Top of Bingley 5-rise

Steam towage was introduced on the L&LC in 1879.

Electric towage was tried in 1898, possibly for half a mile below Wigan

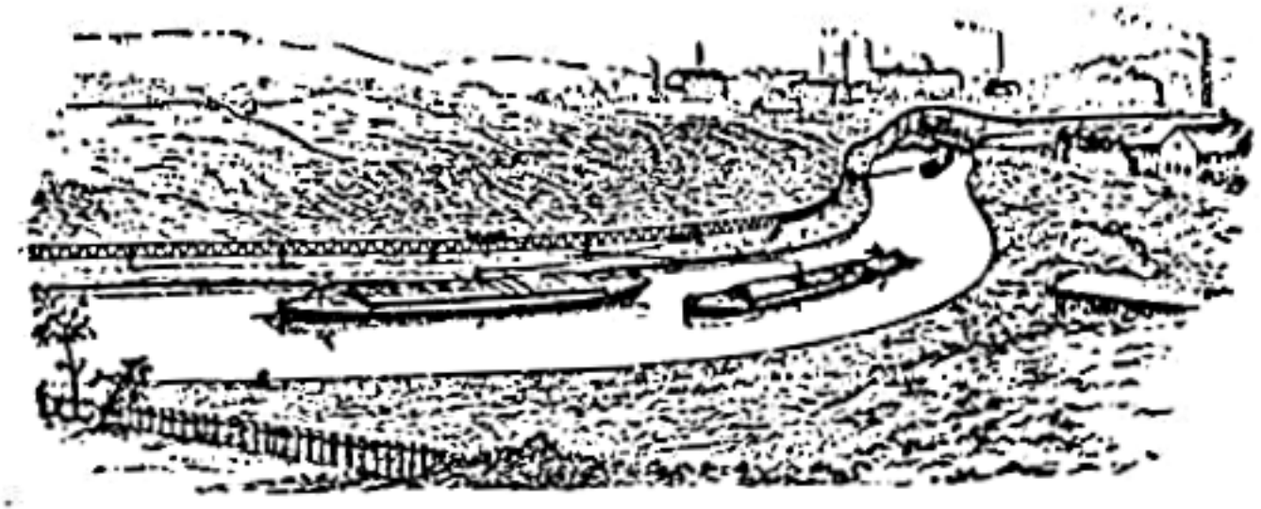


FIG. 6.—General View of the Thwaite-Cawley System.

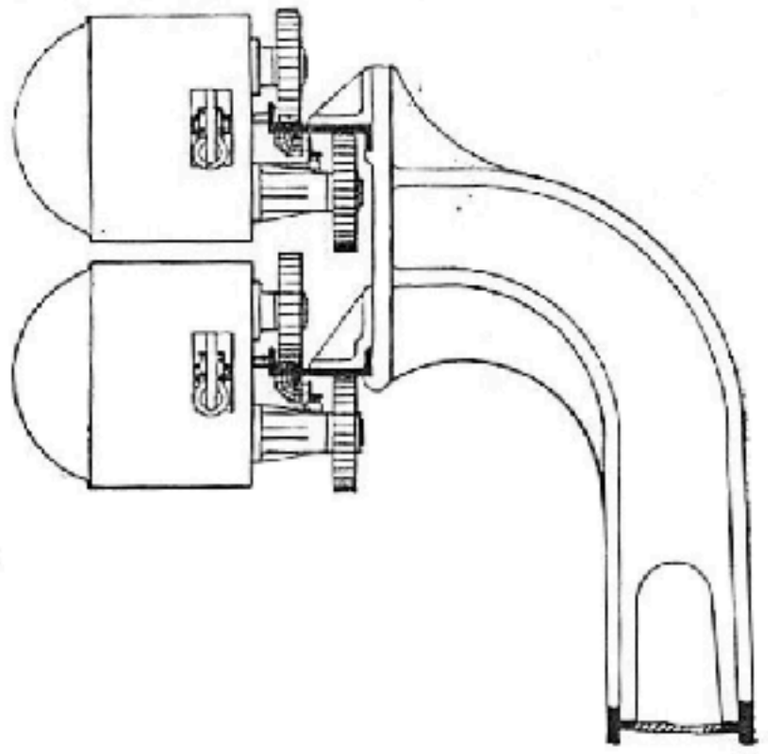
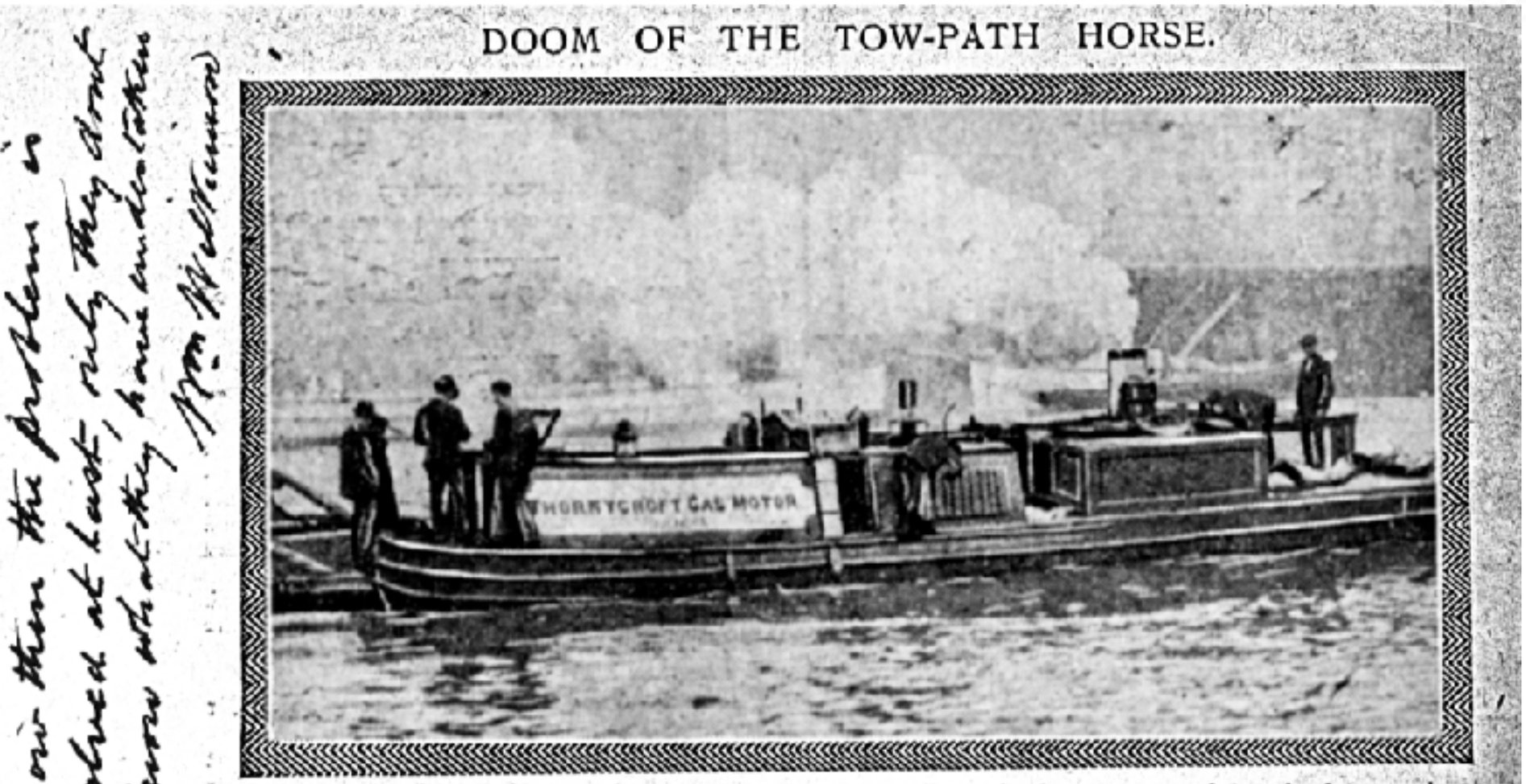


FIG. 3.—View of Two Motor Carriages Passing.



