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the American Iron and Steel
Institute.

New York : The Institute,

STATISTICS
OF THE
AMERICAN AND FOREIGN IRON TRADES
FOR 1912.

ANNUAL STATISTICAL REPORT
OF THE BUREAU OF STATISTICS OF THE
AMERICAN
IRON AND STEEL INSTITUTE,

CONTAINING
COMPLETE STATISTICS OF THE IRON AND STEEL INDUSTRIES OF THE UNITED STATES FOR 1912 AND PRECEDING YEARS; ALSO STATISTICS OF THE COAL, COKE, IRON ORE, AND SHIPBUILDING INDUSTRIES OF THE UNITED STATES;
ALSO COMPLETE CANADIAN IRON AND STEEL STATISTICS.

PRESENTED TO THE MEMBERS OF THE INSTITUTE,
NOVEMBER 10, 1913.

BUREAU OF STATISTICS,
AMERICAN IRON AND STEEL INSTITUTE,
No. 261 SOUTH FOURTH ST., PHILADELPHIA.
1913.

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LETTER OF TRANSMITTAL.

HON. ELBERT H. GARY, PRESIDENT,

American Iron and Steel Institute, New York City.

DEAR SIR: Herewith I have the honor of transmitting the Annual Statistical Report of the American Iron and Steel Institute containing the statistics of the iron and steel and allied industries for the year 1912 and preceding years.

As this is the first of these Reports prepared by the American Iron and Steel Institute, it seems fitting and proper to refer here to the reasons for the assumption of this work by the Institute.

In the preface to the corresponding Report for 1911, that publication is referred to as "the 40th issue of an unbroken series, uniform in its general scope and character and in printing and binding." These words were written, no doubt with pardonable pride, by Mr. James M. Swank, of Philadelphia, under whose direction, as Secretary or General Manager of the American Iron and Steel Association, these valuable Reports had for forty years been prepared. Looking back over those forty years, whose production of iron and steel exceeded that of all the preceding centuries of human history, Mr. Swank might well find satisfaction in knowing that his Reports have been and are accepted the world over as the highest authority on the subject.

When on January 1, 1873, Mr. Swank began his service as Secretary of the American Iron and Steel Association, he was forty years old, in the full strength of his manhood. In May, 1912, having reached four score years of age, he felt that he had earned repose; and he asked that he be relieved of his arduous duties on December 31, 1912, after exactly forty years of service. In compliance with his wish, on January 1, 1913, the American Iron and Steel Institute took over all the work that had been done so long and so well by the American Iron and Steel Association. On December 11, 1912, Mr. Swank sent to the members of that Association the following letter:

GENTLEMEN: My friends in the American Iron Trade have been for some time advised of my intention to ask that I be relieved at the close of the present year of the care and responsibility which attend the collection of the statistics of the Iron Trade at home and abroad, the preparation and publication of the Directory, the publication of the Bulletin of the Association,

and generally the performance of all the duties which have for forty years attached to my position as Secretary or General Manager of the Association. The officials of the American Iron and Steel Institute, whose office is in New York City, having indicated the willingness of the Institute to take up and continue the work of the American Iron and Steel Association after the close of the present year, a special committee of the Board of Directors of the Institute called upon my invitation at the office of the American Iron and Steel Association on Monday, December 9, to personally inquire into the details of the work of the Association and to consider the advisability of continuing this work with the present clerical force of the Association and with its existing office facilities.

The gentlemen composing the committee who represented the Institute were the Hon. E. H. Gary, President of the American Iron and Steel Institute and Chairman of the U. S. Steel Corporation, Charles M. Schwab, President of the Bethlehem Steel Company, E. A. S. Clarke, President of the Lackawanna Steel Company, E. C. Felton, President of the Pennsylvania Steel Company, Powell Stackhouse, President of the Cambria Iron Company, and J. G. Butler, Jr., Vice President of the Brier Hill Steel Company. Hon. James T. McCleary, Secretary of the American Iron and Steel Institute, was also present and participated in the conference.

After examining the details of the work of the American Iron and Steel Association, followed by a full interchange of opinions, the gentlemen present decided to recommend to the full board of Directors of the American Iron and Steel Institute that the Institute will on the 1st day of January next establish a Statistical Bureau in the present office of the American Iron and Steel Association, the Bureau to be controlled absolutely by the Institute and to be devoted to the collection and publication of the statistics of the American Iron Trade, the publication of a Directory to the Iron and Steel Works of the United States, and the maintenance of such miscellaneous correspondence as may result from the general knowledge that the Bureau will be in fact the statistical representative of the American Iron Trade. All other work heretofore performed by the American Iron and Steel Association will be attended to by the Institute at its office in New York.

It was further stated that, for the purpose of promoting the work of the Bureau of Statistics above outlined, the Institute would retain for an indefinite period and for such a time as may be mutually satisfactory to the Institute and the employes, such members of the present clerical force of the American Iron and Steel Association as have had charge under my direction of the work of the Association above specified, placing Mr. William G. Gray in charge of this work and making him solely responsible for its faithful and prompt performance in line with the precedents established by the Association, Mr. Gray's management of the Bu-

reau to be at all times subject to the approval of the Institute. Mr. Gray has been my principal statistical assistant for many years.

I stated to the representatives of the Institute who were present at the conference that I would cheerfully transfer all statistical records of the American Iron and Steel Association to the Statistical Bureau mentioned, and at the time above designated, and that I would also take pleasure in giving to Mr. Gray at any time the benefit of my long experience in the work of the American Iron and Steel Association.

I submit to the members of our Association the above details of the conference at our office on December 9 with every confidence that the conclusions reached will meet with their approval. Every one of the gentlemen participating in the conference, with the exception of the Secretary of the Institute, is a member of our Association, so that it may be truthfully said that both the Association and the Institute were represented.

Very Truly Yours, JAMES M. SWANK, *General Manager.*

At the regular monthly meeting of the Directors of the American Iron and Steel Institute held on February 28, 1913, the following resolutions were unanimously adopted :

WHEREAS, On December 31, 1912, after forty years of service, Mr. James M. Swank resigned his office of Secretary and General Manager of the American Iron and Steel Association ;

AND WHEREAS, On January 1, 1913, the work of the American Iron and Steel Association was taken over by the American Iron and Steel Institute, whose members were generally interested in and connected with the American Iron and Steel Association :

Be it Resolved, That the Directors of the American Iron and Steel Institute hereby record their profound appreciation of the fidelity and skill with which Mr. Swank discharged the duties of his office during that long and important period, and also their high estimate of his character as a man.

And Resolved Further, That these resolutions be engrossed in duplicate, one copy to be sent to Mr. Swank and the other to be framed and hung on the wall of the Institute Board Room.

One copy of the engrossed resolutions is now hanging in the Directors' Room of the Institute in New York ; the other copy, in book form, handsomely bound in full morocco and signed by all the Officers and Directors of the Institute, was transmitted to Mr. Swank. It seems proper to add that, without salary, Mr. Swank continues to give the Institute, as the need arises, the benefit of his experience and wisdom.

The Directors of the American Iron and Steel Institute have thus far continued the Bureau of Statistics in the office rooms so long occupied by the American Iron and Steel Association, at 261

South Fourth Street, Philadelphia, and have retained in service Mr. William G. Gray, Mr. John F. Hayes, and the other experienced members of the statistical staff of the Association. To them is due the credit for the excellent Report herewith presented.

Concerning this Report and the significance of some of its figures, Mr. Gray says:

Care has been taken to make the present Report as complete and comprehensive as possible. In the main the style observed by the American Iron and Steel Association in the preparation of its Annual Reports has been closely adhered to. All the leading features of the Reports of the Association have been retained. To comply, however, with an insistent demand for more detailed statistical information a number of new features have been introduced.

Most of the important statistical information which appears in this Report was presented to the members of the Institute and to the trade journals in Special Statistical Bulletins as promptly as it was compiled. Down to the close of August nine of these Bulletins had been issued, as follows:

Bulletin No. 1, issued on January 30, 1913, gave the production of all kinds of pig iron in the United States in 1912.

Bulletin No. 2, issued on February 28, gave the production of all kinds of rails in the United States in 1912.

Bulletin No. 3, issued on May 15, gave the production of pig iron by grades in the United States and Canada in 1912.

Bulletin No. 4, also issued on May 15, gave the production of iron and steel structural shapes, wire rods, and cut and wire nails in the United States in 1912.

Bulletin No. 5, issued on May 31, gave the production in the United States in 1912 of iron and steel plates and sheets, black plates (or sheets) for tinning, and tinplates and terne plates.

Bulletin No. 6, issued on June 18, gave the production in the United States in 1912 of Bessemer, open-hearth, crucible, electric, and miscellaneous steel ingots and castings.

Bulletin No. 7, issued on July 31, gave the production of pig iron in the United States in the first six months of 1913, the output of pig iron by grades, and the form in which the pig iron made during this period was cast or delivered; also the average monthly prices of pig iron at the leading selling centres from January, 1912, to June, 1913, a period of 18 months.

Bulletin No. 8, issued on August 7, gave the total production of all kinds of finished rolled iron and steel in the United States in 1912, together with full details concerning the production in the same year of merchant bars, bars for reinforced concrete work, skelp, nail plate, long angle splice bars, tie-plate bars, fish-plate bars, hoops, bands, cotton-ties, rolled sheet piling, railroad ties, rolled forging blooms and rolled forging billets, blooms, billets, and other semi-finished forms rolled for export, etc., etc.; also the production of iron and steel forgings by rolling mills and steel works in 1912; also the production in the same year of hammered charcoal iron blooms, billets, and bars; also the production of finished angle splice bars, tie plates, fish plates, and other rail joints and fastenings, excluding spikes, bolts, nuts, and similar fastenings.

Bulletin No. 9, issued on August 20, gave complete statistics of the production in Canada in 1912 of steel ingots and castings, rails, other forms of finished rolled iron and steel, iron and steel forgings,

cut nails and wire nails, and finished steel angle splice bars, tie plates, etc.; also Canadian statistics of the production, imports, and exports of coal and coke and the shipments of iron ore in 1912 and prior years; also Canadian statistics of the imports and exports of pig iron, ferro-manganese, etc., in 1912 and prior years. This Bulletin also gave detailed statistics of the production by grades of pig iron in Canada in the first six months of 1913, the number of active and idle blast furnaces in the Dominion on June 30, 1913, descriptions of the blast furnaces which were being built on that date, and the annual capacity of the completed and building furnaces at the close of June.

The year 1912 was a banner year in the production in this country of all leading forms of iron and steel, with the exception of rails and merchant bars, both of which reached their maximum output in 1906, the production of rails in that year exceeding by 649,972 tons the rail output in 1912 and the production of merchant bars exceeding the 1912 output by 295,086 tons. The merchant bar output in 1906, however, included an unknown tonnage of bars rolled for reinforcing concrete work. The output of concrete bars was not separately ascertained until 1909.

