1886-9-8, Report on Steamers, 10D76/4 Box 44, Bradford RO

Condition of Engines & Boilers in Steamers

To the Directors of L&LC Co

Steamer ***Comet***: Commenced working March 1884

Docked at Wigan April 21st 1886: Docking finished April 27th 1886

Engines in fair condition. Cylinders and all working parts, taps & pipes thoroughly examined, Propellor shaft turned up & stern bush bored out and refurbished. Boiler also in fair condirion, the fire box at rivets only leaking a little which can be caulked up at any spare time they may have at Wigan. The boiler & engine originally belonged to the ***Despatch*** or ***Aire***. Donkey pump in good condition.

Steamer ***Weaver***: Commenced working July 1881.

Docked at Wigan April 28th 1886: Docking finished May 15th 1886.

Engines. Cylinders bored out, new piston rings put in, link motion thoroughly overhauled, valve spindles pieced up, slide bars & cross heads adjusted. Also connecting rod, all taps and pipes thoroughly examined, safety valve adjusted. Boiler in fair condition, all retubed, put in when on Dock. The boiler that was in the steamer originally is now done up, the fire box being renewed several times. Donkey pump thoroughly overhauled. All is now in very fair condition.

Steamer ***Amy***: Commenced working November 1881.

Docked at Wigan May 17th 1886: Docking finished May 31st 1886.

Engines. Cylinders bored out & new piston rings put in. Cross heads and connecting rods overhauled. Valve faces faced up. Valve spindles pieced up, and turned up anew. Link motion thoroughly overhauled. All taps and pipes thoroughly examined. Propellor shaft turned up and stern bush bored out and rebushed. The link motion which is very much worn and will require to be renewed before long. Boiler tube plate beginning to show signs of giving way round the flange, also firebox, which is giving at rivets. But I do not think there is anything dangerous. Donkey pumps in very fair condition after being thoroughly overhauled.

Steamer ***Clyde***: Commenced working April 1881.

Docked at Wigan 31st May 1886: Finished 11th June 1886.

Engines in very fair condition, got very little done when on dock, but all things got thoroughly examined. Boiler, fire box plates cracked, will require a new one before long as it leaks very bad at times and cannot get sufficient steam. Donkey pump thoroughly overhauled and is in good condition now.

Steamer ***Cricket***. Commenced working: February 1880.

Docked at Wigan June 10th 1886: Finished June 25th 1886

Engines. Cylinder in fair condition, was renewed in Feb. 1886. Link motion case hardened got very little done when on Dock. But all working parts, taps & pipes thoroughly examined. Propellor shaft turned up as new and stern bush bored out and rebushed. Boiler in fair condition, fire box renewed in June 1885. Donkey pump overhauled when on Dock last and is now in good condition.

Steamer ***Humber***. Commenced working Jan'y 1880.

Docked at Wigan June 26th 1886: Finished July 9th 1886.

Engine. Cylinders bored out, new piston rings put in, link motion thoroughly overhauled. Cylindsrs and motion is getting now very much worn and will not repair again I am afraid. All taps and pipes thoroughly examined. Boiler fire box plate is very much gone, but the shell of boiler will stand a new one putting in, will require to be done shortly. Propellor shaft renewed and stern bush rebushed and bored out. Donkey pump in good condition.

Steamer ***Dee***. Commenced working May 1881.

Docked at Wigan July 10th 1886: Finished July 22nd 1886.

Engine & Boiler new. Put in in Nov. 1884.

They are nearly as good as the day they were put in, there has been very little done to them, only examined all over carefully. The Boiler has had nothing done to it, only abut two doz. tubes put in. The Boiler is made of steel & fire box welded. Donkey pump in very fair condition. The boiler will shortly be retubed all round.

Steamer ***Dove***. Commenced working April 1880.

Docked at Wigan July 23rd 1886: Finished Aug. 14th 1886.

