

Iron and Steel on a War Basis

The Part this Great American Industry is Playing in the Cause of The Allies

By Edward Porritt

The American Iron and Steel Institute, like the British Iron and Steel Institute, comprises in its membership men who represent every stage in the industry. The primary stages, ore mines, coke ovens, blast and open hearth furnaces, Bessemer converters and rolling mills, are, of course, most numerously represented. But there is also a large representation of the ship-building industry, of engineering works, and of factories at which machine tools are made. This year, 1917, the institute held its autumnal meeting at Cincinnati—the commercial metropolis of one of the largest iron producing states, a city where there is much manufacturing at the secondary stages of the industry. The entire industry—primary as well as secondary stages—has for two years been undergoing an amazing transformation as a result of the war, and since the United States declared war on Germany in April, 1917, the government at Washington has been more closely associated with the industry—more interwoven with it, and demanding more of it in the way of production and price regulation—than at any time in history.

There was consequently an unusually large attendance at the Cincinnati meeting. Five hundred members were present, and one of the sessions, at which Mr. E. H. Gary, of the United States Steel Corporation, was in the chair, was turned into a great demonstration of loyalty to the United States government and the Allies in the war. At this demonstration the active, continuous and whole-hearted co-operation of the entire industry in the war was pledged to the United States government and in particularly to the production of munitions and war equipment, and the steel which is needed for building the numerous additions to the United States Navy and the creation of the vast fleet of ocean-going merchant tonnage which, since August last, has been building at tidewater and lake shipyards for the United States.

The Resources of the Steel Industry
The Cincinnati pledge, and the spirit in which it is now being implemented, are of much importance as a factor in the war; for in not one of the Allied countries—not even in Great Britain—is there an industry which is on such a magnificent scale as the manufacture of iron and steel in the United States. With the exception of a few furnaces on tidewater in New Jersey, Pennsylvania, and Maryland, which draw their supplies of ore either from Belle Island, Newfoundland, or from Cuba—furnaces which at a push could be kept running on Lake Superior ores—all the raw material for the American iron and steel industry lies within the United States; and there has long been in existence a transport system unequalled anywhere in the world for assembling coke, ore, and fluxing material at the blast furnaces in the six or seven iron manufacturing states. The mechanical equipment at the primary stages of the industry—blast furnaces, open-hearth furnaces, Bessemer converters and rolling mills—is unequalled in aggregate capacity by the combined iron and steel producing equipment of any two countries that are of the Entente.

In the first year of the war boom—1916—a year in which munitions, barbed wire and rails, as well as pig iron and steel billets, were shipped in continuously increasing quantities to Great Britain and the Allies—over 64,000,000 tons of ore came down the Great Lakes from the mines in the Lake Superior region to the lower lake ports, from which the lakeside furnaces at Gary, Cleveland and Buffalo, and the interior furnaces in Illinois, Indiana, Ohio, Pennsylvania and New York draw their supplies. The production of pig iron at these furnaces, and at furnaces in Alabama, Tennessee and other of the southern states which are run on local ores, exceeded forty-two million tons; and during the month of October the daily average output of pig iron was 113,159 tons, of which nearly 52,000 tons a day went forward as hot metal to the open-hearth furnaces and Bessemer converters. The remainder of the production in October—the banner month in the banner year of the American iron and steel industry—went to foundrymen for use at the secondary stages of the industry. The aggregate output of steel ingots in 1916 was 39,039,356 tons, as compared with 29,662,566 tons in 1915; 23,049,752 tons in 1914—a year of depression in the industry—and 30,724,101 in 1913.

I am writing seven days before the closing of navigation on the Great Lakes and twenty-four days

before the end of the calendar year. Consequently, tonnage statistics of ore transport and complete figures of pig iron and steel ingot production in 1917 are not available. But from the opening of navigation on the Great Lakes last April and especially in the months of July and August, it was obvious that not quite so much ore was to reach the lower lake ports in 1917 as in 1916. Shortage of labor at the mines, and some shortage of lake tonnage account for the reduction. Even under these adverse conditions, the amount of ore that has come down the lakes in 1917 will not be much below 62,000,000 tons, and there is not a furnace either on lakeside or in the interior, no matter how hard it may be driven in the winter and spring months of 1918, that has not ore in sight to keep it going until June 1. Nor will there be any scramble or wild competition for ore by the iron and steel companies that are not allied with the big concerns—the United States Steel Corporation and the Bethlehem Company and the Lackawanna Company. These great manufacturers of iron and steel command their own ore supplies and their own lake shipping. In the case of the Steel Corporation, the railways over which most of the ore is carried from the lake ports to the furnaces in the interior are also owned and operated by the Corporation.