The year 1912 was also a banner year in the magnitude of our exports of iron and steel and manufactures thereof. According to statistics compiled by the Bureau of Foreign and Domestic Commerce of the Department of Commerce at Washington the exports of pig iron, scrap iron and steel, wire rods, structural shapes, steel rails, tinplates and terne plates, cut and wire nails, pipes and fittings, etc., the weight and value of which are published by the Bureau, amounted in 1906 to 1,325,740 gross tons, valued at \$52,215,089; in 1907 to 1,301,979 tons, valued at \$60,046,221; in 1908 to 964,242 tons, valued at \$43,397,323; in 1909 to 1,243,584 tons, valued at \$50,777,138; in 1910 to 1,535,689 tons, valued at \$63,276,714; in 1911 to 2,183,662 tons, valued at \$86,307,058; and in 1912 to 2,924,381 tons, valued at \$110,993,260.

In the seven years enumerated the increase in the quantity of our exports of this class of iron and steel amounted to 1,598,641 tons, or over 120.5 per cent., while the increase in value amounted to \$58,778,171, or over 112.5 per cent. In the above statement the tons and value of the radiators and cast-iron house heating boilers exported are not included, as prior to July 1, 1910, the exports of these articles were not separately stated, but were included with "all other manufactures of iron and steel," for which tonnage was not given. Neither is the tonnage nor value included of the exports of bolts, nuts, rivets, washers, horse-shoes, or railroad spikes, for which tonnage was not given prior to July 1, 1912, and the value of which, prior to that date, was also included with "all other manufactures of iron and steel."

As a rule 1912 was a year of advancing prices. No. 2 foundry pig iron at Philadelphia rose from an average of \$14.85 per ton in January to an average of \$18.50 in December; Bessemer pig iron at Pittsburgh from \$15.09 to \$18.15; basic pig iron at Pittsburgh from \$13.27 to \$17.36; Lake Superior charcoal pig iron at Chicago from \$16 to \$18.75; No. 2 foundry pig iron at Birmingham, Alabama, from \$10 to \$13.50; Besse-

mer steel billets at mills at Pittsburgh from \$20 to \$27; steel ship plates at Pittsburgh from \$25.85 to \$32.48; and beams and channels at Pittsburgh from an average of \$1.15 per hundred pounds in the first quarter of 1912 to an average of \$1.45 in the last quarter of that year.

In the preparation of this Report I have had the efficient help of Mr. John F. Hayes, who was my principal assistant for many years in the work of compiling statistics for the American Iron and Steel Association. My thanks are also due to the other members of our clerical staff for faithful service. I desire also to extend my thanks to Mr. James M. Swank for assistance and advice in the compilation of this Report.

I am also greatly indebted for domestic statistical information to Hon. A. H. Baldwin, Chief, and Hon. O. P. Austin, Assistant Chief, of the Bureau of Foreign and Domestic Commerce; E. W. Parker, Ernest F. Burchard, and Dr. David T. Day, of the United States Geological Survey; A. H. Armstrong, Secretary of the Bureau of Anthracite Coal Statistics; E. T. Dixon, Auditor of the Cumberland and Pennsylvania Railroad Company; Lieut.-Col. Francis R. Shunk, of the United States Army, Corps of Engineers, stationed at Pittsburgh; E. H. Alden, Secretary of the Norfolk and Western Railway Company; and Colonel H. P. Snyder, editor of the *Connellsville Courier*; also to the editors of the *Railway Age Gazette*, *Electric Railway Journal*, *Iron Age*, *Hardware Age*, *Poor's Manual*, *Iron Trade Review*, *American Metal Market*, and the *Industrial World*; also to the Juragua Iron Company, the Spanish-American Iron Company, and the Ponupo Manganese Company; also to Walter W. Cook, Secretary of the Iron Merchants' Association, the Baldwin Locomotive Works, and Edward L. Hand & Co., of Philadelphia; also to the Commissioner of Navigation and the Commissioner-General of Immigration, at Washington. For Canadian statistics I am under special obligations to Hon. John McLeish, Chief of the Division of Mineral Resources and Statistics, Department of Mines, Ottawa; the Algoma Steel Corporation, of Sault Ste. Marie, Ontario; and Messrs. Oglebay, Norton & Co., of Cleveland, Ohio. For average monthly and yearly prices of iron and steel in England I am indebted to the *British Blue Book* and to the *London Iron and Coal Trades Review*.

Among the new features in this Report referred to above by Mr. Gray may be mentioned the following: A brief historical sketch of the iron ore industry of Cuba; the production, imports, and consumption of manganese ore; the imports of spiegeleisen, ferro-manganese, ferro-silicon, and pig iron into the United States from 1901 to 1912 and the average value per ton at the foreign ports of shipment; and generally those items marked with an asterisk in the Table of Contents.

JAMES T. McCLEARY,

NEW YORK, OCTOBER 30, 1913.

Secretary.

STATISTICS OF THE AMERICAN IRON TRADE FOR 1912.

GENERAL STATISTICAL SUMMARY.

THE following table gives the shipments in 1911 and 1912 of Lake Superior iron ore, Connellsville and Flat Top coke, Cumberland coal, and anthracite coal, the production in these years of iron and steel, the imports and exports of iron and steel, etc.

Articles—Gross tons, except where enumerated.	1911.	1912.
Shipments of iron ore from Lake Superior.....	32,793,130	48,221,546
Production of iron ore.....	43,876,552	55,150,147
Shipments of Pennsylvania anthracite coal.....	69,954,299	63,610,578
Shipments of Cumberland coal.....	6,202,748	6,369,375
Production of all kinds of coal, net tons.....	496,371,126	534,466,580
Shipments of Connellsville coke, net tons.....	16,334,174	20,000,873
Shipments of Pocahontas Flat Top coke, net tons.....	1,323,387	1,284,954
Production of all kinds of coke, net tons.....	35,551,489	43,983,599
Production of pig iron, including spiegel and ferro.....	23,649,547	29,726,937
Production of spiegeleisen and ferro-manganese.....	184,718	221,724
Production of Bessemer steel ingots and castings....	7,947,854	10,327,901
Production of open-hearth steel ingots and castings.....	15,598,650	20,780,723
Production of crucible, electric, and other steel.....	129,602	142,679
Production of all kinds of steel ingots and castings.....	23,676,106	31,251,303
Production of Bessemer steel rails.....	1,053,420	1,099,926
Production of open-hearth steel rails.....	1,676,923	2,105,144
Production of all kinds of rails.....	2,822,790	3,327,915
Production of structural shapes.....	1,912,367	2,846,487
Production of wire rods.....	2,450,453	2,653,553
Production of plates and sheets.....	4,488,049	5,875,080
Production of nail plate.....	48,522	45,331
Production of merchant bars.....	3,047,362	3,697,114
Production of bars for reinforced concrete work....	258,741	274,332
Production of skelp, etc.....	1,980,673	2,446,816
Production of all other finished rolled forms.....	2,030,214	3,490,213
Production of all finished rolled iron and steel.....	19,039,171	24,656,841
Production of black plates for tinning.....	795,598	982,197
Production of forged iron and steel.....	218,236	392,520
Production of tinplates and terne plates.....	783,960	962,971
Production of iron and steel cut nails, in kegs.....	967,636	978,415
Production of iron and steel wire nails, in kegs.....	13,437,778	14,659,700
Imports of iron ore.....	1,811,732	2,104,576
Exports of iron ore.....	768,386	1,195,742
Imports of iron and steel and manufactures thereof.....	\$28,995,600	\$29,328,709
Exports of iron and steel and manufactures thereof.....	\$241,308,887	\$289,128,420
Miles of new railroad built in the calendar year....	3,293	2,997
Tonnage of iron and steel vessels built, cal. year....	163,805	170,515

There was an increase in the shipments of iron ore from the Lake Superior region in 1912 as compared with 1911 of 15,428,416 gross tons and in the shipments of Connellsville coke of 3,666,699 net tons. In the total production of anthracite and bituminous coal there was an increase of 38,095,454 net tons; in iron ore, 11,273,595 gross tons; and in coke, 8,432,110 net tons. The output of pig iron shows an increase of 6,077,390 tons; Bessemer steel ingots and castings, 2,380,047 tons; open-hearth steel ingots and castings, 5,182,073 tons; crucible, electric, and other steel ingots and castings, 13,077 tons; and all kinds of steel ingots and castings, 7,575,197 tons. The production of Bessemer steel rails shows an increase of 46,506 tons; open-hearth rails, 428,221 tons; and all kinds of rails, 505,125 tons. The output of structural shapes increased 934,120 tons; wire rods, 203,100 tons; plates and sheets, 1,387,031 tons; merchant bars, 649,752 tons; bars for reinforced concrete, 15,591 tons; skelp, 466,143 tons; other finished rolled forms, 1,459,999 tons; and all kinds of finished rolled iron and steel, 5,617,670 tons. Nail plate shows a decrease of 3,191 tons. Black plates for tinning show an increase of 186,599 tons; tinplates and terne plates, 179,011 tons; cut nails, 10,779 kegs; and wire nails, 1,221,922 kegs. Shipments of Pennsylvania anthracite coal show a decrease of 6,343,721 gross tons.

PRODUCTION OF COAL BY STATES FROM 1908 TO 1912.

The total production of coal in the United States in 1912, as reported by E. W. Parker, statistician of the Division of Mineral Resources of the United States Geological Survey, was 534,466,580 net tons, or 477,202,304 gross tons, as compared with 496,371,126 net tons, or 443,188,505 gross tons, in 1911, an increase of 38,095,454 net tons, or 34,013,799 gross tons.

The production of anthracite coal in 1912 was 6,102,469 net tons, or 5,448,633 gross tons, less than in 1911, when the maximum production was reached. The year of next largest production was 1907, when 85,604,312 net tons, or 76,432,421 gross tons, were produced. The production of bituminous coal in 1912 was 44,197,923 net tons greater than in 1911, when the output amounted to 405,907,059 net tons. The year of largest production was 1912 and the year of next largest production was 1910.

Of the total production of anthracite and bituminous coal in 1912, 84,361,598 net tons, or 75,322,856 gross tons, were Pennsylvania anthracite, and 450,104,982 net tons, or 401,879,448 gross tons, were classed as bituminous and lignite. The anthracite pro-

duction includes 3,155,150 gross tons, or 3,533,768 net tons, which were recovered from old culm banks by washeries and 85,722 gross tons, or 96,009 net tons, which were recovered by dredges from the bed of the Susquehanna river.

The production of anthracite and bituminous coal by States from 1908 to 1912 is shown in the following table in net tons.