A further electric scheme was proposed unsuccessfully in 1905, followed by one for using gas, with L&LC staff attending a demonstration on the Bridgwater Canal.

A further scheme proposed a compressed gas system for the canal between Liverpool and Manchester.

THE LEEDS AND LIVERPOOL CANAL CO.

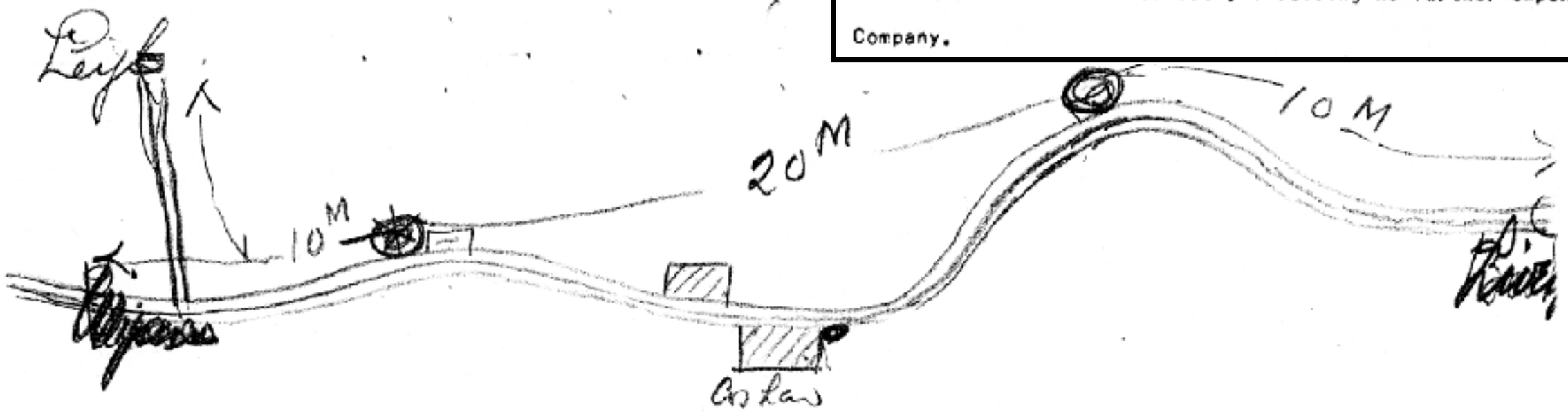
Extract from Minutes of a Meeting of the Traffic and Management Committee held at the Canal Office, Liverpool on Friday the 6th April 1906.

Coln Thom's application re Gas Motor Boats.

Referring to Minute No 30 of 2nd March 1906, the Engineer read a further letter from Coln Thom dated 14th March, in regard to the erection of Stations for production of Gas for Motor Boats.

RESOLVED that the erection of supplying stations on the off-side of the Canal be agreed to, it being understood the Canal Co, do not promise any monopoly. Coln Thom undertaking to pay the Canal Co 10% of his profits therefrom and to sell Gas to the Company at not more than 3/- per 1,ppp cubic feet under 640 lbs pressure, if required.

The Vice-Chairman is also authorised to lend boats to either Coln Thom or Gardness' or both, involving no further expense to the Company.

