoke, as coke is the fuel consumed: the engine and boiler being out of sight, and the only variation in her form being the elongation and widening of the stern, about 14 inches, with the addition of a slight stage for the helmsman.

We noticed the fact of an experimental trip having been made by this boat on Monday week upon the Duke of Bridgewater's canal. The party on board consisted of some of the principal canal proprietors and water carrier' in this town and neighbourhood, and their friends. The *Novelty* started from the Manchester end of the canal about six minutes before one o'clock; passed the Worsley branch at twenty minutes past one o'clock, and reached the wharf at Altrincham at half-past two o'clock, having performed the eight miles in one hour and 36 minutes. The speed of the boat, and the fact of no towing horses being visible, caused no small astonishment to various rustics on the canal banks, and some of the more cunning of these people, hearing the panting of the engine, and seeing the bubbling of the water in her wake, at length decided that there was "summut aloive in her tail." At twenty minutes before five o'clock the boat started on her return from Altrincham bridge, and on her way came up with the Wellington fly-boat, which, having just been freshly horsed, kept a-head for about two miles, but was then obliged to yield with a bad grace, the horses being half killed under the unwonted exertion. The *Novelty* passed "his grace" in fine style, and arrived at Messrs. Robins, Mills, and Co.'s wharf at ten minutes after six o'clock.

Owing to the construction and form of the boat, the propellers being only partially immersed, to the engine being out of repair, and to the utter disregard of her "trim" during the experiment, it was observed that the propellers had not a fair chance; nor could the boat attain that higher rate of speed which her due emergence from the water must have produced. During the trial trip no injurious ripple was produced by the propellers; but where the water was shallow a ripple, caused by the displacement of water by the boat, followed midway, and considerably impeded her progress. With deeper water her speed accelerated, and on the Thames she is said to have attained a rate varying from eight to nine, and even up to and exceeding ten miles per hour.

We understand that the American government, ever on the alert, has availed itself of this invention. An iron steamboat, built by Mr. John Laird, of North Birkenhead (under the inspection of Mr. F. B. Ogden, the United States consul at Liverpool), and fitted with these propellers, was aunched on the 7th instant. She is at present waiting for her boilers, and it is ex- pected will be tried on the Mersey in the course of next week. She is intended to be worked as a steam tug to tow ships upon the Delaware and Raritan Canal (New Jersey), which is forty-four miles in length.