Engines. Cylinders bored out, and new rings put in, all working parts, taps & pipes thoroughly overhauled. Link motion case hardened & two new quadrants. Boiler, new fire box put in & new neck ring and also retubed all round, is in fair condition now. Donkey pump thoroughly overhauled and is now in good condition.

Steamer ***Ida***. Commenced working Feb. 1882.

Docked at Wigan Aug.14th 1886: Finished Sept.2nd 1886.

Engines. Cylinders bored out and new pistons and piston rings put in. Link motion & valve spindles thoroughly overhauled and case hardened. All taps, valves & steam pipes examined. Propellor shaft turned up & stern tube rebushed & bored out. Boiler. New fire box put in & new neck ring, boiler retubed all round. Engine & Boiler belonged originally to S. ***Alert***, put in Oct. 1879. Transferred to ***Ida*** Feb. 1882. Donkey pump thoroughly overhauled, and is now in good condition.

Steamer ***Wm. Robinson***. Commenced working March 1881.

Docked at Wigan Sept 4th 1886, is still in dock.

Engines. Cylinders to be bored out and Link motion to be thoroughly examined and case hardened. All pipes, taps and valves to be examined. Boiler. New fire box to be put in and retubed. Donkey pump also wants thoroughly overhauling.

Steamer ***Swift***. Commenced working Nov. 1879.

Will go on dock after ***Wm Robinson*** comes off. Engines. To be thoroughly examined, also all taps, valves and pipes. Propellor shaft to be renewed. There is very little wrong with the engines but it is as well to examine all over when on dock. Boiler is in very fair condition, but will require to be nearly retubed. New fire box put in on Sept. 1885. Donkey pump requires to be overhauled and ram or plunger requires to be cased anew.

Foulridge Tug. Commenced working Nov. 1880.

Docked at Wigan 19th October 1885: Finished 10th Nov. 1885.

Engine. Cylinders bored out, new pistons, piston rods and rings put in. New connecting rod brasses. Link motion thoroughly repaired and case hardened. Pipes, taps & valves overhauled. Propellor shafts renewed fore and aft screws. Donkey pump thoroughly overhauled. Boiler examined thoroughly, iron tubes all taken out and copper ones put in instead, which is better. All is in very fair condition now.

S S ***Warrior***. Built & engined between July & Sept. 1885.

Commenced working Sept 1885.

Put on gridiron at Birkenhead July 1st 1886. It was only on one tide, it was examined all over and all repainted. Engines in very good condition and works very well. Boiler is not as good as it ought to be for the time it has been in use. There is a leakage in the fire box which takes up and brakes out now and again.

Remarks

There is several of the Cylinders and Link motions getting very much worn, and will require to be renewed shortly. There will also require to be two or three new boilers got as the fire boxes has renewed several times and by cutting out the old fire boxes and putting new ones in the shells of the boilers becomes to get destroyed. Owing to several of the Cylinders & Boilers becoming to get done up, it causes the consumption to be greater and also causes more expense in repairs. If the

Boilers are got the same as what is in S. ***Dee*** they ought to cost very little for repairs for the same time.

After considering the matter over carefully in respect of going to Wigan, I believe it will be better for me to be their and I will also be able to see more of the Engines & Boilers. But it would be much better if I had a more suitable place for doing the repairs as the place is to small that is there now. I would also propose that I should have an office somewhere close to so as I could keep an account of all things that is going on. I have no place in the meantime.

Yours obediently, John Gibson.

1886-9-17, RAIL846/22, Boat boilers and engines to be inspected by the Boiler Insurance & Steam Power Company or by the Engine, Boiler & Employees Liability Company, quotes to be obtained.

1886-12-1, RAIL846/22, James Hoyle, boatman, dies in Gannow tunnel, steam tug ordered to assist boats through. John Gibson, Superintendent of engines, gives notice.

1890-4-25, Rochdale Canal letter book 6894, GMRO

L&LC
General Manager's Office
Pall Mall, 25 April, 1890

Dear Sir,

The Contract price for our new engines & boilers is £410, this includes iron rudder, stern post & propeller.

