

SCIENTIFIC AMERICAN

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\$3.00 A YEAR.
WEEKLY.

THE McDOUGALL WHALEBACK STEEL VESSEL.

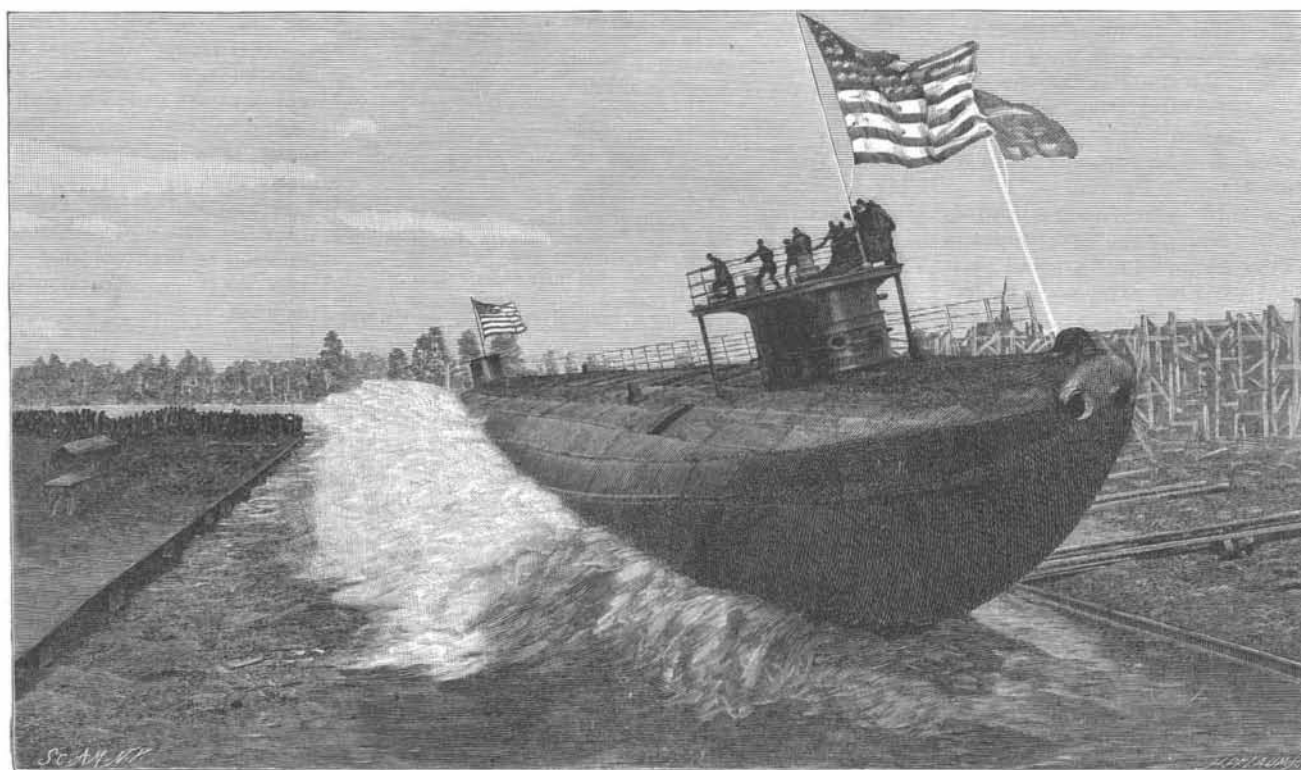
The old ballad commencing "In the North Sea Lived a Whale" has its use now in a facetious adaptation of this line to the needs of a souvenir issued by the people of Superior, Wis., in commemoration of the launching of the first two vessels of the McDougall whale-back pattern, built at the shipyard in that city, an event that took place on the afternoon of the 15th of November last. The two boats went into the water sideways, and floated in their slips as if they were in their natural element.