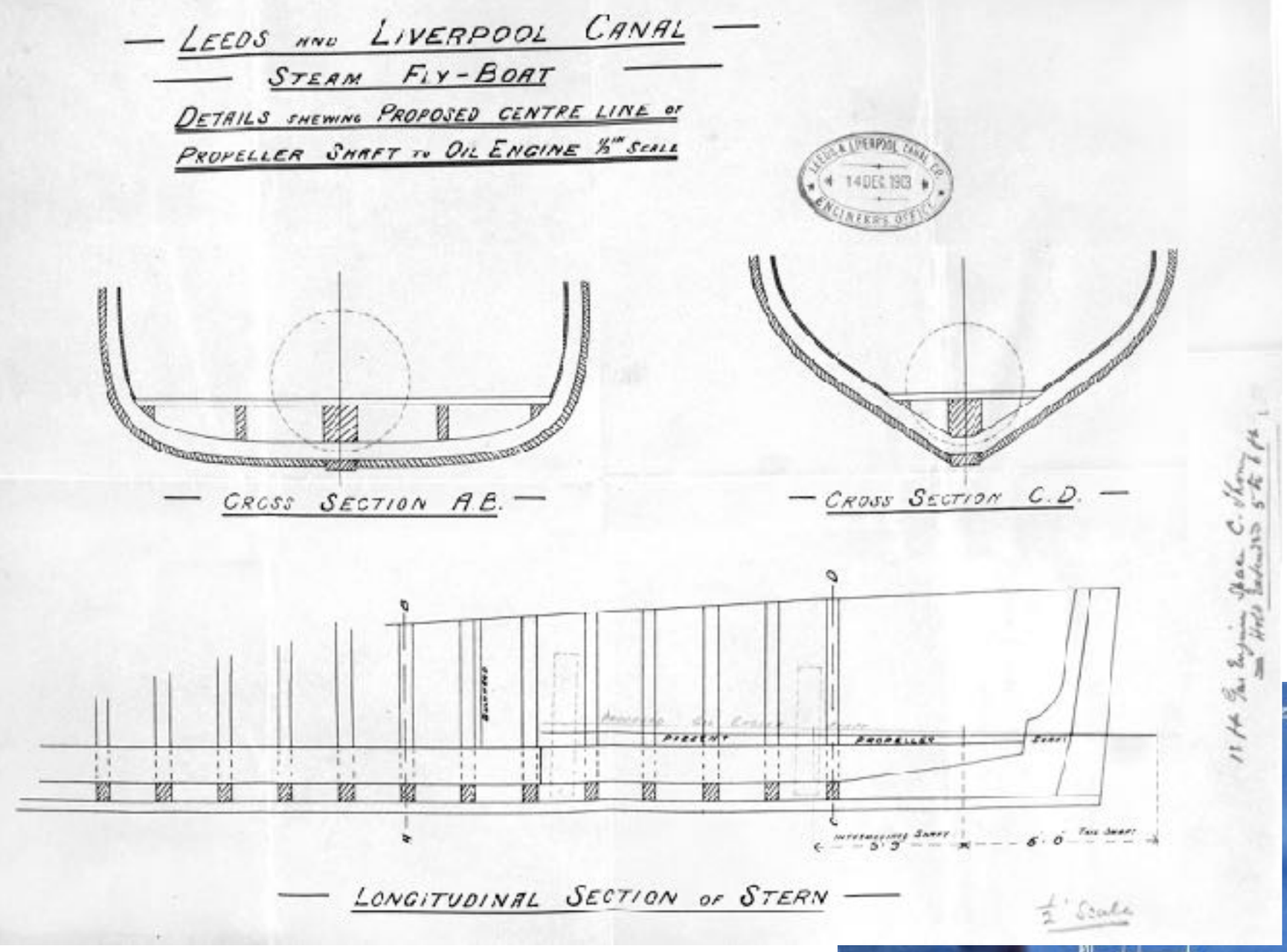


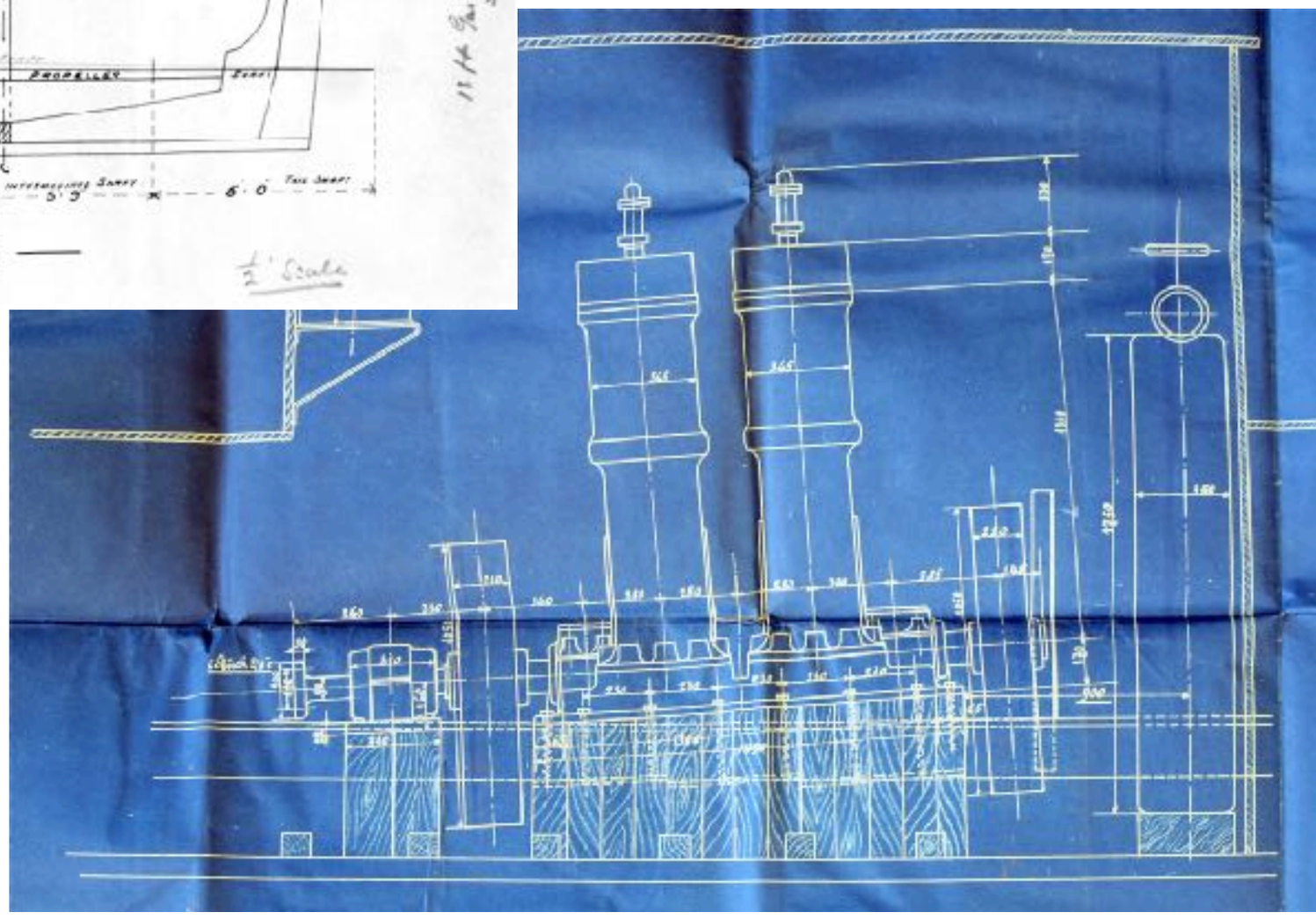
Gas producing Plant £

250 to 300 cubic ft per day 15 st

15' B M 200 all complete 4 Cylinders for 16 Hours
20 " 250 50 cub. Gasm 7 HP Engs. Engines 5'6"

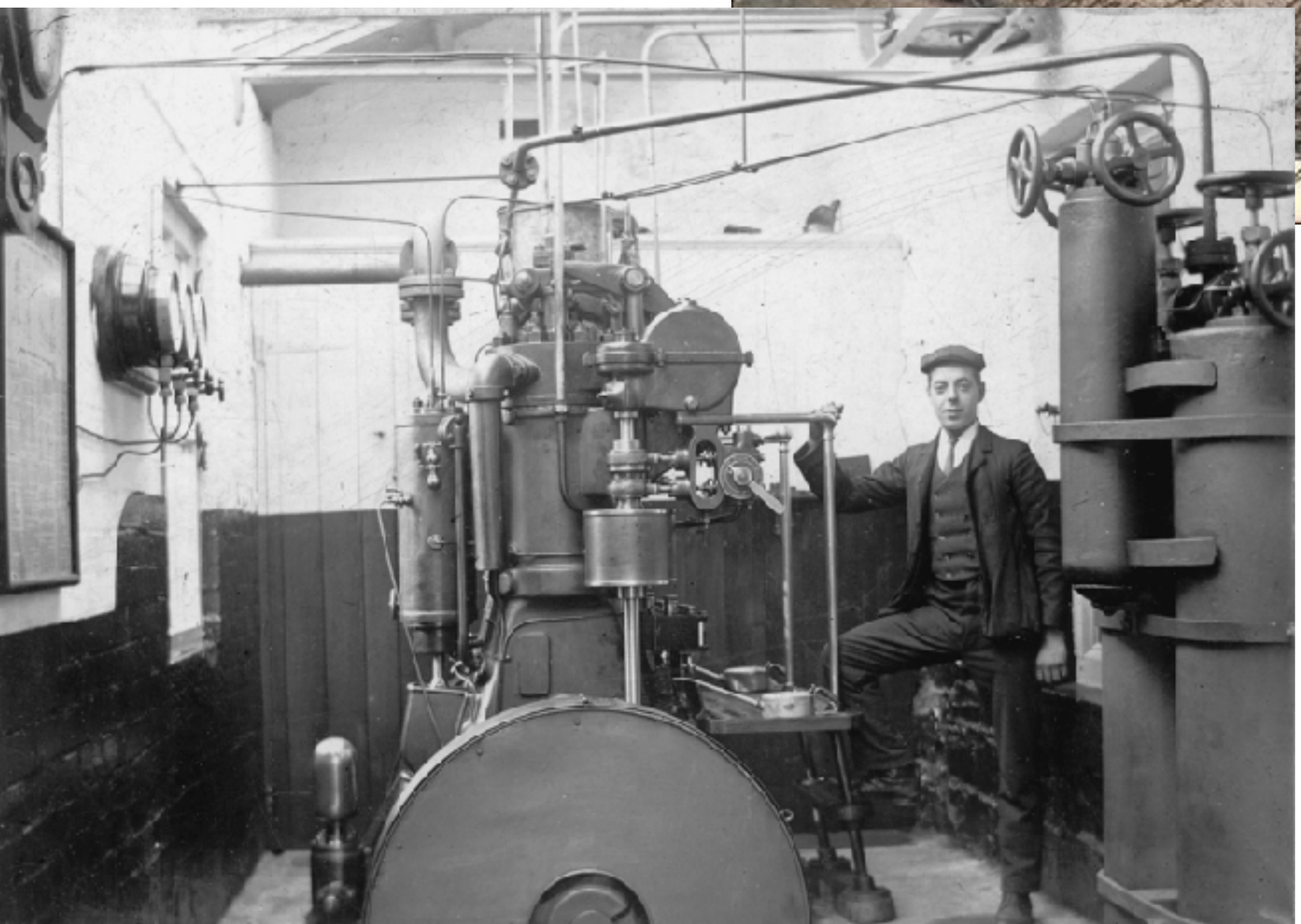
The idea of using diesel engines seems to have first been considered in 1903.