The engines are vertical, two cylinders & surface condensing. There is also an arrangement for reversing which increases the cost a little.

Yours truly, W Somerset

To C R Dykes, Esq [RCC]

1891-3-18, RAIL846/24, Mishap to tug ***Warrior*** in the Mersey during fog.

1892-6-20, RAIL846/25, Richard Younds, first mate on the ***Sun***, died when a boiler tube burst; father given £125 plus 10 guineas costs.

1895-4-26, The Engineer

STEAM GRAB DREDGER, LEEDS AND LIVERPOOL CANAL.

We reproduce on page 356 a photograph of the second steam grab dredger, constructed under Mr. Cockburn's patent, (and supplied by Messrs. Cockburn and Montgomery, of Queen Anne's-gate, Westminster, to the Leeds and Liverpool Canal Company, which presents several novel and interesting features. The grab, which has a capacity of 15 cubic feet, is suspended in a universal joint or gimble from a radial arm, and is opened and closed by means of a steam cylinder capable of exerting a force of several tons on the jaws of the grab, so that it will work in very hard material. The depth of dredge also can be regulated.

The whole of the machinery can be folded down easily within 8ft, headway, and raised again in a few minutes, an important qualification, as on this canal bridges occur on an average every one-third of a mile. The dredger is provided with a set of four friction winches driven by an independent engine for manipulating the spoil barges. The after part is fitted with cabins so that she can house her own crew. When at work the dredger is moored up to the canal bank, and a barge or punt capable of holding 25 tons is brought alongside and connected by a steel wire rope to the winches. The grab delivers direct into the barge. When traffic approaches the winches are set in motion, and, the rope being passed round an anchored sheave on shore, the barge is hauled astern of the dredger, and is brought back again into position by the same means.

The traffic on the Leeds and Liverpool Canal is incessant, and it is necessary to have some rapid mode of dealing with the mud barges, otherwise traffic is impeded, and valuable time lost. When the barges are full they are taken, four or five at a time, by a steam tug to an unloading depot, where they are discharged at an average rate of 60 tons per hour by a discharging plant lifting 2¼ tons at a

time, of somewhat similar design to the dredger crane, but mounted on wheels and running on rails on the canal bank. This dredging and discharging plant has proved so efficient, and fulfils so well the required conditions, that the Leeds and Liverpool Company has lately placed an order for three more dredgers similar to that shown on page 356, and one more discharging crane. We are requested by Messrs. Cockburn and Montgomery to state that the success and degree of perfection in the working of these machines is due quite as much to improvements made at the suggestion of Mr. R. H. White, C.E., deputy-engineer of the Leeds and Liverpool Canal Company, as to the principle of their patent.

STEAM GRAB DREDGER, LEEDS AND LIVERPOOL CANAL.

Sir,--My attention has been drawn to the article under above heading in your issue of April 26th, 1895, and as it would be naturally inferred from it that Messrs. Cockburn and Montgomery are the only manufacturers of this class of dredger, I write to state that Mr. Cockburn's patent was taken out when he was a member of the late firm of Cockburn, Phillips, and Montgomery, and with their sanction. This firm supplied the first dredgers of this kind to the Leeds and Liverpool Canal Company. Many improvements were introduced by that firm from time to time, and upon the dissolution of the firm by my retirement in November, 1893, the right of the members to use the patent was recognised by Mr. Cockburn, and for this purpose I hold an absolute and free licence from him as patentee of the original design. The same description of dredger has been supplied by me to the Grand Junction Canal Company, of which I enclose a photograph. I have also obtained provisional protection for an improvement whereby a direct vertical movement is imparted to the grab, in lieu of the radial movement. The importance of this in many cases is obvious to those familiar with dredging, and more particularly discharging work. H. A. PHILLIPS.

39, Victoria-street, S.W., May 1st.

