

ANOTHER CANAL STEAMER FITTED WITH MR. P. TAYLOR'S REVOLVING SCREW SCULLERS.

On Wednesday the fifth instant we had the pleasure of inspecting a new steam-boat on the river Irwell, fitted by Messrs. Peter Taylor and Co., of Hollinwood, near Manchester, with steam engines and propellers of an entirely new construction, both inventions of Mr. Peter Taylor, and for which he has obtained patents. The vessel is 75 feet long and 10 feet wide, and built (with the exception of the gunwale and paddle box,) entirely of iron. She appeared to perform very satisfactorily; at a speed varying according to the depth of water from about eight to nine miles per hour,* which upon a confined water we believe has never been attained by any steam vessel. In noticing a trial some months ago of another vessel belonging to Messrs. Taylor and Co., which had then been newly fitted with similar propellers, we gave a description of the apparatus, which consists of a number of continuous curved vanes or segments of screws, or wings on two axes. In the instance now under notice five pairs are affixed upon one axis, and five pairs upon the other; the number being regulated by, and varied according to, the power of the steam engines and the extent of surface of the vanes or blades, which have the appearance of small windmill sails, and have been very appropriately named revolving screw scullers; each set consisting of five pairs are six feet in diameter. The vanes of one set work betwixt the vanes of the other in the same manner as the teeth of cog wheels; by this arrangement the two sets, although six feet in diameter, are together contained in a paddle-box (there being only one): it is 9 feet 8 inches in width, and placed at the stern of the vessel; the smallness of the space occupied offering great convenience for passing locks.—The scullers are well protected from the banks or sides and bottom of the canal, with which it is almost impossible they can

ever come in contact. The paddle-box occupies seven feet in length, and has the effect of extending the boat so much. The width or breadth is regulated by the width or breadth of the boat, which in the present instance is ten feet outside. The two shafts or axes are placed at an equal distance from each other, as well as at equal distance from the sides of the boat or box containing them, and with which they run parallel; and as we have before observed, the shafts or axes are so arranged in respect to each other, that the vanes or oblique surfaces of the one can enter between the vanes on the other shaft or axis; thus obtaining a great extent of propelling surface within a very confined space. The axes are placed considerably above the water line, and the curved oblique vanes or scullers are affixed upon the shafts or axes in opposite directions, that is, they are affixed upon one shaft or axis in such a manner that they may be said to form parts of a right-handed screw, and upon the other shaft or axes, so that they may be said to form parts of a left-handed screw. This novel propelling apparatus is worked by a pair of semi-rotatory steam engines, also Mr. Taylor's invention, and for which, as well as the propelling apparatus, he has obtained patents. The steam boiler is of the same description as those used upon the railways. It is placed towards the stem of the vessel, and the steam engines close up to it. To one axis of the propelling apparatus is coupled a shaft, which runs lengthwise to the steam engines. The starting, reversing, and stopping apparatus is connected with the regulator of the steam engine, and affixed at the stern of the boat, within reach of the steerer, who manages the whole when necessary. This is a most simple and beautiful arrangement, the helmsman being altogether independent of the engineer. He can start, stop, or reverse the engines at his pleasure. The helm or rudder is placed in the usual position, and is immediately behind the propellers.

On Thursday, the 6th instant, we understand this new steamer made her first appearance upon the Bridgewater canal, taking in tow and tugging a timber float from Manchester to Preston Brook, distant about 25 miles, which she performed, including all stoppages and interruptions from other boats, in about six hours. She returned the same day to Manchester with three fly-boats belonging to the Bridgewater trust, viz, the *Harriet*, the *Frank*, and the *Granville*, all deeply laden, and containing 60 tons of merchandise. The first and second six miles were each respectively performed in one hour and twenty-three minutes. She was accompanied for a considerable distance by several gentlemen connected with the Bridgewater Trust, who kindly afforded every assistance in conducting both that and the subsequent trials. At Lymm she was inspected by Trafford Trafford, Esq., who got on board, to whom the machinery was shewn and explained. He expressed himself much pleased with the contrivance and arrangement of the machinery, and there seemed to be but one opinion as to the successful performance. The little agitation produced by the propellers is confined to the middle of the canal, and consequently does not wash the banks so as at all to injure them.