In 1904, a Sulzer Diesel stationary engine, not a semi-diesel, was planned to be fitted into a steamer hull - there were no marine diesel engines at this time

The engine was the first full diesel to be used in a boat anywhere in the world. It was installed by German fitters at the beginning of 1905.



As was to be expected, it was not a success as it created too much vibration, and the engine was taken out of the boat and installed at the canal workshop at Finsley Gate to drive the saw mill.

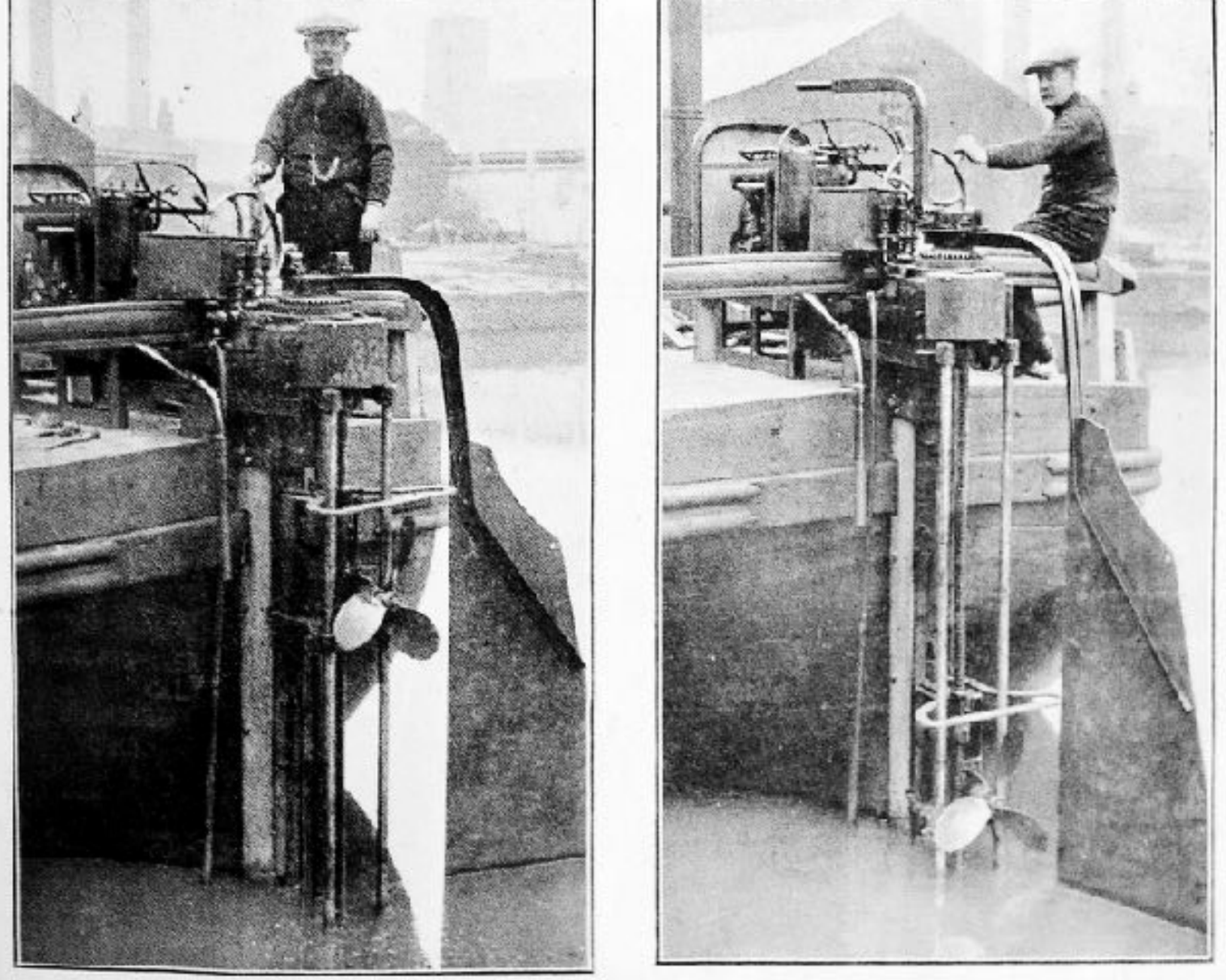
From this report following the subsequent trial of a Gardner semi-engine, it would seem that diesel engines in general were not yet ready for use on the L&LC. Steam power was to continue until the 1920s.

LEEDS & LIVERPOOL CANAL COMPANY.