1896-1-16, RAIL846/26, Barcroft's propeller unsatisfactory after trial.

1897-12-15, RAIL846/27, Tugs now charged 5 guineas per annum. A new steamer and 6 boats ordered. Messrs Thwaite & Cawley allowed to use one mile of canal for one year to try electric traction. (*this may have been above Ell Meadow as Pagefield lock not built at this time*)

1899-4-20, RAIL846/27, Electric traction experiments extended one year.

1900-8-29, RAIL846/27, Steel barge to be converted into twin screw steamer as an experiment. Ladder dredger unsold, engine and boiler to be used at Burnley yard and hull to engineers department. Gas engine and hoist installed at Church.

1903-12-16, RAIL846/29, Diesel oil engine for boat in carrying trade at £400, exclusive of oil tank and propeller. Exors of John Hodson to build new steamer hull at £223.

1906-2-16, RAIL846/29, Horizontal saw for Burnley Yard, £140.

1906-5-16, RAIL846/29, Company could buy reversing 2 cylinder diesel engine in six months. Mr Sinart offers terms upon which the Diesel Company will take back the engine.

1906-6-20, RAIL846/29, Gardners offer a 2 cylinder engine for trial in a barge, cost £290. Agreed, but if unsatisfactory Gardners to remove at no charge. Diesel engine (see 16 May) transferred to Burnley to work sawing machine.

1906-7-18, RAIL846/29, 15HP engine with reversing gear to be tried as well as 30HP, both from Gardners.

1932-1-28, L&LC Correspondence, CRT

Wigan. January 28th.1932.

Dear Sir,

In accordance with your request of Monday last re propellors. We have from time to time made many experiments with propellors on our Steamers, the one that gives the best result for the most powerful Steamers of about 35.B.H.P. is 3ft-3in diameter x 4ft-6in pitch x 1ft-9in width of blade; on Steamers about 25 H.P. 3ft-0in diameter x 4ft-6in pitch x lft-6in width of blade. The revolutions of the propellor is about 240 per minute in both cases.

In 1907 we made some experiments with propellors of different sizes and pitches on Barge No.35 fitted with Gardner Oil Engines. With the Engines running at 400 revs. per minute and coupled direct to the propellor shaft, we got the best result from a propellor 2ft-9in diameter x 4ft-6in pitch. We then ran the Engines at 500 revs per minute and geared the propellor down to 225 revs, and fitted a propellor 3ft-0in diameter x 4ft-6in pitch which gave a better result.

A trial run was made with the 2ft-9in propellor running at 400 revs, the boat travelled 3 miles in 1 hour 10 minutes with a load in the Barge and two boats in tow. A further trial was made with a 3ft-0in propellor running at 225 revs, under the same conditions when 3 miles was covered in 1 hour, thus doing 3 miles in 10 minutes less time with the larger propellor running slower.

With regard to Iron and Wooden Boats, I have had no experience in the repairs and upkeep of the latter, but should think from observation and the experience I have had in upkeep of Iron Tugs and Spoil Barges that the cost of repairs would be less and the life would be longer in an Iron Boat than a Wooden one.

On looking through the records kept here, I find that the cost of repairs to 33 Spoil Barges for 12 years averages about £7 per annum for labour and material; these Barges I should imagine have rougher work than a Canal Barge would have on ordinary Canal work, some over 35 years old are still in commission and in very fair order.

Iron Tugs ***Foulridge*** and ***Gannow***, both over twenty years old. ***Foulridge*** has never had any repairs done to her hull other than scaling and painting since new. ***Gannow*** had several new plates put in the hull last March; the first since new, In both cases the frames are in very good condition and with reasonable care will last quite as long again.

These Tugs are fitted with iron engine beds; which are more substantial and do not shrink and alter like wood from the heat of the Boiler.

Yours faithfully,

(Sd) G.H.Denning.

To: Robt.Davidson Esq., LIVERPOOL.