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NEW YORK, OCTOBER, 1890.

THE production of pig iron in the United States for the first half of 1890, according to the statistics collected by the American Iron & Steel Association, was 5,169,737 net tons—an increase of 754,653 tons, or 17.1 per cent., over the second half of 1889, and of 1,068,742 tons, or 26.1 per cent., over the first half of 1889. Nearly every iron-producing district showed a gain, and the total production was the largest ever reported for a half year.

The gain was entirely in iron made with bituminous coal or coke, the charcoal and anthracite furnaces showing a slight decrease. As might have been expected, the increase in the output of spiegeleisen and Bessemer pig was large, showing that a continually growing proportion of the pig iron made is intended for conversion into steel.

The leading iron-producing States were Pennsylvania, which furnished 49.2 per cent. of the total output; Ohio, 13.2 per cent.; Alabama, 8.9 per cent., and Illinois 6.8 per cent. The furnaces of the Southern States supplied in all 18.6 per cent. of the entire production.

THIS increased production of iron involves naturally increased consumption of ore; and we find, accordingly, that the shipments from the Lake Superior mines this year have amounted, up to the end of August, to 5,460,289 tons—an increase of 826,514 tons, or 17.8 per cent., over last year. An increased proportion of the ore comes from the newer districts; while the old Marquette Range supplied this year 33.1 per cent. and the Menominee Range 25.1, the Gogebic Range furnished 30.2 and the Vermilion Range 11.6 per cent. of the total shipments.

LAKE steamers are built with especial regard to their carrying capacity; and the extent to which this has gone will be appreciated when it is stated that the new steamer *Maryland* on a recent trip brought down the enormous load of 3,702 net tons of iron ore from Escanaba to Chicago. The ship's draft, with this great load, was 16 ft. 6 in.; she is 335 ft. long, 42 ft. beam and 24 ft. deep.

In this connection it may be noted that the new "whale-shaped" steamer *Colgate Hoyt*—which was illustrated in the September number of the JOURNAL—on her last trip brought 2,706 net tons of ore to Cleveland. With this load she made 13 miles an hour on Lake Superior.

THE latest project for quick transit between Europe and America has been brought forward by Canadian railroad men, who propose the building of a railroad from Quebec to St. Charles Bay on the Labrador coast. The road will be some 850 miles long, and it is believed that fast steamers can make the voyage from St. Charles Bay to Milford Haven in Wales in 3½ days. Some English capitalists are already interested in the project, and their engineer is making a preliminary examination of the route. One drawback is that the railroad line would run through an almost uninhabited and desolate country, and would have no local traffic whatever.

THE great tunnel under the St. Clair River, between Port Huron and Sarnia, is practically completed, and the trains of the Grand Trunk Railway will soon run through, without the delay heretofore required for the ferry transfer, which was often considerable in the winter.

This tunnel is in all 6,050 ft. long, 1,850 ft. being on the American side, 2,300 ft. under the river and 1,950 ft. on the Canadian shore. It is circular in form, the outer ring being 21 ft. in diameter and composed of cast-iron segments bolted together and lined with masonry. It carries a single track, and it is proposed to build a second tunnel of similar dimensions when a second track is required.

The tunnel is chiefly through blue clay, and was excavated by the Beach pneumatic shield, driven forward by hydraulic pressure, the work being carried on from both ends. The shield is forced into the clay and protects the workmen while they are excavating it and placing the iron segments. In building the tunnel 2,196,400 cub. ft. of earth were removed; 27,976 tons of cast-iron and 850,242 bolts were used. The segments were put in position by a balanced circular crane of very ingenious design attached to the rear end of the shield.

THE successful completion of the St. Clair Tunnel has stimulated projectors, and a company has been organized to build a similar tunnel under the Detroit River from Detroit to Windsor. This would be about 3,000 ft. long under the river, and the approaches would be about 3,000 ft. on either side, making a total length of about 9,000 ft. The top of the tunnel would be 48 or 50 ft. below the water level, or from 13 to 15 ft. below the river bed at the center. The estimated cost is $3,500,000 for a single-track tunnel, and the plan is to have it open to all connecting railroads.

THE armor-plate trials at Annapolis took place on September 18 and 22, three plates being tried, a compound steel and iron plate 10.6 in. thick, from Cammell, of Sheffield, England; a steel plate 10.5 in. thick from the Creusot Works, and a nickel-steel plate 10.5 in. thick, also from Creusot. Four shots were fired at each from a 6-in. gun at a distance of 30 ft., and one from an 8-in. gun, Holtzer steel forged projectiles being used, with brown cocoa powder. The plates were set up with 36 in. of oak backing.