States—Net tons.	1908.	1909.	1910.	1911.	1912.
Alabama.....	11,604,593	13,703,450	16,111,462	15,021,421	16,100,600
Arkansas.....	2,078,357	2,377,157	1,905,958	2,106,789	2,100,819
Cal. and Alaska...	21,862	48,636	12,164	11,647	11,333
Colorado.....	9,634,973	10,716,936	11,973,736	10,157,383	10,977,824
Ga. and N. Car....	264,822	211,196	177,245	165,330	227,703
Idaho and Nevada	5,429	4,553	4,448	1,821	2,964
Illinois.....	47,659,690	50,904,990	45,900,246	53,679,118	59,885,226
Indiana.....	12,314,890	14,834,259	18,389,815	14,201,355	15,285,718
Iowa.....	7,161,310	7,757,762	7,928,120	7,331,648	7,289,529
Kansas.....	6,245,508	6,986,478	4,921,451	6,178,728	6,986,182
Kentucky.....	10,246,553	10,697,384	14,623,319	14,049,703	16,490,521
Maryland.....	4,377,093	4,023,241	5,217,125	4,685,795	4,964,038
Mass. (lignite)....	50	.....	.....	.....	.....
Michigan.....	1,835,019	1,784,692	1,534,967	1,476,074	1,206,230
Missouri.....	3,317,315	3,756,530	2,982,433	3,836,107	4,339,856
Montana.....	1,920,190	2,553,940	2,920,970	2,976,358	3,048,495
New Mexico.....	2,467,937	2,801,128	3,508,321	3,148,158	3,536,824
North Dakota.....	320,742	422,047	399,041	502,628	499,480
Ohio.....	26,270,639	27,939,641	34,209,668	30,759,986	34,528,727
Oklahoma.....	2,948,116	3,119,377	2,646,226	3,074,242	3,675,418
Oregon.....	86,259	87,276	67,533	46,661	41,637
Pennsylvania bit..	117,179,527	137,966,791	150,521,526	144,561,257	161,865,488
Tennessee.....	6,199,171	6,358,645	7,121,380	6,433,156	6,473,228
Texas.....	1,895,377	1,824,440	1,892,176	1,974,593	2,188,612
Utah.....	1,846,792	2,266,899	2,517,809	2,513,175	3,016,149
Virginia.....	4,259,042	4,752,217	6,507,997	6,864,667	7,846,638
Washington.....	3,024,943	3,602,263	3,911,899	3,572,815	3,360,932
West Virginia.....	41,897,843	51,849,220	61,671,019	59,831,580	66,786,687
Wyoming.....	5,489,902	6,393,109	7,533,088	6,744,864	7,368,124
Total bit.....	332,573,944	379,744,257	417,111,142	405,907,059	450,104,982
Penna. anth..	83,268,754	81,070,359	84,485,236	90,464,067	84,361,598
Grand total...	415,842,698	460,814,616	501,596,378	496,371,126	534,466,580

Coal was produced in 30 States and the Territory of Alaska in 1912. In 22 of these States the output in 1912 was larger than in 1911, while in 8 States and the Territory of Alaska the output in 1912 was smaller than in 1911.

The total exports of coal in 1912 amounted to 20,326,619 net tons, or 18,148,767 gross tons, and the imports for consumption

to 1,800,448 net tons, or 1,607,543 gross tons; the total consumption in 1912, not counting stocks on hand at the beginning and end of the year, was 515,940,409 net tons, or over 96 per cent. of the total domestic production of coal in that year.

SHIPMENTS OF ANTHRACITE COAL AND CUMBERLAND COAL.

The shipments of anthracite coal from the Pennsylvania mines in 1912 were 63,610,578 gross tons, against 69,954,299 tons in 1911, 64,905,786 tons in 1910, 61,969,885 tons in 1909, 64,665,014 tons in 1908, and 67,109,393 tons in 1907. These figures are obtained from the Bureau of Anthracite Coal Statistics.

The shipments of Cumberland coal from the mines of Western Maryland and West Virginia in 1912 amounted to 6,369,375 gross tons, against 6,202,748 tons in 1911. The largest shipments were made in 1907, when they amounted to 7,360,336 tons. For the above statistics we are indebted to Mr. E. T. Dixon, auditor of the Cumberland and Pennsylvania Railroad Company.

MONONGAHELA SHIPMENTS OF COAL AND COKE.

We are advised by Lieutenant-Colonel Francis R. Shunk, of the Corps of Engineers, U. S. Army, stationed at Pittsburgh, that in the fiscal year ended June 30, 1912, there were shipped on the Monongahela river 8,629,739 net tons of coal, against 9,642,873 tons of coal and 200 tons of coke in the fiscal year 1911. No shipments of coke were made in the fiscal year 1912. In the calendar year 1912 there were shipped 9,943,333 net tons of coal and 2,075 tons of coke, against 9,207,232 tons of coal in the calendar year 1911. Coke was not shipped in the calendar year 1911.

IMPORTS AND EXPORTS OF COAL AND COKE.

Exports of anthracite coal in 1912 amounted to 3,688,789 gross tons, against 3,553,999 tons in 1911. Exports of bituminous coal in 1912 amounted to 14,459,978 tons, against 13,878,754 tons in 1911. The total exports of coal in 1912 amounted to 18,148,767 tons, against 17,432,753 tons in 1911. Coal used by vessels engaged in the foreign, coast, and lake trade is not included. Our exports of coke in 1912 amounted to 912,576 net tons, against 1,023,727 tons in 1911. Of the anthracite coal exported in 1912, 3,615,530 gross tons were sent to Canada, 36,012 tons to Cuba, 9,679 tons to Newfoundland, 8,757 tons to Mexico, 6,513 tons to Santo Domingo, 2,796 tons to Bermuda, and 9,502 tons to other countries. Of the bituminous coal, exported in 1912, 10,433,010 tons were sent to Canada, 1,152,004 tons to

Cuba, 651,268 tons to other islands in the West Indies and to Bermuda, 486,309 tons to Panama, 328,411 tons to Brazil, 302,487 tons to Mexico, 281,975 tons to Italy, 124,078 tons to French Africa, 123,617 tons to Argentina, 121,978 tons to Egypt, and 454,841 tons to other countries.

The imports of anthracite coal in 1912 amounted to 1,670 gross tons, against 2,477 tons in 1911. Of the anthracite coal imported in 1912, 1,600 tons came from China, 60 tons from Canada, and 10 tons from England. Our imports of bituminous coal in 1912 amounted to 1,608,350 gross tons, against 1,238,808 tons in 1911. From Canada we imported 1,404,139 tons of bituminous coal in 1912; from Australia and Tasmania, 162,671 tons; from Japan, 30,621 tons; from the United Kingdom, 8,697 tons; and from other countries, 2,222 tons. The imports of coke in 1912 amounted to 123,589 net tons, against 77,857 tons in 1911.

SHIPMENTS OF POCAHONTAS COKE.

The shipments of Pocahontas Flat Top coke in 1912, for which we are indebted to Mr. E. H. Alden, secretary of the Norfolk and Western Railway Company, amounted to 1,284,954 net tons, against 1,323,387 tons in 1911 and 2,335,932 tons in 1910. Of the shipments in 1912, 1,232,810 tons were line trade and 52,144 tons were tidewater, while in 1911, 1,248,619 tons were line trade and 74,768 tons were tidewater. In 1910 the line trade shipments were 2,266,312 tons and the tidewater shipments were 69,620 tons.

SHIPMENTS AND PRICES OF CONNELLSVILLE COKE.

Mr. H. P. Snyder, the editor of the *Connellsville Courier*, reports that the total shipments of coke from the Connellsville region in 1912 amounted to 20,000,873 net tons, against 16,334,174 tons in 1911, an increase of 3,666,699 tons, or over 22.4 per cent. The shipments in 1912 were the largest in the history of the Connellsville region. They were, however, only 1,547 tons greater than in 1906, when 19,999,326 tons were shipped. In the Connellsville region the *Courier* includes the two districts which produce Connellsville coke, which the United States Geological Survey classifies as Connellsville and Lower Connellsville, the former shipping 11,796,255 tons in 1912 and the latter 8,204,618 tons. The Lower Connellsville district has made more than one-third of the shipments in recent years. In 1912 the difference between the two districts amounted to 3,591,637 tons. The *Courier* does not include shipments and production of coke from the ovens north of Latrobe, known as the Upper Connellsville district.

The total production of coke in the Connellsville region in 1912 is reported by the *Courier* to have amounted to 20,032,275 net tons, production having exceeded shipments by 31,402 tons. In 1911 shipments exceeded production by 228,268 tons.

The average price of all coke shipped from the Connellsville region in 1912, both furnace and foundry, was \$1.92 per net ton, as compared with \$1.72 in 1911. In the last thirty-three years the lowest annual average price of furnace and foundry coke in the Connellsville region was in 1894, when the average was \$1 per net ton, and the highest average annual price was in 1903, when the average was \$3 per net ton.

The following table gives the average monthly prices per net ton of prompt Connellsville furnace and foundry coke at ovens in the last five years, compiled from authoritative sources.

Months.	Furnace coke—Per net ton.					Foundry coke—Per net ton.				
	1908.	1909.	1910.	1911.	1912.	1908.	1909.	1910.	1911.	1912.
January....	\$1.95	\$1.70	\$2.60	\$1.40	\$1.88	\$2.55	\$2.10	\$3.05	\$2.00	\$1.97
February..	1.87	1.65	2.25	1.47	1.84	2.22	2.00	2.75	2.10	2.06
March.....	1.65	1.55	2.00	1.57	2.04	2.28	2.00	2.60	2.15	2.41
April.....	1.45	1.43	1.80	1.58	2.53	1.90	1.90	2.40	2.10	2.71
May	1.45	1.45	1.70	1.50	2.32	2.00	1.85	2.25	2.00	2.58
June.....	1.52	1.50	1.65	1.45	2.21	2.12	1.85	2.20	1.95	2.42
July.....	1.52	1.55	1.65	1.45	2.34	2.12	1.85	2.15	1.90	2.40
August....	1.50	1.75	1.65	1.53	2.25	2.12	2.00	2.15	1.90	2.40
September	1.45	2.30	1.60	1.50	2.42	2.10	2.50	2.15	1.85	2.57
October....	1.75	2.80	1.55	1.50	3.46	2.13	2.75	2.10	1.85	3.45
November	1.87	2.85	1.45	1.50	3.95	2.28	3.00	2.00	1.90	4.06
December.	2.00	2.85	1.50	1.68	4.00	2.35	3.10	2.00	1.95	4.44
Average	\$1.66	\$1.95	\$1.78	\$1.51	\$2.60	\$2.18	\$2.24	\$2.32	\$1.97	\$2.79

In 1913 the average monthly price of furnace coke at ovens for spot shipment was as follows: In January, \$3.85 per net ton; in February, \$2.60; in March, \$2.47; in April, \$2.20; in May, \$2.15; and in June, \$2.20. The average monthly price of prompt foundry coke at ovens was \$4.30 per net ton in January, \$3.10 in February, \$3.15 in March and April, \$3 in May, and \$2.90 in June.

The following table, for which we are indebted to the editor of the *Courier*, gives the total number of ovens in the Connellsville region at the close of each year from 1880 to 1912, the annual shipments of coke in net tons, and the average annual price per net ton at the ovens.

