

Wigan. January 28th.1932.

Dear Sir,

In accordance with your request of Monday last re propellers. We have from time to time made many experiments with propellers 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. 31-0" diameter x 41-6" pitch x 1,-6" width of blade. The revolutions of the propeller is about 240 per minute in both cases.

In 1907 we made some experiments with propellers 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 propeller shaft, we got the best result from a propeller 2ft 9in diameter x 4ft 6in pitch. We then ran the Engines at 500 revs. per minute and geared the propeller down to 225 revs, and fitted a propeller 3ft 0in diameter x 4ft 6in pitch which gave a better result.

A trial run was made with the 2ft 9in propeller 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 propeller 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 propeller 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.

Robt.Davidson Esq.,

LIVERPOOL.