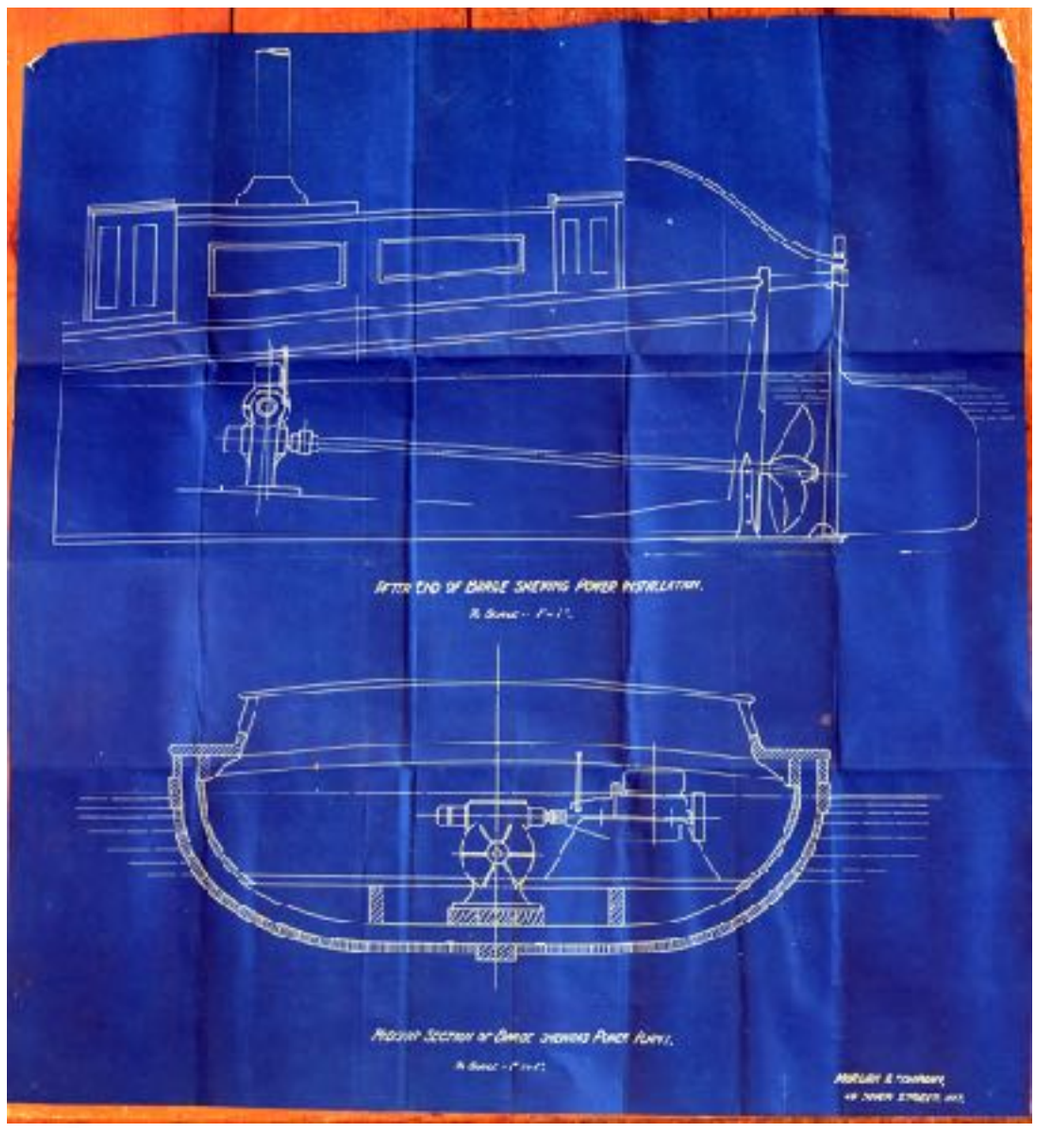
EXTRACTS FROM MR. ROSS' ENGINE REPORT, dated 1st April, 1909.

.....The No. 35 - "Oil" Motor Boat - is also laid up. The Engines broke down very badly whilst working at Gannow Tunnel and I propose they should be taken out of use for propulsion purposes.

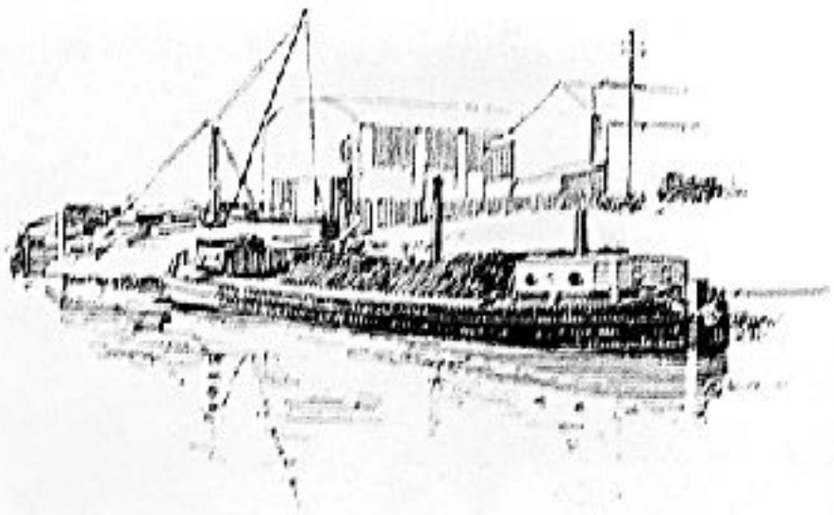
.....As regards the Oil Engines and the boat work done by them, useful experiments have been made, first with the Diesel and then with the Gardner, Engines of widely different types. They have been tried on all kinds of work on the Canal Co's system, and probably this Company have got out of them their best efforts. Apparently, however, their use has just demonstrated the fact that the Canal Co. are not very far out of economic results with the Steamers, which for hard and constant work, coupled with simplicity are bad to beat. The cost of fuel in each system has turned out at just about the makers estimates but coal or Coke in Colliery districts cannot very well be beaten for cost by any other fuel.



Two views of a Brit engine installation on a barge, with a Universal sliding propeller which can be raised or lowered by engine power.



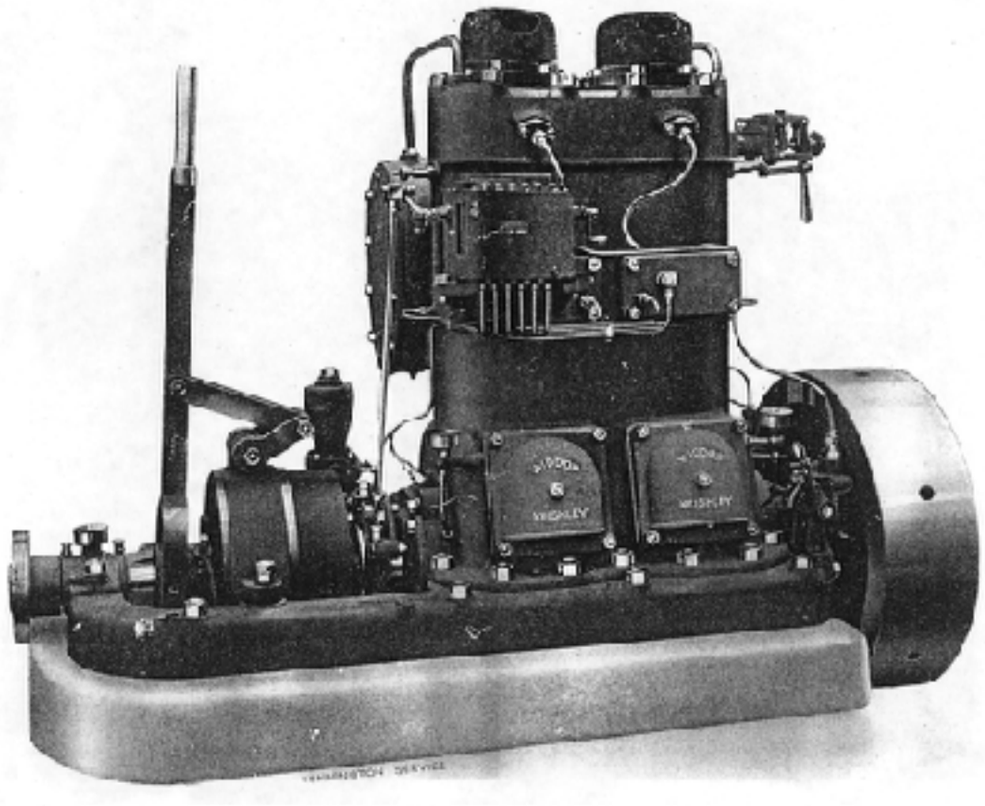
A Widdop was fitted to one of B C Walls boats, the ***Theta***, in 1921. Internal combustion engines were still in their infancy, and there were several other attempts to use them on L&LC boats. The 1921 photo above shows a movable propellor as a way of converting horse boats, while on the left, the engine drove a worm gear to produce low propellor revolutions.