Calendar years. Net tons.	Total ovens.	Shipments. Net tons.	Average price.	Calendar years. Net tons.	Total ovens.	Shipments. Net tons.	Average price.
1880.....	7,211	2,205,946	\$1.79	1897.....	18,628	6,915,052	\$1.65
1881.....	8,208	2,639,002	1.63	1898.....	18,643	8,460,112	1.55
1882.....	9,283	3,043,394	1.47	1899.....	19,689	10,129,764	2.00
1883.....	10,176	3,552,402	1.14	1900.....	20,954	10,166,234	2.70
1884.....	10,543	3,192,105	1.13	1901.....	21,575	12,609,949	1.95
1885.....	10,471	3,096,012	1.22	1902.....	26,329	14,138,740	2.37
1886.....	10,952	4,180,521	1.36	1903.....	28,092	13,345,230	3.00
1887.....	11,923	4,146,989	1.79	1904.....	29,119	12,427,468	1.75
1888.....	13,975	4,955,553	1.19	1905.....	30,842	17,896,526	2.26
1889.....	14,458	5,930,428	1.34	1906.....	34,059	19,999,326	2.75
1890.....	16,020	6,464,156	1.94	1907.....	35,697	19,029,058	2.90
1891.....	17,204	4,760,665	1.87	1908.....	37,842	10,700,022	1.80
1892.....	17,256	6,329,452	1.83	1909.....	39,158	17,785,832	2.00
1893.....	17,513	4,805,623	1.49	1910.....	39,137	18,689,722	2.10
1894.....	17,834	5,454,451	1.00	1911.....	38,904	16,334,174	1.72
1895.....	17,947	8,244,438	1.23	1912.....	38,884	20,000,873	1.92
1896.....	18,351	5,411,602	1.90	.....	.....	.....	.....

PRODUCTION OF COKE BY STATES FROM 1908 TO 1912.

The total production of coke in the United States in 1912, as ascertained by Mr. Parker for the United States Geological Survey, amounted to 43,983,599 net tons, against 35,551,489 tons in 1911, an increase of 8,432,110 tons, or over 23.7 per cent. The following table gives the production by States from 1908 to 1912.

States—Net tons.	1908.	1909.	1910.	1911.	1912.
Pennsylvania.....	15,511,634	24,905,525	26,315,607	21,923,935	27,438,693
Alabama.....	2,362,666	3,085,824	3,249,027	2,761,521	2,975,489
Indiana.....	*	*	*	*	2,616,339
West Virginia.....	2,637,123	3,943,948	3,803,850	2,291,049	2,465,986
Illinois.....	362,182	1,276,956	1,514,504	1,610,212	1,764,944
Colorado.....	† 982,291	† 1,251,805	† 1,346,211	† 1,177,023	972,941
Virginia.....	1,162,051	1,347,478	1,493,655	910,411	967,947
New York.....	*	*	652,459	686,172	794,618
New Mexico.....	274,565	373,967	401,646	381,927	413,966
Ohio.....	159,578	222,711	282,315	311,382	388,669
Tennessee.....	214,528	261,808	322,756	330,418	370,076
Kentucky.....	*	46,371	53,857	66,099	191,555
Washington.....	38,889	42,981	59,337	40,180	49,260
Georgia.....	39,422	46,385	43,814	37,553	43,158
Kansas and other States.....	2,288,589	2,509,306	2,169,772	3,023,607	2,530,018
Total...Net tons.	26,033,518	39,315,065	41,708,810	35,551,489	43,983,599

* Production included with "Kansas and other States." † Includes Utah.

Maryland, Massachusetts, Michigan, Minnesota, New Jersey, Utah, and Wisconsin also made coke in 1912. The maximum production of coke was reached in 1912; the year of next largest production was 1910.

In 1912, as in other years, Pennsylvania produced much more than one-half of the production of coke in the whole country. Alabama, Indiana, and West Virginia were the next largest makers. At the close of 1912 there were 102,230 completed ovens in the United States, against 103,879 at the end of 1911. Of the total production of coke in 1912, 32,868,435 net tons, or over 74.7 per cent., were made in bee-hive ovens, and 11,115,164 tons, or almost 25.3 per cent., in retort ovens. In 1911 there were 27,703,644 tons of coke, or almost 78 per cent., made in bee-hive ovens, and 7,847,845 tons, or over 22 per cent., in retort ovens.

CARS AND LOCOMOTIVES BUILT IN 1911 AND 1912.

According to the *Railway Age Gazette* the number of railroad cars built in the United States and Canada in 1912 was 155,489, as compared with 76,407 in 1911, an increase of 79,082 cars, or over 103.5 per cent. Of the total in 1912, 152,429 were freight cars and 3,060 were passenger cars, against 72,161 freight cars and 4,246 passenger cars in 1911. Cars built in railroad shops are included for 1912 but not for 1911. Subway and elevated cars are included for both years but not street railroad and interurban cars. Of the cars built in the United States and Canada in 1912, 148,357 were freight cars for domestic service, 4,072 were freight cars for export, 2,822 were passenger cars for domestic service, and 238 were passenger cars for export. Of the freight cars 66,250 were built of steel or had steel underframes and of the passenger cars 1,418 were built of steel or had steel underframes. In 1912 there were 215 electric or subway cars included in the total number of passenger cars built, against 415 cars of this character in 1911, a decrease of 200 cars.

In 1911 there were built in this country and Canada by the principal carbuilding companies 68,961 freight cars for domestic service, 3,200 freight cars for export, 3,938 passenger cars for domestic service, and 308 passenger cars for export. Of the freight cars built in 1911, 52,592 were constructed of steel or had steel underframes and of the passenger cars 2,930 were constructed of steel or had steel underframes. Cars built by railroad companies are not included.

Returns received by the *Gazette* from the leading locomotive

builders and from railroad shops in the United States and Canada show that 4,915 locomotives were built in these countries in 1912. In 1911 the number built by locomotive builders only, not including locomotives built in railroad shops, was 3,530. Of the total in 1912, 4,403 were for domestic use and 512 were for export, as compared with 3,143 for domestic use and 387 for export in 1911. Included in the total for 1912 are 239 compound and 212 electric locomotives. The above totals do not include locomotives which were repaired or rebuilt. Nor do they include electric locomotives built for any other purpose than for use on steam railroads.

As reported to us the Baldwin Locomotive Works built 1,618 locomotives in 1912, against 1,606 in 1911, an increase of 12 locomotives. In 1910 these works built 1,675 locomotives; in 1909, 1,024 locomotives; in 1908, 617 locomotives; in 1907, 2,655 locomotives; and in 1906, 2,666 locomotives, the output in the latter year being the largest in their history. In 1912 the Baldwin Works exported 239 locomotives, against 188 in 1911, 169 in 1910, 151 in 1909, and 174 in 1908.

MILEAGE OF STEAM RAILROADS.

The *Railway Age Gazette* also says that 2,997 miles of new railroad track were laid in 1912, not including double track or sidings, or new track laid in reconstruction work to replace existing main track. *Poor's Manual* gives the number of miles of steam railroad track built in 1911, excluding double track, sidings, etc., as amounting to 3,293. *Poor* says that at the close of 1911 the total mileage of steam railroad track in this country amounted to 359,030 miles, of which 244,089 miles were single track and 114,941 miles were second, third, and fourth track, sidings, etc. Similar statistics for 1912 are not available, their collection by the compilers of *Poor's Manual* having been discontinued.

MILEAGE OF ELECTRIC AND STREET RAILWAYS.

The editor of the *Electric Railway Journal* estimates that the electric railroad mileage built in 1912 in the United States and Canada aggregated about 949 miles, computed as single track, of which 891 miles were new construction and 58 miles were converted from steam to electricity. New York led with 93 miles, of which 35 miles were new and 58 miles were converted; Oregon was second, with 83 miles, all new; California was third, with 82 miles, all new; Pennsylvania was fourth, with 63 miles, all new; Texas was fifth, with 56 miles, all new; Iowa

was sixth, with 52 miles, all new; and Minnesota was seventh, with 50 miles, all new.

The *Journal's* completed statistics for 1910 show that the number of miles of street, elevated, and electric interurban railways in the United States alone in that year was 40,088 miles. The editor of the *Journal* estimates the mileage in 1912 for the United States and Canada as amounting to 43,872 miles, as compared with 42,865 miles in 1911. The total number of cars operated in the United States and Canada in 1912 is estimated by the editor of the *Journal* as amounting to 103,028, including electric sweepers and locomotives, as compared with 97,499 cars operated in 1911. The mileage of cable, steam dummy, and horse-car railways is not separated from that of electric railways, but their combined mileage was very small.

PRODUCTION OF IRON ORE BY STATES FROM 1908 TO 1912.

The total production of iron ore in the United States in 1912, as ascertained by Ernest F. Burchard for the Division of Mineral Resources of the United States Geological Survey, was 55,150,147 gross tons, as compared with 43,876,552 tons in 1911, an increase of 11,273,595 tons, or nearly 25.7 per cent. The following table gives the production by States from 1908 to 1912 in gross tons. Iron ore used for fluxing purposes is included. The production of iron ore in any year must not be confounded with the shipments of iron ore in that year. The figures given for 1908, 1909, 1910, and 1911 differ slightly from those previously printed.

States—Gross tons.	1908.	1909.	1910.	1911.	1912.
Minnesota.....	18,652,220	28,975,149	31,966,769	24,645,105	34,431,768
Michigan.....	8,839,199	11,900,384	13,303,906	10,329,039	11,191,430
Alabama.....	3,734,438	4,321,252	4,801,275	3,827,791	4,563,603
New York.....	697,473	1,015,333	1,287,209	1,061,279	1,216,672
Wisconsin.....	733,993	1,067,436	1,149,551	698,660	860,600
Pennsylvania.....	443,161	666,889	739,799	537,506	517,081
Virginia.....	692,223	837,847	903,377	614,023	446,305
Tennessee.....	635,343	657,795	732,247	463,835	416,885
New Jersey.....	394,767	543,720	521,832	466,234	364,673
Georgia.....	321,060	221,016	313,878	203,889	134,637
W. Va., Ky., Md., and N. C.....	101,757	159,807	143,687	182,341	103,956
Missouri.....	98,414	89,954	78,341	65,325	43,480
Ohio.....	26,585	16,527	22,320	15,707	10,346
Mont., Nev., etc..	612,703	821,162	1,050,715	765,818	848,711
Total.....	35,983,336	51,294,271	57,014,906	43,876,552	55,150,147

In addition to the States named in the table, Massachusetts, Connecticut, Texas, Colorado, New Mexico, Idaho, Wyoming, Utah, and California mined iron ore in 1912.

The maximum production of iron ore was reached in 1910; the year of next largest production was 1912, when the output was 1,864,759 gross tons less than in 1910.

LAKE SUPERIOR IRON ORE SHIPMENTS FROM 1908 TO 1912.

The *Iron Trade Review*, of Cleveland, gives full details of the shipments of iron ore from the Lake Superior region in 1912 and preceding years. These details have been verified for this Report by the editor of the *Review*. The total iron ore shipments by water and by all-rail routes in 1912 amounted to 48,221,546 tons, against 32,793,130 tons in 1911, an increase of 15,428,416 tons. The shipments by water in 1912 amounted to 47,435,777 tons, against 32,130,411 tons in 1911, an increase of 15,305,366 tons, and by rail to 785,769 tons, against 662,719 tons in 1911, an increase of 123,050 tons. Of the total ore shipped in 1912, 66.5 per cent. was shipped from the Mesabi range, 3.8 per cent. from the Vermilion range, 10.4 per cent. from the Gogebic range, 8.7 per cent. from the Marquette range, 9.8 per cent. from the Menominee range, and 0.8 per cent. from the Cuyuna range and other mines. The following table gives the total shipments of Lake Superior iron ore by ranges from 1908.