The somewhat surprising information to an Atlantic coast seaman is contained in the recent report of the Commissioner of Navigation, in which it is stated that the registered tonnage of the vessels inspected on the Great Lakes for the year ending October 1 was in excess of the tonnage of those inspected on the Atlan-

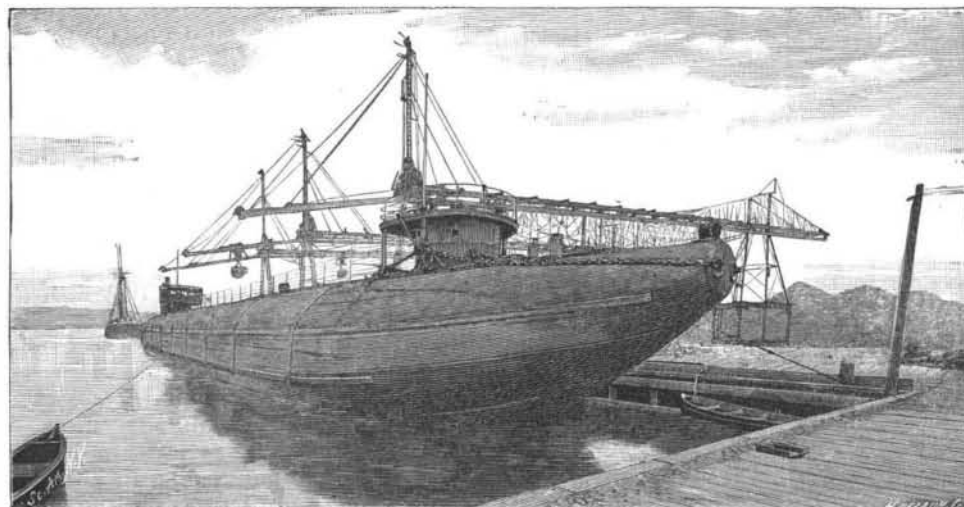
tic coast, and also in excess of the tonnage of those inspected on the Pacific and Gulf coasts and all the rivers of the United States combined. The development of the shipping interests upon this arm of the Atlantic within the past three years has certainly been marvel-

ous, and is a vast testimonial to the importance of that inter-state commerce which is largely the product of the past thirty years. Less than ten years ago a steam propeller of 1,200 tons registry was a large carrier upon the Great Lakes, and its carrying capacity was generally limited to about an even tonnage with its registry by the cumbersome power used and the amount of internal "works" deemed necessary to give it strength and solidity. But since 1885 the size of the lake steamer has gone up as high as 1,900 tons registry, and with a common though varying carrying capacity of from 2,000 to 3,000 tons, with some vessels of 4,000 tons capacity.

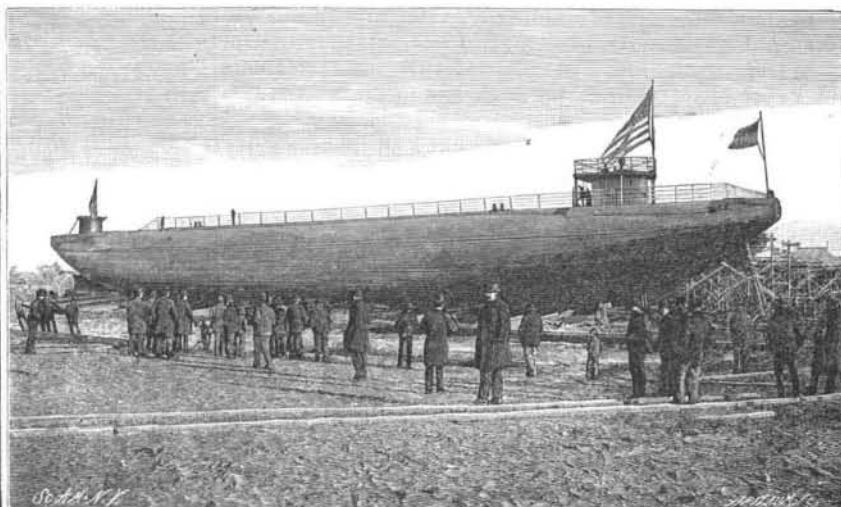
The sailing vessel is rapidly passing into the limbo of forgetfulness, and the deep and fast steamer is gathering to itself the business of the lake carrying trade. The lumber traffic still adheres to the sailing vessels, but