M.V. "THETA"

A Canal barge fitted with a 30 B.H.P. WIDDOP ENGINE in July 1921. The vessel has been in regular service since that date. The engine continues to work thoroughly well but is naturally not so economical as our modern ones.
The Owners, Canal Transport Limited, have now 39 vessels fitted with WIDDOP DIESEL ENGINES.

Widdop Monobloc Type Twin Cylinder
Crude Oil Marine Engines



The ***Theta*** used the ‘Invincible’ type of engine, which was built by Widdop during the 1920s. It was built in several sizes, from a single cylinder one of 10HP, to a 4 cylinder one of 220HP. They were also available as stationary engines, and horizontal diesel engines were also built.

WIDDOP

“INVINCIBLE”

SEMI-DIESEL

VERTICAL CRUDE OIL ENGINES FOR
MARINE AND INDUSTRIAL PURPOSES

Motor Barge “Theta,” fitted with 30 h.p. Widdop “Invincible,” in service on Leeds and Liverpool Canal.

H. WIDDOP & CO. LTD.

INVINCIBLE ENGINE WORKS

KEIGHLEY ENGLAND

Cable and Telegraphic Address:
WIDDOP, KEIGHLEY.

Codes:
BENTLEY'S, A.B.C. (5th & 6th)

Telephone: Keighley 563.

TABLE of SIZES

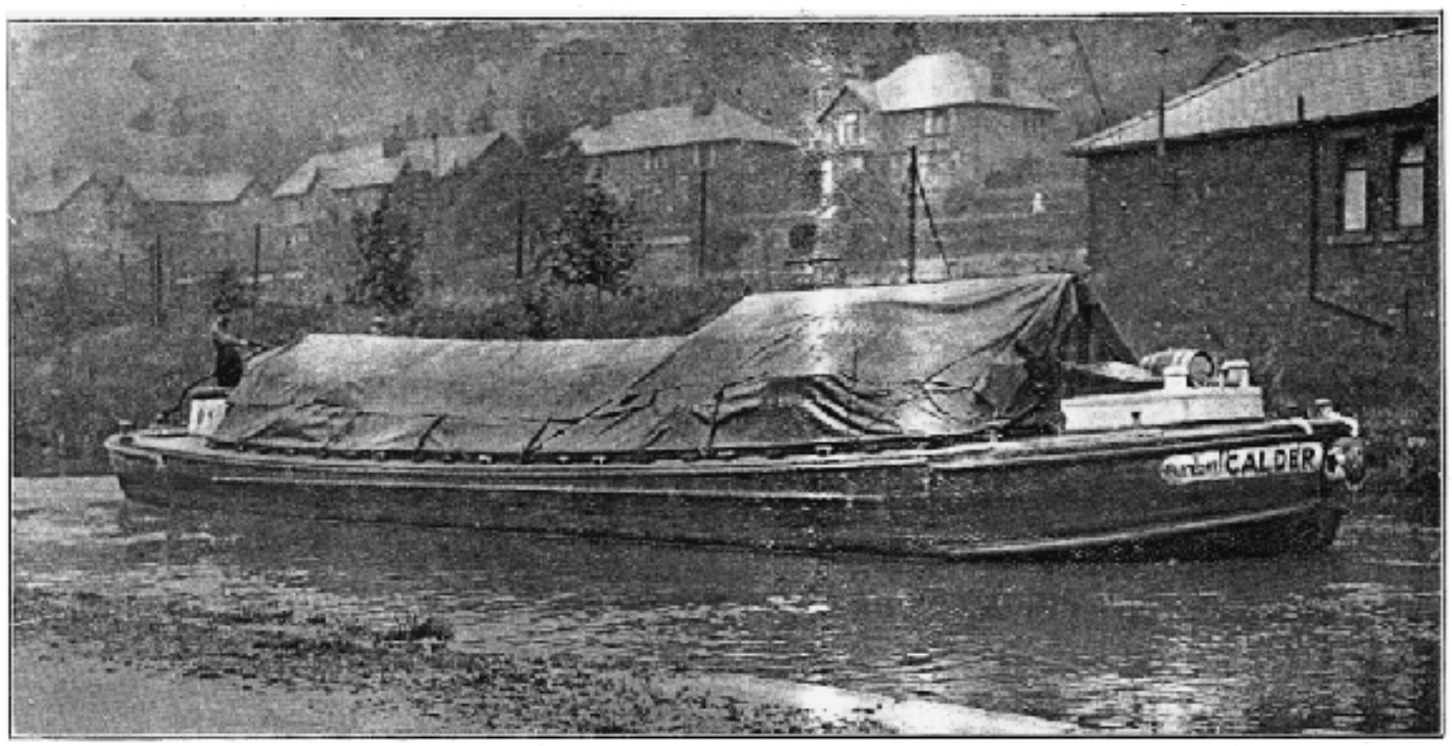
and APPROXIMATE SHIPPING DATA.

Code Word		Size	b.h.p.	No. of cylin-ders	r.p.m.	Net Weight		Approx. Shipping Figures			
								Weight		Measurem't	
						Cwts.	Kilos	Cwts.	Kilos	Cu. ft.	Cu. m.
WYMIP	Engine only	CMX	21	1	500	24½	1230	29	1470	86	2.43
WYMAN	Engine only	EMX	30	1	400	36	1854	42	2133	129	3.653
WYMMA	Engine & air starter only	CMXT	42	2	500	41	2080	47	2380	142	4.04
WYMEN	Engine & air starter only	EMXT	60	2	400	61	3099	68	3454	214	6.06

From circa 1929, the ‘CMX and EMX engines were built for both marine a stationary uses. The ‘D’ and ‘Z’ types were built to produce up to 96Hp and 300HP respectively.

DECK CONTROLS.

Note the convenient deck controls in this barge fitted with "X" type engine. The reverse gear lever is operated comfortably by the steersman and the speed control lever fitted at the aft end of the engine-room casing is easily operated by hand or foot. By this means the vessel is controlled by one man. These controls are inexpensive lever arrangements.