Ranges—Gross tons	1908.	1909.	1910.	1911.	1912.
Marquette.....	2,414,632	4,256,172	4,392,726	2,833,116	4,202,308
Menominee.....	2,679,156	4,875,385	4,237,738	3,911,174	4,711,440
Gogebic.....	2,699,856	4,088,057	4,315,314	2,603,318	5,006,266
Vermilion.....	841,544	1,108,215	1,203,177	1,088,930	1,844,981
Mesabi.....	17,257,350	28,176,281	29,201,760	22,093,532	32,047,409
Cuyuna .....	.....	.....	.....	147,431	305,111
Miscellaneous.....	122,449	82,759	91,682	115,629	104,031
Total.....	26,014,987	42,586,869	43,442,397	32,793,130	48,221,546

The Marquette range is wholly in Michigan, the Menominee and Gogebic ranges are partly in Michigan and partly in Wisconsin, the Vermilion and Mesabi ranges are in Minnesota, and the Cuyuna range is in Aitkin and Crow Wing counties, Minnesota. Shipments from the Cuyuna range were first made in 1911.

Under "miscellaneous" are included all shipments from the Baraboo district, from the Iron Ridge mine, and from the Mayville mine, all in Southern Wisconsin. No ore was shipped from the Baraboo district in 1909, 1910, 1911, or 1912.

In 1904 the Mesabi mines shipped 12,156,008 tons; in 1905, 20,158,699 tons; in 1906, 23,819,029 tons; and in 1907, 27,495,708 tons. The increase in the Mesabi shipments in 1912 as compared with 1911 amounted to 9,953,877 tons. All other ranges also show increases in 1912 as compared with 1911. The miscellaneous districts show a slight decrease.

The Iron Ridge mine, owned by the Illinois Steel Company, is located in Dodge county, Wisconsin, and the recently developed Baraboo district, containing the Illinois mine, is in the adjoining counties of Sauk and Columbia, in Southern Wisconsin. Prior to 1903 the shipments from the Iron Ridge mine were not included in Lake Superior statistics. Shipments from the Baraboo district began in 1904. Shipments from the Mayville mine, also in Dodge county, are now included in Lake Superior statistics. Shipments from the Southern Wisconsin mines are not included in the shipments from any of the six Lake Superior ranges.

The shipments of iron ore from the Lake Superior region for the account of the United States Steel Corporation from mines owned wholly or in part by the Corporation amounted in 1912 to 24,331,837 gross tons, or over 50.4 per cent. of the total for the whole region, as compared with similar shipments of 17,806,257 tons, or over 54.2 per cent., in 1911; 22,185,972 tons, or over 51 per cent., in 1910; 21,876,246 tons, or over 51.3 per cent., in 1909; 14,579,613 tons, or over 56 per cent., in 1908; 23,148,467 tons, or over 54.7 per cent., in 1907; 20,885,774 tons, or over 54.1 per cent., in 1906; and 19,251,872 tons, or almost 56 per cent., in 1905. Ore shipped from the Iron Ridge mine is included.

The following table gives the shipments by ports in the last five years, with all-rail shipments added. Shipments to local furnaces are included. Gross tons of 2,240 pounds are used.

Ports—Gross tons.	1908.	1909.	1910.	1911.	1912.
Escanaba	3,351,502	5,747,801	4,959,726	4,278,445	5,234,655
Marquette	1,487,487	2,909,451	3,248,516	2,200,380	3,296,761
Ashland	2,513,670	3,834,207	4,094,374	2,429,290	4,797,101
Two Harbors	5,702,237	9,181,132	8,271,177	6,367,537	9,370,969
Superior	3,564,030	6,540,505	8,414,799	9,920,490	14,240,714
Duluth	8,808,168	13,470,503	13,640,166	6,934,269	10,495,577
Total lake	25,427,094	41,683,599	42,628,758	32,130,411	47,435,777
All rail	587,893	903,270	813,639	662,719	785,769
Grand total.	26,014,987	42,586,869	43,442,397	32,793,130	48,221,546

Shipments from the Helen mine of the Lake Superior Corporation, of Sault Ste. Marie, Ontario, Canada, or from the Moose Mountain mine, which is represented by Oglebay, Norton & Co., of Cleveland, Ohio, not being from United States territory, are not included above. Both mines are located in Ontario. The shipments from these mines in recent years are given on page 31.

LARGEST SHIPPERS OF LAKE SUPERIOR IRON ORE IN 1912.

The mines which shipped the largest quantities of iron ore in 1912 by ranges are given below:

Mesabi range—Hull-Rust, 2,232,112 gross tons; Leonard, 2,198,119 tons; Canisteo, 2,099,880 tons; Mahoning, 1,518,643 tons; Genoa, 1,315,840 tons; Uno South, 1,305,216 tons; Hill, 1,188,908 tons; Dale, 1,106,808 tons; Sauntery-Alpena, 1,025,301 tons; Adams, 993,523 tons; Holman, 919,699 tons; and She-nango, 805,413 tons. These 12 mines shipped 16,709,462 tons in 1912, or over one-half of the total ore shipped from this range in that year. No other mine in this range shipped over 741,000 tons. The number of active mines or groups of mines was 92.

Gogebic range—The Norrie group shipped 1,500,732 tons; Newport, 973,391 tons; Cary, 308,292 tons; Montreal, 247,772 tons; Colby, 245,195 tons; Ashland, 211,927 tons; Iron-ton, 173,135 tons; Tilden, 158,151 tons; and Sunday Lake, 155,485 tons. No other mine in this range shipped over 149,000 tons. The number of active mines was 23.

Menominee range—Bristol, (Claire,) shipped 435,619 tons; Penn Iron Mining Company, 429,150 tons; Chapin, 327,571 tons; Tobin, 319,318 tons; Caspian, 306,913 tons; Pewabic, 279,769 tons; Aragon, 244,894 tons; Dunn, 242,304 tons; and Hiawatha, 220,106 tons. No other mine in this range shipped over 190,000 tons. The number of active mines was 37.

Marquette range—The Cleveland-Cliffs group shipped 1,004,684 tons; Negaunee, 446,318 tons; Queen group, 351,916 tons; Mary Charlotte, 260,801 tons; Lake Superior, 219,673 tons; Stephenson, 214,386 tons; Princeton, (Swanzey,) 162,138 tons; Republic, 156,864 tons; and Lake Angeline, 151,910 tons. No other mine in this range shipped over 134,000 tons. The number of active mines was 28.

Vermilion range—Pioneer shipped 647,237 tons; Zenith, 478,682 tons; Sibley, 309,076 tons; and Section 30, 157,344 tons. No other mine shipped over 91,000 tons. The number of active mines was 8.

Cuyuna range—Kennedy shipped 196,653 tons; Armour No. 1, 49,539 tons; Armour No. 2, 49,031 tons; and Thompson, 9,888 tons. No other mine shipped iron ore from this range in 1912.

IRON ORE RECEIVED AND ON DOCK AT LAKE ERIE PORTS.

The *Iron Trade Review* annually publishes full statistics of the receipts of Lake Superior iron ore at ports on Lake Erie and at Detroit; also the quantity left on the docks at the close of navigation in each year. From these statistics we have compiled the following table for the last twenty-nine years in gross tons.

Years.	Receipts. Gross tons.	On dock. Gross tons.	Years.	Receipts. Gross tons.	On dock. Gross tons.
1884	1,841,877	1,038,135	1899	15,222,187	5,530,283
1885	1,503,969	1,048,940	1900	15,797,787	5,904,670
1886	2,270,554	966,472	1901	17,014,076	5,859,663
1887	3,439,198	1,558,861	1902	22,649,424	7,074,254
1888	3,783,659	1,848,555	1903	19,681,731	6,371,085
1889	5,856,344	2,607,106	1904	17,932,814	5,763,399
1890	6,874,664	3,893,487	1905	29,060,693	6,438,967
1891	4,939,684	3,508,489	1906	32,194,205	6,252,455
1892	6,660,734	4,149,451	1907	35,348,915	7,385,728
1893	5,333,061	4,070,710	1908	20,527,052	8,441,533
1894	6,350,825	4,834,247	1909	33,672,825	8,965,789
1895	8,112,228	4,415,712	1910	34,042,897	9,426,881
1896	8,026,432	4,954,984	1911	25,531,550	9,131,664
1897	10,120,906	5,923,755	1912	37,465,853	9,497,168
1898	11,028,321	5,136,407	.....	.....	.....

RECEIPTS OF LAKE SUPERIOR IRON ORE AT LAKE ERIE PORTS.

The receipts of Lake Superior iron ore at Lake Erie ports, including Detroit, in the last six years are given in the following table. Gross tons of 2,240 pounds are used throughout.

Ports.	1907.	1908.	1909.	1910.	1911.	1912.
Toledo.....	1,314,140	680,553	1,374,224	1,225,202	493,345	1,405,023
Sandusky.....	83,043	.....	11,088	.....	.....	.....
Huron.....	971,430	213,377	243,082	197,951	223,947	540,586
Lorain.....	2,621,025	2,286,388	2,796,856	2,884,738	2,937,605	3,771,350
Cleveland.....	6,495,998	4,240,816	6,051,342	6,344,943	4,584,211	7,914,836
Fairport.....	2,437,649	1,518,961	1,734,277	1,516,434	666,365	1,810,381
Ashtabula.....	7,521,859	3,012,064	8,056,941	9,620,638	6,359,131	8,158,080
Conneaut.....	5,875,937	4,798,631	7,007,834	6,309,548	6,931,278	7,839,831
Erie.....	2,294,239	828,602	1,235,057	942,592	289,400	547,067
Buffalo.....	5,580,438	2,835,099	5,002,235	4,704,439	2,802,976	5,060,642
Detroit.....	153,157	112,561	159,889	296,412	243,292	418,057
Total.....	35,348,915	20,527,052	33,672,825	34,042,897	25,531,550	37,465,853

In 1912 the ore shipped by rail and to ports other than those named above amounted to 10,755,693 tons, as compared with 7,261,580 tons in 1911, 9,399,500 tons in 1910, 8,914,044 tons in 1909, 5,487,935 tons in 1908, and 6,917,753 tons in 1907.

PRICES OF LAKE SUPERIOR IRON ORE FROM 1903 TO 1913.

Below will be found the base prices at which Lake Superior ore was sold on season contracts from 1903 to 1912, per gross ton, delivered at lower Lake Erie ports; also the prices at which sales were made for delivery in 1913, sales having been first reported in November, 1912. The prices have been verified by the editor of the *Iron Trade Review*. Prices for 1913 show an increase as compared with 1912 of 65 cents per ton for old range and Mesabi Bessemer ores, 60 cents per ton for old range non-Bessemer ores, and 55 cents per ton for Mesabi non-Bessemer ores.