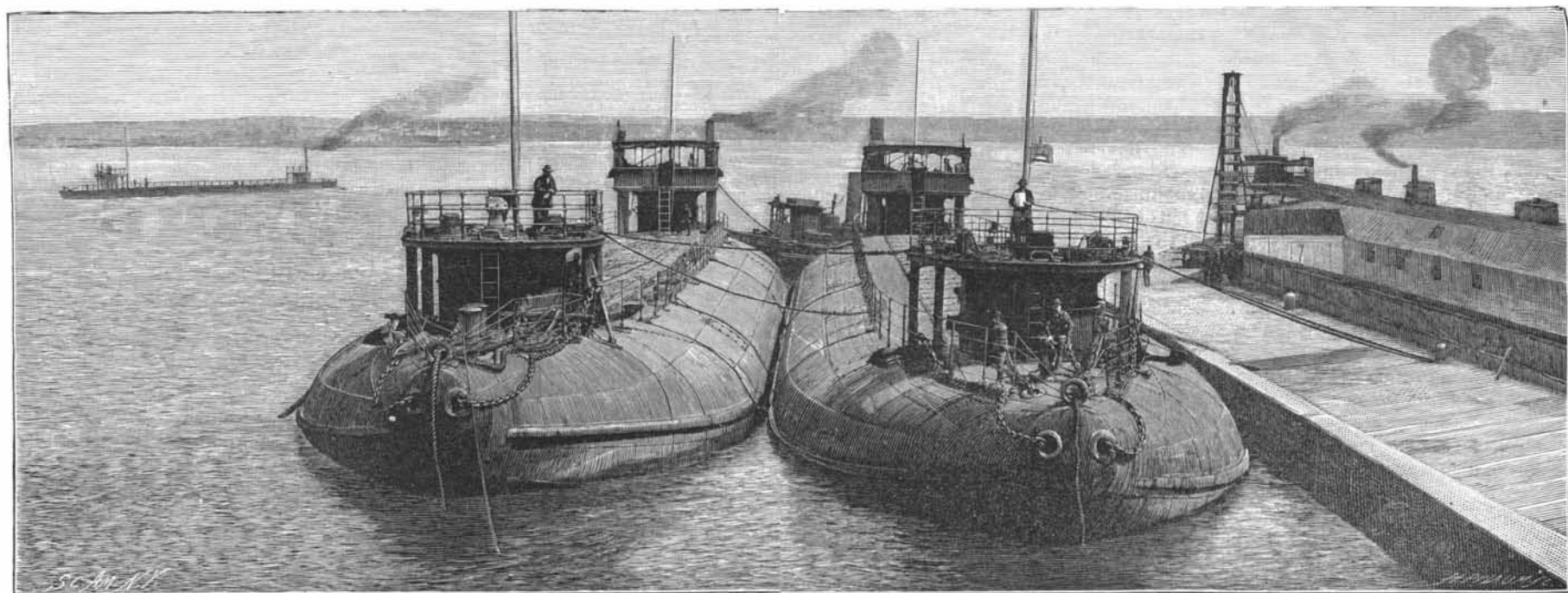
LAUNCHING OF THE JOSEPH L. COLBY, AT SUPERIOR, WIS.



WHALEBACK BARGE No. 104.



THE COLBY IN DRY DOCK.



TWO WHALEBACK BARGES.

WHALEBACK STEEL MERCHANT BARGES.

iron ore, coal, wheat, flour, and merchandise go to the steamers for low rates and quick transit.