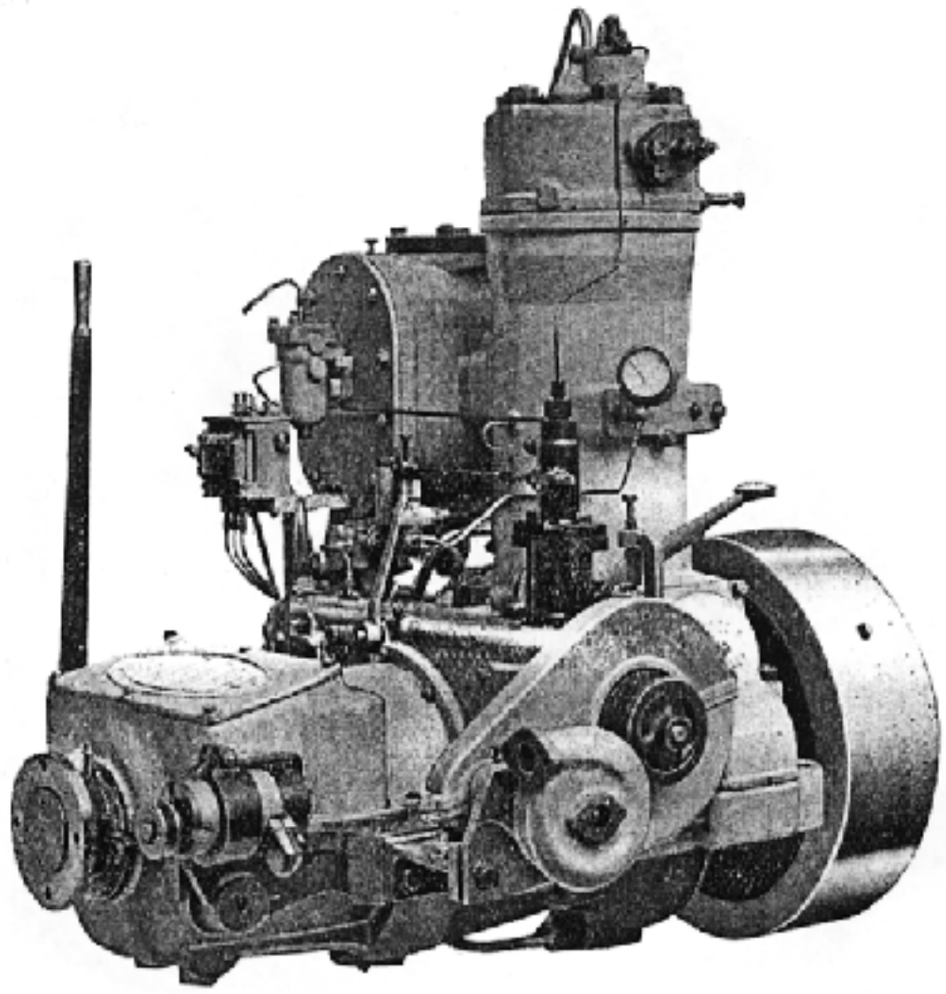


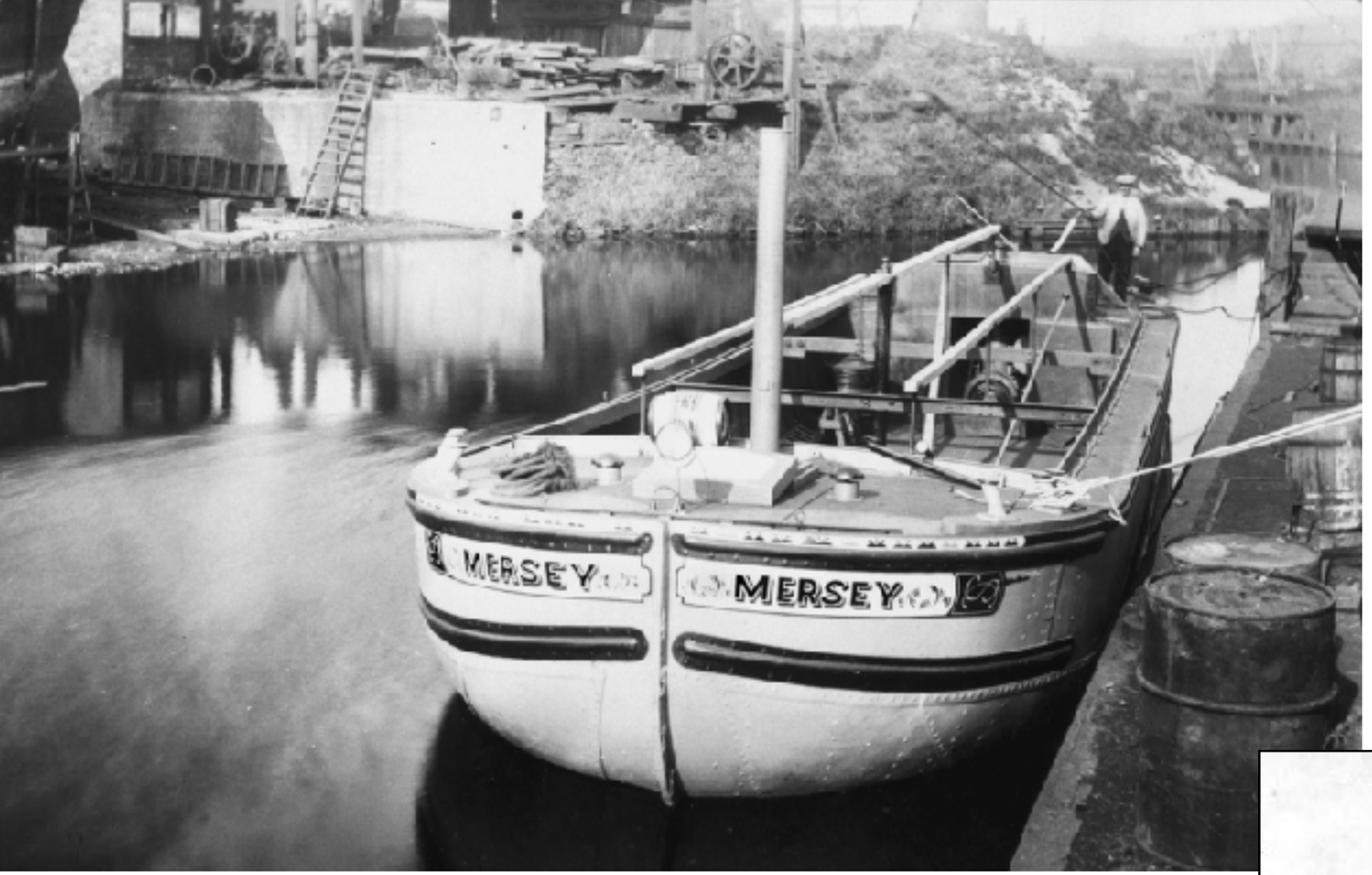
M.B. "CALDER"

One of a fleet of 35 Diesel barges operating on the Leeds and Liverpool Canal all engined with WIDDOP Propelling Machinery.

Length 61ft. 6in., beam 13ft. 6in., carrying 50 tons under normal working conditions.

Machinery : 30 B.H.P. " X " type WIDDOP Diesel Engine.





Mersey was the first of the steel Canal Transport boats, and was fitted with a Widdop, as were all subsequent boats until the early 1950s, when Lister JP2 and JP3 engines were introduced. This may have been the result of Widdop being taken over by the Glasgow engine builder, British Polar, in the 1950s, with links to local companies being weakened, or it could have been due to the nationalisation of canals in 1948.