Years.	Old range Besse- mer.	Old range non- Besse- mer.	Mesabi Besse- mer.	Mesabi non- Besse- mer.	Years.	Old range Besse- mer.	Old range non- Besse- mer.	Mesabi Besse- mer.	Mesabi non- Besse- mer.
1903..	\$4.50	\$3.60	\$4.00	\$3.20	1909..	\$4.50	\$3.70	\$4.25	\$3.50
1904..	3.25	2.75	3.00	2.50	1910..	5.00	4.20	4.75	4.00
1905..	3.75	3.20	3.50	3.00	1911..	4.50	3.70	4.25	3.50
1906..	4.25	3.70	4.00	3.50	1912..	3.75	3.00	3.50	2.85
1907..	5.00	4.20	4.75	4.00	1913..	4.40	3.60	4.15	3.40
1908..	4.50	3.70	4.25	3.50	.....	.....	.....	.....	.....

The above classification of iron ores conforms to that adopted by the Lake Superior Iron Ore Association, which was organized for statistical purposes in 1905. Down to 1907 the base for old range Bessemer iron ores was a supposititious ore containing 63 per cent. of metallic iron, 0.045 per cent. of phosphorus, and 10 per cent. of moisture, giving a natural iron content of 56.70 per cent. The base for the non-Bessemer ores up to 1907 was an ore supposed to contain 60 per cent. of metallic iron and 12 per cent. of moisture, giving a natural iron content of 52.80 per cent., except for Mesabi non-Bessemer for 1905 and 1906, when the natural iron content was 53 per cent. Before the sales for delivery in 1907 were made the natural iron content for the base was changed to 55 per cent. for the old range and Mesabi Bessemer and 51.50 per cent. for the old range and Mesabi non-Bessemer. The prices given in the above table for 1907 and for all subsequent years relate to the new base schedule.

IMPORTS OF IRON ORE.

The following table, for which we are indebted to the Bureau of Foreign and Domestic Commerce of the Department of Commerce, gives the quantities and values of the iron ore imported into the United States in the calendar years 1910, 1911, and 1912. The imports in 1912 include 106,675 tons from the Dominion of Canada, valued at \$201,882, received chiefly at Philadelphia and Lake Erie ports; also 145,355 tons, valued at \$217,087, from Newfoundland, all received at the port of Philadelphia.

Customs districts. Gross tons.	1910.		1911.		1912.	
	Tons.	Values.	Tons.	Values.	Tons.	Values.
Baltimore.....	1,137,916	\$3,575,059	806,354	\$2,305,042	840,488	\$2,359,765
New York.....	78,556	213,282	11,263	32,077	826	3,191
Philadelphia....	1,269,180	3,775,770	984,192	3,039,994	1,229,737	4,072,776
Puget Sound ...	25,000	47,750	.....	.....	.....	.....
Miami, Ohio....	63,966	172,824	.....	.....	28,958	50,677
All other.....	16,413	47,540	9,923	35,523	4,567	13,281
Total.....	2,591,031	\$7,832,225	1,811,732	\$5,412,636	2,104,576	\$6,499,690

For the following table, which gives the countries from which iron ore was imported into the United States during the last three calendar years, we are also indebted to the same Bureau.

Countries. Gross tons.	1910.		1911.		1912.	
	Tons.	Values.	Tons.	Values.	Tons.	Values.
Cuba	1,451,096	\$4,459,789	1,147,879	\$3,218,485	1,398,593	\$3,969,986
Spain.....	439,868	1,040,589	194,965	502,453	92,061	222,951
Greece.....	39,060	71,951	13,200	18,888	.....	.....
Newfoundland....	214,706	352,968	174,853	286,997	145,355	217,087
United Kingdom...	11,388	52,591	1,436	19,725	10,229	20,587
Germany.....	3	58	2	76	1,729	5,602
Canada	89,305	242,010	50,480	106,038	106,675	201,882
Sweden	259,911	1,391,976	219,238	1,215,588	333,863	1,781,579
Russia in Europe.	12,570	48,279	.....	.....	3,916	16,709
French Africa....	15,471	36,791	4,443	13,068	.....	.....
Other countries....	57,653	135,223	5,236	31,318	12,155	63,307
Total	2,591,031	\$7,832,225	1,811,732	\$5,412,636	2,104,576	\$6,499,690

The imports of iron ore from "other countries" in 1912 include 12,100 tons, valued at \$61,952, from Venezuela, and 55 tons, valued at \$1,355, from France, the Netherlands, and Norway.

The following table gives our imports of iron ore in calendar years from 1879 to 1912. Gross tons of 2,240 pounds are used.

Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.
1879.....	284,141	1888.....	587,470	1897.....	489,970	1906.....	1,060,390
1880.....	493,408	1889.....	853,573	1898.....	187,093	1907.....	1,229,168
1881.....	782,887	1890.....	1,246,830	1899.....	674,082	1908.....	776,898
1882.....	589,655	1891.....	912,856	1900.....	897,831	1909.....	1,694,957
1883.....	490,875	1892.....	806,585	1901.....	966,950	1910.....	2,591,031
1884.....	487,820	1893.....	526,951	1902.....	1,165,470	1911.....	1,811,732
1885.....	390,786	1894.....	168,541	1903.....	980,440	1912.....	2,104,576
1886.....	1,039,433	1895.....	524,153	1904.....	487,613	.....	.....
1887.....	1,194,301	1896.....	682,806	1905.....	845,651	.....	.....

SHIPMENTS OF IRON ORE FROM TWO CANADIAN MINES.

The Algoma Steel Corporation advises us that the total shipments of iron ore in 1912 from the Helen mine in Canada amounted to 48,838 tons, against 122,658 tons in 1911, 100,220 tons in 1910, 170,065 tons in 1909, 148,420 tons in 1908, 142,832 tons in 1907, 121,556 tons in 1906, 169,526 tons in 1905, 118,355 tons in 1904, and 203,419 tons in 1903. Iron ore pyrites were not shipped from the Helen mine in 1912, but in 1911 the shipments amounted to 5,970 tons, as compared with 15,570 tons in 1910. Iron ore has not been shipped to the United States from this mine since 1908, when 1,806 tons were sent to this country. Iron ore was first shipped from the Helen mine in July, 1900.

Shipments from the Moose Mountain mine, which is located near Sellwood, Ontario, and which is represented by Messrs. Oglebay, Norton & Co., of Cleveland, amounted in 1912 to 43,667 gross tons, as compared with 6,645 tons in 1911, 71,745 tons in 1910, 25,999 tons in 1909, and 2,557 tons in 1908. The production in 1912 amounted to 58,285 tons, against 58,148 tons in 1911. The shipments to the United States in 1912 amounted to 32,071 tons, against 4,727 tons in 1911, 71,745 tons in 1910, 21,230 tons in 1909, and 2,557 tons in 1908. Iron ore was first shipped from the Moose Mountain mine on November 1, 1908.

SHIPMENTS OF IRON ORE FROM CUBA.

In the calendar year 1912 shipments of iron ore from Cuba were made by three companies, the Juragua Iron Company, the Spanish-American Iron Company, and the Ponupo Manganese Company. Shipments by the Juragua Company amounted to 354,514 tons, against 352,805 tons in 1911; by the Spanish-American Company to 909,708 tons, against 640,509 tons in 1911; and by the Ponupo Manganese Company to 127,989 tons, against 169,472 tons in 1911: total shipments in 1912,

1,392,211 tons, as compared with 1,162,786 tons in 1911. All shipments were made to the United States in 1911 and 1912.

The first shipment of iron ore from Cuba was made by the Juragua Iron Company, Limited, to the United States on August 7, 1884. In 1903 the Juragua Iron Company, Limited, was succeeded by the Juragua Iron Company. The former company shipped iron ore annually from Cuba to the United States from 1884 to 1903 and the latter company has shipped ore from 1903 to the present time, the total for the two companies down to December 31, 1912, amounting to 6,288,790 gross tons. Of the total less than 6,000 tons were sent to countries other than the United States. A few cargoes were lost at sea. The year of maximum shipments was 1909, when 389,926 tons were sent to the United States. The mines of the company are located in the Province of Oriente, (formerly known as the Province of Santiago de Cuba,) in Southeastern Cuba. The company also owns undeveloped iron ore deposits on the northern coast of the Island.

The second company to ship iron ore from Cuba to the United States was the Sigua Iron Company. Its first shipment was made in October, 1892, and its last shipment in 1893, the total for the two years amounting to 20,438 tons. This company met with financial disaster and is now out of business. Its mines were also located in the Province of Oriente.

On May 27, 1895, the Spanish-American Iron Company, the third company to ship iron ore from Cuba to the United States, made its first shipment and it has since shipped ore annually from its mines to this country. Down to the close of 1912 its shipments to the United States, to foreign countries, and to Cuba for fluxing purposes amounted to 7,314,341 tons. The year of maximum shipments was 1910, when 973,480 tons were exported to this country. This company has also lost small quantities of ore at sea. Down to 1908 it had shipped ore only from its mines at Daiquiri, near Santiago, but in 1909 it began shipping ore from its mines in the Mayari district on the Northern coast of Cuba, its shipments in that year from that district amounting to 5,196 tons; in 1910 to 302,505 tons; in 1911 to 387,792 tons; and in 1912 to 446,176 tons. The Mayari deposits are very extensive.

The fourth company to ship iron ore from Cuba to the United States was the Cuban Steel Ore Company, its first cargo having been shipped on May 11, 1901. This company also shipped Cuban ore to the United States in 1902, but in that year it went out of business permanently, iron ore not being found in large

quantities in its mines. Its total shipments amounted to 41,241 gross tons. Its mines were located in the Province of Oriente.

The fifth and last company to ship iron ore from Cuba to the United States was the Ponupo Manganese Company, its first shipment having been made in August, 1909. The mines of this company are located in the Province of Oriente, about 8 miles west of Santiago de Cuba. Its total shipments of iron ore to the close of 1912 amounted to 510,864 tons.

The total shipments of Cuban iron ore to all countries by companies from the opening of the mines in 1884 to the close of 1912 were as follows in gross tons. With the exception of 92,351 tons all the ore was shipped to the United States. All iron ore lost at sea is included in the figures given in the table.