The Fixing of Prices

It is what are known as the independent companies that in normal years must go into the market for ore. As regards prices for ore for 1918



A GLIMPSE OF THE ROAD THAT IS BEING BLASTED TO BERLIN
This is a war of steel. It enters into every phase of war activity. Shells, guns, railroads, ships, machinery. All are receiving prodigious amounts of steel and iron. The enormous resources of the American Steel industry are behind the Allies in the big task of blasting a road to Berlin.

there need be no stampede in the market; for the United States government, working in close association with a permanent committee of the American Iron and Steel Institute, began to fix prices for ore and coke and for seventy or eighty products of primary and secondary iron and steel plants as early as the end of September, 1917. The price for ore on docks at lower lake ports is now \$5.50 a ton. For coke, at the ovens, the price is \$6.00 a ton. Early in the winter, some weeks before navigation closed, the independent companies got together and adopted as war time measures—to help in making good the Cincinnati pledge—a plan for the distribution of ore during the winter and for pooling tonnage for the navigation season of 1918. The requirements of ore at each furnace were determined, and a permanent committee was organized, with headquarters at Cleveland, whose business it is to see that each furnace gets its allotted quota of ore on the docks at the lower lake ports—sufficient to keep it running until June 1, by which time new supplies will be coming down the lakes—and to see also that the supplies for each furnace are shipped in their turn from the docks. The pooling of lake tonnage in 1918 will make it as certain as it can be made that every furnace will be guaranteed a supply of ore from June 1, 1918, to the end of May, 1919.

Every furnace in blast to-day is practically running in the service of the United States government and of the Allies; for it is always possible for the government to requisition material and goods in process of manufacture in the same way that the United States Shipping Board and its subsidiary organization, the Emergency Fleet Corpora-

tion, requisitioned in the first week of August, 426 vessels—all steamers over 2,500 tons—in building for domestic and foreign account at the steel shipyards on the Atlantic and Pacific Coasts and on the Great Lakes.

Plots of German Sympathizers Frustrated

The United States Navy has no press agents. But towards the close of navigation season in 1917 it became generally known that the Navy had been performing a remarkable war-time service on the Great Lakes—a service made necessary by the persistent, resourceful, and long-continued efforts of the friends of Kultur to render war service to Germany in the United States and Canada. There are four great locks at Sault Ste. Marie—three belonging to the United States and one to Canada. At Sault Ste. Marie the ore and grain traffic, including all the grain of the prairie provinces that is moving eastward to tidewater on the Atlantic—converges, and passes through one of these locks, thence into St. Mary's River, and thence into Lake Huron. There are narrow channels in St. Mary's River, and other narrow and tortuous channels in the Detroit River, which connects Lake Huron and Lake Erie. Efforts on behalf of Germany have resulted in the blowing up of bridges, in attempts to block railway tunnels, to set fire to elevators in Canada, and in one attempt to wreck the Welland Canal, which affords the only access for both Canadian and American vessels from Lake Erie to Lake Ontario. In the United States the spirit of Kultur has expressed itself in incendiary fires at docks and grain elevators, and at many munitions plants in the Atlantic Coast states. It was realized that German miscreants, or miscreants in the pay of Germany, would try to interrupt the ore and grain movements down the Great Lakes by dynamiting the locks at Sault Ste. Marie, or blocking the channels which afford passage from one lake to another. To offset such attempts the Navy had over seventy speedy and well-armed patrol boats in service, night and day, along the grain and ore routes from Sault Ste. Marie to Chicago, Gary, Cleveland, Conneaut, Buffalo, and the other lower lake ports; and the 62,000,000 tons of ore were brought down the lakes without the slightest interference from the friends of the Kaiser in the United States and Canada.

Pig Iron and Steel Ingots

Pig iron production in the United States in 1917, it was expected in the first week of December would not fall below 39,500,000 tons. The production of steel ingots up to the end of November was running much ahead of pig iron production—exceedingly much ahead, when it is recalled that a large proportion of the output of pig iron is taken by foundrymen for use at the secondary stages of the industry. This was due to two conditions. At the beginning of 1917, 103 new open-hearth furnaces, with an annual capacity of 4,200,000 tons, came into service; and all through the year an unprecedented tonnage of scrap was available for open-hearth furnaces and Bessemer converters, as a result of the high prices that scrap was commanding, until the government in October fixed the price at the furnace at \$30 per gross ton for No. 1 heavy melting; \$20 for cast iron borings and machine shop turnings; and \$35 per ton for wrought iron.

The production of steel ingots in 1916 was 41,461,000 tons, and in 1915, 31,284,000 tons. For 1917 it will be not much less than 42,500,000 tons. At the end of 1916 mill capacity in the United States for the production of ship plates, of three-quarters of an inch and upwards, was estimated at 1,860,000 tons a year. But at that time in consequence of the first war-time boom in shipbuilding—the boom due to orders from American, British, Swedish and Norwegian shipping companies—two or three new plate mills were in building, and then and later existing units were being adapted to the production of plates and structural steel. The result of this line of development in the steel industry is that in 1918 the capacity of the plate mills will be equal to 300,000 tons a month.

Productive Capacity of the Steel Industry

Nobody need ask what relation all this productive capacity of the American iron and steel industry has to the war, and to the prospective defeat

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