

New Type of Lake Freighter

The Railway and Marine World gives in the current number, the following description of a new freight steamship, The Toiler, now being built in England for the Canadian canal and lake trade; which it says will be a decided innovation. It is simply a hull, without any top hamper, masts, or even funnels, as it will be operated by internal combustion oil engines, the same as automobiles. It will be the first boat of the kind to be operated the Great Lakes for commercial purposes, and will also be the first vessel in the canal carrying trade to use double propellers, which, it is claimed, will prove of great advantage in manoeuvring.

The adoption of this type of boat is in line with the natural evolution of the canal freighter. With the short season and high wages paid, shippers have been using all their ingenuity to get as much out of a given size of vessel as is possible. The lake tonnage is divided into two classes, the big upper freighter and the canal boat, while the latter is divided into two types, the package freighter and the bulk carrier. The great increase in the bulk shipments of coal from Lakes Erie and Ontario points to Montreal, the building of the Port Colborne elevator and the elevators in Montreal, together with the pulpwood trade, have of late tended to make the bulk freighter a most important type. The continual struggle has been to get the greatest possible deadweight on the limited draft. But with the limitations of the canals and locks, it is impossible to increase the dimensions of ships, so that any increase in deadweight must be taken out of the material and equipment. The limit in reduction of weight of material used in construction has long been reached, so that the only method of increasing carrying capacity was by reducing the weight of the propelling machinery.

With this idea in view internal combustion oil engines have been adopted for the new boat, which was designed by John Reid & Co., Board of Trade Building, Montreal. The introduction of this type of engine has effected such a saving of space and deadweight that The Toiler will carry nearly 3,000 tons, or about 97,000 bushels of grain through the canals, an increase of about 15,000 bushels over the largest canal carriers fitted with steam engines.

To get such a carrying capacity boilers had to be dispensed with altogether. The boat's propelling machinery consists of two sets of oil engines driving twin screws. The latter feature is a revolution in itself, as it will be the first canal boat so equipped. The advantage claimed is that the vessel will be under better control while manoeuvring in narrow waters and in lining up previous to entering a lock. The engines are directly connected, without clutches, to the propeller shafts, and are a modification of the Diesel engine. There is no injection system of any kind, therefore, no delicate joints or connections to get broken or loose, which might stop the engines at a critical moment. The starting and reversing gear is simple, and said to be more certain than with the steam engine, and is done by means of compressed air, the same power being also used to drive the steering engine and other auxiliaries. The fuel to be used is crude petroleum, which is injected into the cylinder without being vaporized, where it is ignited and burned in a charge of hot air. This air when the oil is injected is at a dull red heat, generated under very high compression.

The Toiler will arrive at Montreal and go into service early in the coming navigation season, and will be the first gas or oil propelled vessel to cross the Atlantic. It is regarded by ship engineers as a big step in the solution of the canal navigation problems, and the prediction is made that within a decade or two steam will be out of date on canal and lake boats.

In connection with the construction of The Toiler, experiments are being carried on with high speed oil engines in combination with electric transmission, which it is expected will mark a further advance in economy and efficiency in Canadian canal transportation. An interesting feature will be that through suitable electric switches and connections the control of the propellers will be placed in the hands of the navigating officer right in the bow of the ship. This will be a very great advantage in handling a vessel through the narrow canal channels and locks.