In the mad rush of invention upon the land, marine architecture was allowed for a quarter of a century in this country to suffer somewhat.

These vessels are built both as tow barges and as steam propellers. The first boat of the fleet (there are now eleven afloat), the tow barge "101," a small craft of 437 tons registry and 1,400 tons carrying capacity,

The first steam propeller, the Colgate Hoyt (named after the president of the American Steel Barge Company), was built in the winter of 1889-90, and has been in successful commission during the season of 1890 in the ore, grain and coal carrying trade between Superior and Lake Erie ports.

The Joseph L. Colby, launched November 15, is a somewhat smaller vessel than the Colgate Hoyt, being designed for passage through the Welland Canal and St. Lawrence River to Montreal.

The tow barges 102 and 103 are of 1,132 tons registry and 3,000 tons carrying capacity; the tow barges 104, 105, 107, and 109 are each of 1,216 tons registry and 3,300 tons carrying capacity.

The Colgate Hoyt is registered at 1,008 tons, and 3,600 tons carrying capacity, with a speed of 15 knots per hour on 800 horse power.

The "whalebacks" are all built upon the same pattern. They are round decked, flat bottomed, and ended up like the pointed end of a cigar.

The ship yard at Superior has six "slips" and ten piers or ways for keel blocks, so that ten of these boats can be under construction at one and the same time.

There is at present a whaleback tow barge lying on a dry dock in New York City, that was constructed at the Erie Basin for the coast and river trade, while two McDougall propellers are expected here in a short time, one of which is to be sent across to Liverpool and one to Puget Sound, on the Pacific coast.

CONTRACT has been let for the construction of a railroad from San Diego to San Quentin, Lower California, a distance of 163 miles.

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NEW YORK, SATURDAY, JULY 4, 1891.

Contents.

(Illustrated articles are marked with an asterisk.)

Table listing various articles such as 'Bacilli, tuberculous, in apitum', 'Lubricants, mineral, resin oil in*', 'Microscopy, suggestions in*', etc.

TABLE OF CONTENTS OF SCIENTIFIC AMERICAN SUPPLEMENT No. 809.

For the Week Ending July 4, 1891.

Price 10 cents. For sale by all newsdealers.

Table listing contents of the supplement with page numbers, including 'I. ART.—How Statues are Made', 'II. ASTRONOMY.—Recent Conceptions of Arcturus', 'III. BIOGRAPHY.—Edmund Becquerel', etc.

THE CASINO AND PIER AT THE EXHIBITION.

One of the novel buildings at the Exposition will be the Casino and pier. The Casino, which will stand out in the lake 1,000 feet from the shore, is intended to reproduce Venice on a small scale in Lake Michigan.

The Casino will be built on piles and connected with the shore by a pier 80 feet wide. The base dimensions of the Casino will be 180 by 400 feet. The building will consist of nine pavilions, two stories in height, and, with the exception of the central one, 80 feet above the surface of the water.

FAST BOATS FOR THE NAVY.

We have repeatedly urged upon Congress the importance of high speed for some of our war vessels. Some progress has been made, but our neighbors still excel us. As yet we have nothing that can compare in speed with the best English and German mail steamers regularly employed between New York and Europe.

The advantage of high speed is conspicuous in the naval warfare now going on in Chile. At the outset of the war the insurgents had a great advantage in holding possession of the principal vessels belonging to the navy.

An eminently successful trial of a torpedo boat just completed by Messrs. Thornycroft & Co., for the government of the United States of Brazil, took place in the estuary of the Thames on the 2d of June.

Table showing speed results for the torpedo boat trial, including 'First run, with tide', 'Second run, against tide', etc., with columns for 'Knots' and 'Mean revolutions per knot'.

The mean of these speeds computed by the Admiralty method being 25.858 knots, Messrs. Thornycroft's guarantee was more than fulfilled. The mean number of revolutions required to do a knot was found to be 1,165.4.