On Tuesday the 11th the steamer again left Manchester at six a. m., and arrived at Preston Brook at a quarter-past eleven—say 25 miles in five hours and a quarter. She proceeded to Runcorn at twelve o'clock precisely, taking in tow and tugging five large flats, viz.—the *Manchester*, the *Diligent*, the *Surprise*, the *Busy*, and the *Mersey*; a sixth, belonging to Messrs. W. Jackson and Sons, was added on the way. The weight of the hulls and lading of these vessels was stated to amount together to nearly 400 tons: the time occupied in tugging, which was one hour and fifty-nine minutes, being at the rate of about three miles per hour. Immense crowds of persons assembled on the banks of the canal at Runcorn, attracted

by the novelty of the scene. The long train of huge vessels, the smallness of the steamer, the speed, and the almost entire absence of commotion in the water, were alike matters of surprise and astonishment. The steamer immediately returned to Preston Brook, taking in tow a packet-boat laden with about sixty passengers. The last three miles of the distance was performed in twenty-two minutes, or at the rate of about eight miles per hour.

TUNNEL EXPERIMENT.—It was next proposed to try to pass the steamer through the Preston Brook tunnel (which is three-quarters of a mile in extent) with the boats waiting the five o'clock turn. It is well known that considerable delay is experienced in passing the tunnels of canals, and the attention of scientific men and gentlemen connected with canal navigation has long been directed to the subject of contriving a remedy: that remedy is now provided. Mr. Taylor's steamer, as a tunnel boat, is signally successful. It was at first feared that the absence of flues or perpendicular ventilating shafts would occasion an almost suffocating sensation to the engine-drivers, steersman, and boatmen, owing to want of vent for the steam and heat, and therefore in the first attempt the steam and fire were kept down as low as possible. This occasioned the boats to be a much longer time in passing through than would otherwise have been the case; the time occupied in the first attempt, with two boats in tow, being 26 minutes. A considerable number of persons were in the steamer, little inconvenience was experienced, the steam and vapour being weak, and impeding from the roof of the tunnel. On returning, however, with three narrow boats in tow, and the steam a little stronger, the helmsman of the steamer was a good deal affected by inhaling the steam, and it was feared at first that he would not soon recover from the effects which it appeared to have produced upon his lungs: he soon came round, however, and it is gratifying to be able to state that out of twenty other

individuals who passed through at the same time (Mr. Taylor himself being one of the number), no other individual felt any serious inconvenience, and the helmsman's indisposition is entirely attributable to his not taking a lower position in the boat. He was requested to change his position, but having felt little inconvenience on the first trip he persisted in remaining. We understand that Mr. Taylor recommends the re-opening of several shafts which at present are closed; and this, it is expected, will thoroughly ventilate the tunnel and obviate every difficulty. Otherwise he has a plan for passing the trains of boats through the tunnel without any attendants, and as quickly as upon any other portion of the canal. The time occupied in passing a train is frequently three-quarters of an hour. On the second attempt the steamer passed through, with three boats, in about sixteen minutes.

On Wednesday the 12th the steamer returned towards Manchester at 6. 41, taking in tow and tugging four fly-boats, all laden, belonging to the Bridgewater Trust, viz.:—The *Granville*, James Lunu, master; *Countess Grosvenor*, Thomas West, master; *Countess of Surrey*, W. Woods, master; *Blanche*, Isaac Speed, master; united cargoes, 60 tons. The steamer arrived at Stockton Quay, say six miles, in one hour and sixteen minutes; at Lymm, a similar distance, in about the same period of time. Owing to one of the boats getting aground, and to some interruption from a laden timber float, the time was not afterwards particularly noted. On arriving at the junction of the Worsley canal the steamer disengaged her train of boats, taking one fly-boat only to Worsley: she there took in a fresh supply of fuel, returning to Manchester the same day, where she now remains.

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Notwithstanding the signal success of this canal steamer, Mr. Taylor is of opinion that he shall be able to attain a much greater speed with a boat of lighter draught of water, the present boat, owing to her build, being in the opinion of boat-builders, fully one foot deeper than would be the case with a hull of the same dimensions but proper shape.

* We understand that upon one or two occasions she attained the rate of nearly ten miles on the Irwell.