Years. Gross tons.	Juragua Iron Company.	Spanish- American Iron Co.	Sigua Iron Company.	Cuban Steel Ore Company.	Ponupo Manganese Company.	Total. Gross tons.
1884.....	25,295	.....	.....	.....	.....	25,295
1885.....	80,716	.....	.....	.....	.....	80,716
1886.....	112,074	.....	.....	.....	.....	112,074
1887.....	94,240	.....	.....	.....	.....	94,240
1888.....	206,061	.....	.....	.....	.....	206,061
1889.....	260,291	.....	.....	.....	.....	260,291
1890.....	363,842	.....	.....	.....	.....	363,842
1891.....	264,262	.....	.....	.....	.....	264,262
1892.....	335,236	.....	6,418	.....	.....	341,654
1893.....	337,155	.....	14,020	.....	.....	351,175
1894.....	156,826	.....	.....	.....	.....	156,826
1895.....	307,503	74,991	.....	.....	.....	382,494
1896.....	298,885	114,111	.....	.....	.....	412,996
1897.....	248,256	206,029	.....	.....	.....	454,285
1898.....	83,696	80,225	.....	.....	.....	163,921
1899.....	161,783	211,441	.....	.....	.....	373,224
1900.....	154,871	293,185	.....	.....	.....	448,056
1901.....	199,764	334,974	.....	17,651	.....	552,389
1902.....	221,039	455,106	.....	23,590	.....	699,735
1903.....	157,230	467,629	.....	.....	.....	624,859
1904.....	31,162	356,111	.....	.....	.....	387,273
1905.....	139,828	421,331	.....	.....	.....	561,159
1906.....	142,226	507,195	.....	.....	.....	649,421
1907.....	183,250	489,111	.....	.....	.....	672,361
1908.....	329,606	254,256	.....	.....	.....	583,862
1909.....	389,926	524,949	.....	.....	53,983	968,858
1910.....	296,448	973,480	.....	.....	159,420	1,429,348
1911.....	352,805	640,509	.....	.....	169,472	1,162,786
1912.....	354,514	909,708	.....	.....	127,989	1,392,211
Total.....	6,288,790	7,314,341	20,438	41,241	510,864	14,175,674

SHIPMENTS OF IRON ORE FROM LEADING DISTRICTS.

The shipments of iron ore from some of the leading iron ore districts of this country in the last three years were as follows:

Shipments of iron ore from leading districts.	1910. Gross tons.	1911. Gross tons.	1912. Gross tons.
Lake Superior mines of Michigan and Wis.	*13,037,460	*9,463,237	*14,024,045
Lake Superior mines of Minnesota.....	30,404,937	23,329,893	34,197,501
Missouri mines.....	66,377	79,072	38,602
Cornwall mines, Pennsylvania.....	632,556	458,196	477,986
New Jersey mines (production).....	521,832	466,234	364,673
Chateaugay mines on Lake Champlain.....	87,234	72,038	85,216
Port Henry mines.....	855,022	708,899	679,866
Hudson (Forest of Dean) mine, New York.	50,484	76,566	69,478
Salisbury region, Connecticut.....	21,897	9,278	23,873
Cranberry mines, North Carolina.....	65,280	84,782	68,322
Tennessee Coal, Iron, and Railroad Company's mines in Alabama (production)	1,981,301	1,239,563	2,079,907
Total of the above districts.....	47,724,380	35,987,758	52,109,469

* Include shipments from the Iron Ridge, Illinois, and Mayville mines.

PRODUCTION, IMPORTS, AND CONSUMPTION OF MANGANESE ORE.

The production of manganese ore in 1912 amounted to 1,664 tons, against 2,457 tons in 1911. The imports amounted to 300,661 tons in 1912, against 176,852 tons in 1911. The production, imports, and the approximate consumption of manganese ore by the United States from 1889 to 1912 are given below.

Years. Gross tons.	Produc- tion.	Imports.	Approx- imate con- sumption.	Years. Gross tons.	Produc- tion.	Imports.	Approx- imate con- sumption.
1889.....	24,197	4,286	28,483	1901...	11,995	165,722	177,717
1890.....	19,287	34,154	53,441	1902...	7,477	235,576	243,053
1891.....	22,452	28,825	51,277	1903...	2,825	146,056	148,881
1892....	13,613	58,572	72,185	1904...	3,146	108,519	111,665
1893.....	7,718	68,113	75,831	1905...	4,118	257,033	261,151
1894.....	6,308	44,655	50,963	1906...	6,921	221,260	228,181
1895.....	9,547	86,111	95,658	1907...	5,604	209,021	214,625
1896.....	10,088	31,489	41,577	1908...	6,144	178,203	184,347
1897.....	11,108	119,961	131,069	1909...	1,544	212,765	214,309
1898.....	15,957	114,885	130,842	1910...	2,258	242,348	244,606
1899.....	9,935	188,349	198,284	1911...	2,457	176,852	179,309
1900.....	11,771	256,252	268,023	1912...	1,664	300,661	302,325

IMPORTS OF IRON AND STEEL.

The following table, compiled from statistics obtained from the Bureau of Foreign and Domestic Commerce of the Department

of Commerce, gives the quantities and foreign values of our imports of iron and steel and manufactures thereof in 1911 and 1912.

Articles—Gross tons.	1911.		1912.	
	Tons.	Values.	Tons.	Values.
Pig iron, spiegel., ferro-mang., etc...	148,459	\$4,380,334	129,325	\$4,770,730
Scrap and old iron and steel.....	17,272	190,285	23,612	256,710
Bar iron.....	26,729	1,202,363	26,112	1,151,853
Iron and steel rails.....	3,414	89,327	3,780	101,544
Steel ingots, billets, blooms, etc....	29,205	2,772,614	18,702	2,941,481
Sheet, plate, and taggers'.....	2,453	274,945	3,300	363,694
Building forms and all other structural shapes.....	5,343	186,358	3,120	141,405
Tinplates and terne plates.....	14,099	1,082,417	2,052	229,338
Wire rods of iron or steel.....	15,483	731,291	15,069	726,205
Forgings, including anti-friction balls and bearings.....	.....	1,301,610	.....	1,972,389
Wire and articles made from.....	.....	1,270,426	.....	1,103,192
Cutlery.....	.....	2,012,042	.....	2,111,875
Shotgun barrels, in single tubes....	.....	107,533	.....	112,246
Machinery.....	.....	7,495,921	.....	7,610,511
Needles, hand sewing and darning..	.....	448,238	.....	505,658
Other iron and steel manufactures	.....	5,449,896	.....	5,229,878
Total tons where specified.....	262,457	\$28,995,600	225,072	\$29,328,709

In 1912 our imports of steel ingots, blooms, slabs, billets, etc., amounted to 18,702 tons, as compared with 29,205 tons in 1911. The United Kingdom sent us 7,451 tons; Germany, 5,093 tons; Sweden, 3,889 tons; Austria, 994 tons; Belgium, 952 tons; and Switzerland, France, and other countries, 323 tons.

IMPORTS FOR CONSUMPTION OF SPIEGELEISEN, FERRO-MANGANESE, FERRO-SILICON, AND PIG IRON.

The imports entered for consumption of spiegeleisen, ferro-manganese, ferro-silicon, and Bessemer, foundry, forge, and all other grades of pig iron in the last three years were as follows.

Articles. Gross tons.	1910.		1911.		1912.	
	Tons.	Values.	Tons.	Values.	Tons.	Values.
Ferro-manganese.....	114,278	\$4,341,071	80,263	\$3,015,062	99,137	\$3,906,920
Spiegeleisen.....	25,383	489,049	20,970	405,444	1,015	28,094
Ferro-silicon.....	11,391	527,157	6,659	341,681	7,489	446,456
Total.....	151,052	\$5,357,277	107,892	\$3,762,187	107,641	\$4,381,470
Pig iron.....	93,740	1,489,710	38,685	586,403	18,386	318,208
Grand total...	244,792	\$6,846,987	146,577	\$4,348,590	126,027	\$4,699,678

IMPORTS OF SPIEGELEISEN AND FERRO-MANGANESE.

The following table gives the quantities and values of the spiegeleisen and ferro-manganese imported *for consumption* into the United States from 1901 to 1912; also the average annual value per ton at the ports of foreign shipment of the spiegeleisen and ferro-manganese imported in each of the twelve years.

Calendar years. Gross tons.	Spiegeleisen—Gross tons.			Ferro-manganese—Gross tons.		
	Imports.	Values.	Average value per ton.	Imports.	Values.	Average value per ton.
1901.....	26,827	\$677,246	\$25.24	20,750	\$870,828	\$41.97
1902.....	62,813	1,473,853	23.46	50,388	1,818,036	36.08
1903.....	122,016	2,709,317	22.20	41,518	1,699,666	40.94
1904.....	4,623	132,461	28.65	21,814	707,037	32.41
1905.....	55,457	1,336,104	24.09	52,841	1,884,651	35.67
1906.....	103,267	2,942,940	28.50	84,359	4,953,644	58.72
1907.....	48,995	1,399,381	28.56	87,400	5,354,656	61.27
1908.....	4,579	125,054	27.31	44,624	1,860,664	41.70
1909.....	16,921	353,447	20.89	88,934	3,396,381	38.19
1910.....	25,383	489,049	19.27	114,278	4,341,071	37.99
1911.....	20,970	405,444	19.33	80,263	3,015,062	37.56
1912.....	1,015	28,094	27.68	99,137	3,906,920	39.41

CONSUMPTION OF SPIEGELEISEN AND FERRO-MANGANESE.

The approximate consumption of spiegeleisen and ferro-manganese in the United States in the last twelve calendar years is given in the following table in gross tons of 2,240 pounds. Statistics of exports are not available, but they are insignificant.

Calendar years. Gross tons.	Spiegeleisen—Gross tons.			Ferro-manganese—Gross tons.		
	Production.	Add imports.	Approximate consumption.	Production.	Add imports.	Approximate consumption.
1901.....	231,822	26,827	258,649	59,639	20,750	80,389
1902.....	168,408	62,813	231,221	44,526	50,388	94,914
1903.....	156,700	122,016	278,716	35,961	41,518	77,479
1904.....	162,370	4,623	166,993	57,076	21,814	78,890
1905.....	227,797	55,457	283,254	62,186	52,841	115,027
1906.....	244,980	103,267	348,247	55,520	84,359	139,879
1907.....	283,430	48,995	332,425	55,918	87,400	143,318
1908.....	111,376	4,579	115,955	40,642	44,624	85,266
1909.....	142,831	16,921	159,752	82,209	88,934	171,143
1910.....	153,055	25,383	178,438	71,376	114,278	185,654
1911.....	110,236	20,970	131,206	74,482	80,263	154,745
1912.....	96,346	1,015	97,361	125,378	99,137	224,515

The decreasing use of spiegeleisen and the increasing use of ferro-manganese is most strikingly shown in the table.

IMPORTS OF FERRO-SILICON AND PIG IRON.

The following table gives the quantities and the average annual value per ton at the ports of foreign shipment of the ferro-silicon and Bessemer, basic, and other grades of pig iron imported into the United States for consumption from 1901 to 1912.

Calendar years. Gross tons.	Ferro-silicon—Gross tons.			Bessemer, basic, foundry, forge, etc., pig iron—Gross tons.		
	Imports.	Values.	Average value per ton.	Imports.	Values.	Average value per ton.
1901.....	822	\$21,224	\$25.82	14,839	\$237,606	\$16.01
1902.....	15,944	362,110	22.71	483,270	7,205,639	14.91
1903.....	14,880	379,900	25.53	414,981	6,302,604	15.18
1904.....	3,691	184,229	49.91	49,219	730,582	14.84
1905.....	11,044	558,906	50.61	93,124	1,406,123	15.10
1906.....	11,863	788,085	66.43	174,540	2,950,610	16.90
1907.....	14,825	1,049,283	70.78	328,672	5,409,540	16.46
1908.....	5,532	281,590	50.90	32,784	558,796	17.04
1909.....	12,802	504,821	39.43	57,831	910,584	15.75
1910.....	11,391	527,157	46.28	93,740	1,489,710	15.89
1911.....	6,659	341,681	51.31	38,685	586,403	15.16
1912.....	7,489	446,456	59.61	18,386	318,208	17.31

EXPORTS OF IRON AND STEEL.