LEEDS AND LIVERPOOL CANAL
Carrying Craft - Engine Lubrication

SHELL "ROTELLA" LUB/OIL

E.M.X.	WIDDOP.	C.M.X.
OUSE.		PLUTO
WEAVER		ESK.
HUMBER		PLASET.
KENNETT		CURLEW
AIRE.		LEO:
		TWEED.

ROYAL SNOWDRIFT LUB/OIL

E.M.X.	WIDDOP.	C.M.X.
CLEWYD		WHARFE
CALDER		ECLIPSE
DEFWENT		ABERIOG
RACUP		CATTERICK
CLITHEROE		DRADFORD
WYE		ATHERTON
IRWELL		DARLINGTON
LUNE		ALPHA
NIID		CRECIS
RIBBLE		EDEN

REGENT OIL R.P.M. DELO 20

New Lister Engines

DEE
PLOVER

EMX. WIDDOP. C.M.X.

SEVERN

The average consumption of lubricating oil is about 30 Galls. per month. Each boat should have with it at least 10 Galls at the commencement of each trip.

c.1952

DOCKS & INLAND WATERWAYS EXECUTIVE
NORTH WESTERN DIVISION

/12
14/7/51

~~Divisional Traffic Officer,~~ Divisional Engineer.
~~Div. Stores Officer.~~
Mr. Halliwell ✓

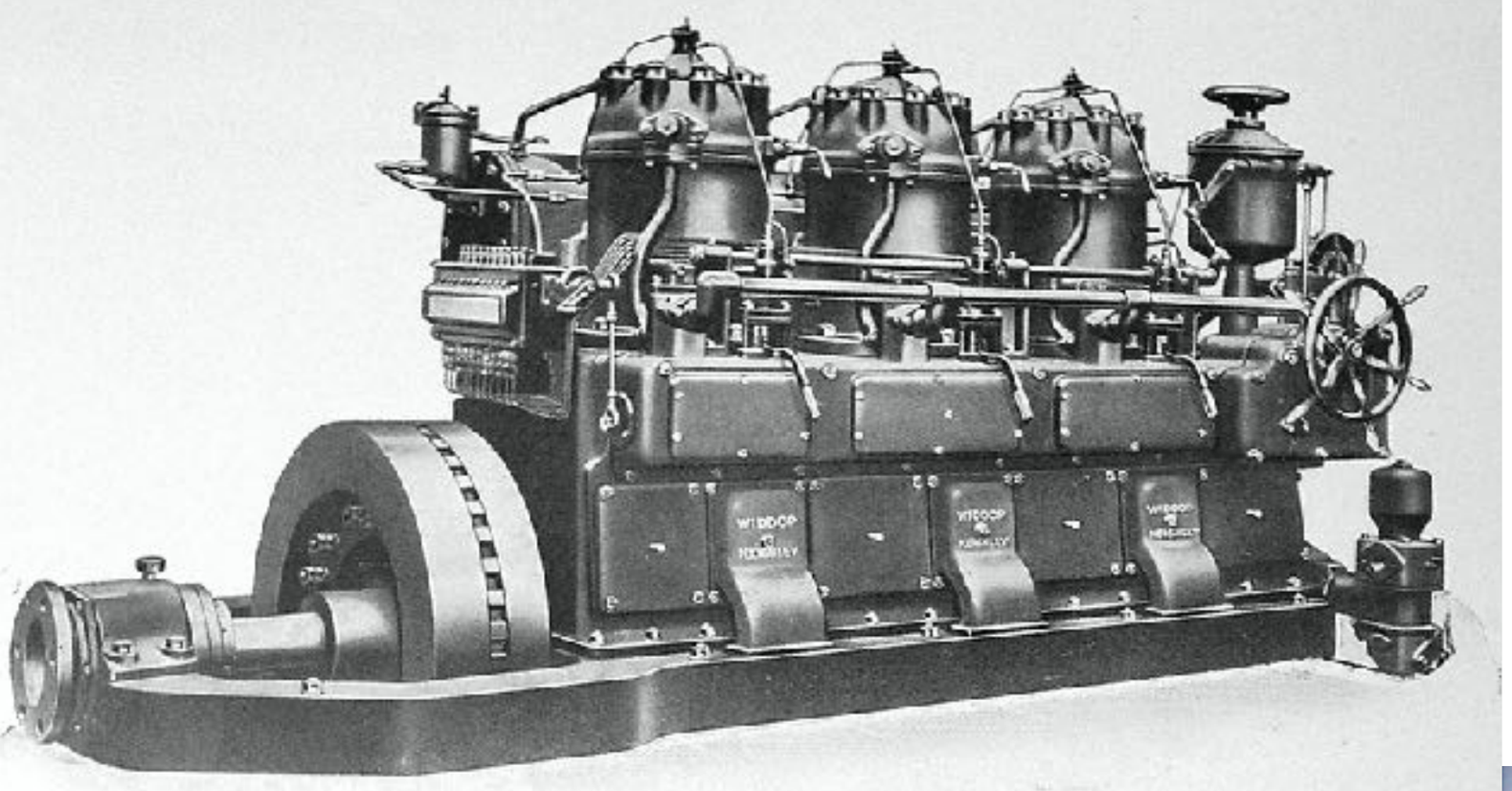
195

Leeds and Liverpool Canal
Traffic Boats - M.V. IRWELL.

On Wednesday, 11th July, the m.v. IRWELL, Captain Barlow, arrived at Riley Green about midday with a tyre round his propeller. He said that he had travelled about five or six miles with this obstruction on his propeller. He ought to have gone to the side and cleared his propeller as soon as he knew it was obstructed. His journey to Riley Green with the tyre fouling the propeller was overloading the engine and damaging it. The tyre was removed at Riley Green. He started from Riley Green for Blackburn but very shortly he found that the engine was not equal to propelling the boat and he stopped it. He was towed from there to Blackburn by the m.v. KENNET which was following him.

A fitter was sent from Widdops on Thursday morning, 12th July to examine the engine and he reports that it is very badly damaged; will require new bearings, and may require a new crank-shaft.

The engine was new two years ago and had previously given no trouble. The normal life of an engine in these boats before overhaul is 5 or 6 years.



Z.H.3. SIZE — 150 B.H.P. at 330 r.p.m.
This also shows the arrangement of the Z.F.3. SIZE — 105 B.H.P. at 400 r.p.m.
The above is from a photo of the propelling engine of the Turkish Cargo Vessel "IMDAT" of Istanbul.

Above is one of the larger engines produced. That top left is in the National Waterways Museum collection, and may have come from one of the tar boats which served the gas works at Bath. The rear engine bottom left was fitted to the sailing schooner ***Result***, which traded regularly between Arklow and Liverpool. It is now in the Ulster Folk & Transport Museum at Cultra.
Widdop Engines ceased to exist circa 1960.

Since 2012, ***Kennet*** has been attending events along the Leeds & Liverpool Canal. She is owned by the L&LC Society, who rely upon donations and sponsorship to preserve her for future generations.

LEEDS & LIVERPOOL CANAL SOCIETY

Keeping Heritage Alive

If you have enjoyed your visit, please give a donation to support the Society so we can continue to maintain *Kennet* and open her to the public.