



J. G. SING.

the Great Lakes. Mr. Sing is also a member of the Association of Ontario Land Surveyors, and was county engineer of Grey for twelve years. Among many other works he made the survey of the islands on the north shore of Georgian Bay for the Dominion and Ontario Governments.

*** THE TURBINIA.

As the steamer Turbinia, of the Turbine Steamship Co., of Hamilton, was the first vessel in North American waters to be propelled by steam turbine, and as she is still the only steamer of this kind on the Great Lakes, a review of her work now that she has commenced her second season will be of interest. During the last season she ran 203,280 miles, making 528 trips without any mishap. Her coal consumption last year averaged 2.21 tons per hour under a speed of twenty-three miles, or 1.48 pounds of coal per indicated horse power per hour, compared with 1.58 as the best result under like conditions with reciprocating triple expansion engines. It must be borne in mind, however, that the Turbinia did not reach Lake Ontario till June last year, and was immediately put into commission without being overhauled after her sea voyage, so that she ran under a disadvantage. A little overhauling during the winter has enabled her to eclipse her performances of last summer, and her coal consumption has been reduced this season to 1.3½ tons per twenty-four hours against 15 to 16 tons last year. In making comparisons with transatlantic steamers it must be remembered that the Turbinia now uses Pennsylvania coal. With Welsh coal, Albert White, her engineer, who has had experience on both sides of the Atlantic, says her consumption would be only about nine tons per twenty-four hours. Her average last year was 9.01 miles per ton of coal consumed. Her average consumption of coal per indicated horse-power is now 1.3 pounds, against 1.46 to 1.5 pounds in the better class of reciprocating triple expansion engines. The Turbinia is a vessel of 1,086 tons, and her engines develop 3,400 h.p. at 680 revolutions per minute. The only criticism offered by passengers last year was that some hot days the heat from the engine-room added to the sultriness of the weather when the boat was lying at the dock, but this drawback has been got over by putting up a partition at the foot of the gangway, thus closing off the engine-room from the cabin and decks. The heat will be more completely taken out of the engine-room also at the end of this season by means of a fan. Generally speaking, the Turbinia has been most successful as a passenger steamer. Her smooth running, the absence of vibration, her steadiness in rough weather and her swiftness combine to make her an ideal steamer, either for excursionists or for those travelling between Toronto and Hamilton on business. She can make the run from city to city when necessity arises in 1 hr. 22 min., and she has made on occasion twenty-five miles per hour, though her makers guarantee only twenty miles.

Speaking generally, Mr. White considers that the Turbinia and other turbine ships have demonstrated the following points of superiority over vessels propelled by reciprocating engines: less space taken up in the vessel by engines and machinery; less weight of machinery, and that weight

better placed in the ship, as it rests lower in the hold; less vibration, and consequently less stress on the plates and frame of the ship; fewer parts of machinery, and less loss by friction, also less liability to accident and disorder; fewer skilled hands in the engine-room; and finally, greater economy of coal at the normal speed for which the vessel is designed, there being 125 expansions in the turbine engine against 27 in the triple expansion reciprocating engine.

Tests of the British cruiser Amethyst, fitted with turbines, show that when at full speed the steam consumption on the main turbines was under 13 pounds per h.p. per hour, a result never before recorded with reciprocating engines. In the sister ship, with reciprocating engines, the best results were 15½ lbs. of steam per h.p. per hour. At 10 knots the turbine ship seemed to require more steam by five pounds per indicated h.p. per hour, while at 14 knots about one pound less. This apparent lack of economy at reduced speed may be made up by the use of exhaust from the auxiliaries. In any case, this decreased economy will not affect merchant vessels, as turbine engines can be designed for any determined speed. At 18 knots the turbine required about three pounds less steam per h.p. per hour; at 20 knots, 5¼ pounds; at full power the economy was still more marked, the reduction being over 30 per cent. The coal consumption in the Amethyst at 10 knots was higher than her sister ship, at 14 knots about the same, and at 18 knots it was 20 per cent less, at 20 knots it was 0.8 pounds, or 30 per cent less, and at full power one pound per h.p. per hour, or 40 per cent less. At 20 knots the cruiser with triple expansion engines would travel 2,140 miles, and the turbine cruiser 3,160 on an equal quantity of coal.

*** CATALOGUES RECEIVED.

The following catalogues have been received since last issue, and may be obtained from the respective firms by mentioning the Canadian Engineer:

Callender's Cable and Construction Co., Ltd., Hamilton House, Victoria Embankment, London, E.C.—Catalogue of lead-covered and other cables. Containing tables of standard weights and resistances and general information on conductors. 175 pages, 4½ by 7, boards. Price, 5s.

Wellman-Seaver-Morgan Co., Cleveland, O.—Water power equipment for low heads, 25 pages, 6 by 9.

General Engineering Co., of Ontario, Ltd., Toronto.—The Jones Underfeed Mechanical Stoker, a descriptive booklet, fully illustrated. 90 pages, 9 by 6.

Booth Water Softening Co., 126 Liberty Street, New York.—Hard Water Made Soft, a booklet describing three different types of water-softening machines, giving their respective advantages. 24 pages, 6 by 9.

Diamond Expansion Bolt Co., 9-15 Murray Street, New York.—Catalogue of expansion bolt and shield. 14 pages, 6 by 9.

Worthington Pump Co., Limited, London, E.C.—Air and Gas Compressors, a detailed catalogue of compressors, lifts, hoists, etc. Fully illustrated. 175 pages, 6 by 9.

Cincinnati Electrical Tool Co., Cincinnati, O.—Price list of portable electric drills and grinders.

Hayward Co., 97 Cedar Street, New York.—Digging Machinery, a small booklet showing dredges, buckets, derricks, etc. 32 pages, 6 by 3.

B. Greening Wire Co., Ltd., Hamilton.—Price list of crimped diamond mesh fencing, a new line which this company is now putting on the market.

Penberthy Injector Co., Ltd., Windsor.—Price lists of injectors and glass oilers.

National Electric Co., Milwaukee, Wis.—Cards showing photographs of machinery under construction, and also of electric car equipped with Christensen air brake.

Kellogg Switchboard and Supply Co., Chicago, Ill.—Brownie Bulletin, an illustrated booklet describing in Brownie style the new Kellogg common battery desk telephone set. 16 pages, 7 by 6.

Dodge Manufacturing Co., of Toronto, Ltd.—Condensed price list of power transmission goods, including pulleys, clutches, hangers, rope sheaves, etc. 16 pages, 6 by 9.