We are indebted to the Bureau of Foreign and Domestic Commerce of the Department of Commerce for the following statistics of exports of iron and steel and manufactures thereof in the calendar years 1911 and 1912. "Hoop, band, and scroll" are included with "all other manufactures of iron and steel" prior to July 1, 1911, and "bolts, nuts, rivets, and washers," "horse-shoes," and "railroad spikes" are included with "all other manufactures of iron and steel" prior to July 1, 1912. The value of the exports of electrical machinery, which prior to 1912 the Bureau had included with the value of our exports of iron and steel, is not included in the total value given below for either 1911 or 1912. In 1911 the value of the electrical machinery exported was \$8,347,524. Gross tons are used except where otherwise stated.

In addition to the exports of iron and steel given in the table for 1912 there were sent to foreign countries in the last six months of that year 89 gross tons of ferro-vanadium, valued at \$170,895. Similar figures prior to July 1, 1912, are not available.

38 STATISTICS OF THE AMERICAN IRON TRADE FOR 1912.

Articles—Gross tons except where otherwise stated.	1911.		1912.	
	Tons.	Values.	Tons.	Values.
Pig iron.....	120,799	\$1,874,401	272,676	\$3,832,765
Scrap and old iron and steel...	77,918	1,042,200	105,965	1,475,412
Bar iron.....	17,683	653,320	21,926	841,824
Steel wire rods.....	22,641	659,066	64,978	1,898,986
Steel bars or rods except wire rods	123,349	4,470,159	208,213	7,516,789
Steel rails.....	420,874	12,229,045	446,473	13,053,774
Billets, ingots, and blooms.....	234,267	5,150,518	294,818	6,615,131
Iron sheets and plates.....	134,949	8,353,089	193,719	11,844,767
Steel sheets and plates.....	237,424	9,800,215	352,802	14,508,622
Structural iron and steel.....	223,493	10,270,977	288,164	12,694,804
Hoop, band, and scroll.....	3,731	163,853	12,557	539,354
Tinplates and terne plates.....	61,381	4,776,256	81,694	6,315,763
Bolts, nuts, rivets, and washers..	.....	.....	9,986	764,562
Horseshoes.....	.....	.....	510	44,834
Wire, barbed.....	96,754	5,294,223	96,059	4,932,051
Wire, all other.....	133,008	6,343,373	148,653	6,604,391
Cut nails and spikes.....	11,422	470,515	9,311	359,962
Railroad spikes.....	.....	.....	6,807	274,112
Wire nails and spikes.....	53,614	2,486,185	68,319	3,081,567
All other, including tacks.....	12,848	792,920	8,198	620,892
Pipes and fittings.....	197,507	11,476,743	249,856	14,256,406
Radiators, etc.....	4,063	291,612	5,912	457,809
Car-wheels.....No.	43,295	324,541	53,885	390,374
Cash registers.....No.	39,394	3,676,039	40,511	3,884,560
Safes.....No.	8,528	481,527	8,525	484,918
Locomotives—steam & elec. No.	432	4,270,455	520	5,519,627
Stationary engines.....No.	21,563	4,021,348	21,328	3,682,681
Traction engines.....No.	2,515	4,638,390	3,163	6,094,402
All other engines and parts of	.....	4,516,168	.....	7,834,026
Castings not elsewhere specified	.....	3,021,530	.....	3,482,065
Cutlery.....	.....	1,114,967	.....	1,196,511
Fire-arms.....	.....	3,090,263	.....	3,904,950
Locks, hinges, etc.....	.....	6,762,497	.....	5,971,262
Saws.....	.....	1,308,219	.....	1,529,613
Tools not elsewhere specified....	.....	9,257,535	.....	10,802,774
Laundry machinery.....	.....	1,309,162	.....	1,233,326
Metal-working machinery.....	.....	10,745,135	.....	14,526,239
Mining machinery.....	.....	6,982,360	.....	8,138,328
Printing presses.....	.....	2,768,497	.....	2,883,269
Pumps and pumping machinery	.....	3,817,242	.....	3,931,353
Sewing machines.....	.....	9,417,474	.....	11,100,254
Shoe machinery.....	.....	1,870,705	.....	1,902,568
Typewriting machines.....	.....	10,603,907	.....	11,917,342
Windmills.....	.....	2,114,966	.....	1,391,889
Wood-working machinery.....	.....	2,006,941	.....	2,448,517
All other machinery.....	.....	30,029,520	.....	33,915,311
Scales and balances.....	.....	1,052,464	.....	1,157,478
Stoves, ranges, and parts of.....	.....	1,706,816	.....	2,113,482
All other mfrs. of iron and steel	.....	23,801,549	.....	25,156,724
Total tons where specified.	2,187,725	\$241,308,887	2,947,596	\$289,128,420
Iron ore.....Gross tons.	768,386	\$2,653,448	1,195,742	\$3,537,289

Of the steel billets, ingots, and blooms exported in 1912, 211,220 tons went to the United Kingdom, 83,014 tons to Canada, and 584 tons to other countries. Of the wire exported the leading purchasers were Canada, British Oceanica, Argentina, Brazil and other South America, British Africa, Mexico, and Cuba. Of the iron ore exported 1,195,739 tons were sent to Canada, as compared with 768,339 tons in 1911.

Of the steam locomotives exported in 1912, 156 were sent to Brazil, 144 to Canada, 12 to Mexico, 31 to Cuba, 9 to the Central American States and British Honduras, 3 to Europe, 21 to South American States other than Brazil, 9 to China, 62 to Japan, and 56 to other countries.

The following table, compiled from the reports of the Bureau of Foreign and Domestic Commerce of the Department of Commerce, gives our exports of leading articles of iron and steel, iron ore, and locomotives in calendar years from 1908 to 1912.

Articles—Gross tons.	1908.	1909.	1910.	1911.	1912.
Pig iron.....	46,696	61,989	127,385	120,799	272,676
Scrap and old iron and steel...	21,834	25,360	25,825	77,918	105,965
Bar iron.....	8,224	13,536	18,045	17,683	21,926
Steel wire rods	7,412	20,142	22,869	22,641	64,978
Steel bars or rods ex. wire rods	43,881	74,495	107,561	123,349	208,213
Steel rails	196,510	299,540	353,180	420,874	446,473
Billets, ingots, and blooms.....	112,177	104,862	58,230	234,267	294,818
Iron sheets and plates.....	44,100	75,305	102,534	134,949	193,719
Steel sheets and plates	60,893	104,742	171,987	237,424	352,802
Structural iron and steel.....	116,881	90,830	146,721	223,493	288,164
Hoop, band, and scroll	4,339	3,874	.....	3,731	12,557
Tinplates and terne plates....	11,878	9,327	12,445	61,381	81,694
Bolts, nuts, rivets, and washers	.....	.....	.....	.....	9,986
Horseshoes.....	.....	.....	.....	.....	510
Wire, barbed.....	34,718	70,812	79,461	96,754	96,059
Wire, all other.....	101,427	78,529	92,467	133,008	148,653
Cut nails and spikes.....	7,023	9,936	8,129	11,422	9,311
Railroad spikes.....	.....	.....	.....	.....	6,807
Wire nails and spikes.....	26,510	30,656	42,870	53,614	68,319
All other, including tacks.....	5,377	7,464	10,202	12,848	8,198
Pipes and fittings	114,362	162,185	155,778	197,507	249,856
Radiators, etc.....	.....	.....	2,254	4,063	5,912
Total of the above.....	964,242	1,243,584	1,537,943	2,187,725	2,947,596
Iron ore.....	309,099	455,934	748,875	768,386	1,195,742
Locomotives—st'm & elec. No.	566	295	354	432	520

Exports of "radiators and cast-iron house-heating boilers" were not separately stated prior to July 1, 1910; exports of "hoop,

band, and scroll iron or steel" were included with all other manufactures of iron and steel from July 1, 1910, to June 30, 1911; and exports of "bolts, nuts, rivets, and washers," "horseshoes," and "railroad spikes" were not separately stated prior to July 1, 1912.

IMPORTS AND EXPORTS OF IRON AND STEEL.

The following table, compiled from statistics obtained from the Bureau of Foreign and Domestic Commerce of the Department of Commerce, gives the foreign value of our imports of iron and steel and manufactures thereof from 1891 to 1912; also the home value of our exports of iron and steel and manufactures thereof, except agricultural implements, in the same years.

Calendar years.	Imports—Foreign values.	Exports—Home values.	Calendar years.	Imports—Foreign values.	Exports—Home values.
1891.....	\$41,983,626	\$30,736,507	1902.....	\$41,468,826	\$97,892,036
1892.....	33,882,447	27,900,862	1903.....	41,255,864	99,035,865
1893.....	29,656,539	30,159,363	1904.....	21,621,970	128,553,613
1894.....	20,843,576	29,943,729	1905.....	26,401,283	142,930,513
1895.....	25,772,136	35,071,563	1906.....	34,827,132	172,555,588
1896.....	19,506,587	48,670,218	1907.....	38,789,851	197,066,781
1897.....	13,835,950	62,737,250	1908.....	19,957,385	151,113,114
1898.....	12,474,572	82,771,550	1909.....	30,571,542	157,674,394
1899.....	15,800,579	105,690,047	1910.....	38,907,119	*194,115,215
1900.....	20,443,911	129,633,480	1911.....	28,995,600	*241,308,887
1901.....	20,395,015	102,534,575	1912.....	29,328,709	*289,128,420

* The value of our exports of electrical machinery is not included for 1910, 1911, or 1912. For 1909 and prior years the value is included.

In the period covered by the table the maximum value of our exports of iron and steel was reached in 1912, while the maximum value of our imports was reached in 1891. From 1891 to 1912 the increase in the value of our exports of iron and steel and manufactures thereof amounted to \$258,391,913, or over 840.6 per cent., while during the same period the decrease in the value of our imports of iron and steel and manufactures thereof amounted to \$12,654,917, or over 30.1 per cent.

IMPORTS OF AGRICULTURAL IMPLEMENTS.

The value of the agricultural implements imported for consumption into the United States in the calendar year 1912, including plows, harrows, harvesters, reapers, drills, etc., amounted to \$86,273, as compared with \$122,728 in 1911, \$157,843 in 1910, \$49,030 in 1909, \$37,245 in 1908, \$32,656 in 1907, \$34,605 in 1906, \$13,217 in 1905, and \$15,995 in 1904.

EXPORTS OF AGRICULTURAL IMPLEMENTS FROM 1889 TO 1912.

The value of the agricultural implements exported from this country in the calendar years from 1889 to 1912 was as follows.

Years.	Values.	Years.	Values.	Years.	Values.
1889.....	\$4,246,079	1897.....	\$5,302,807	1905.....	\$22,124,312
1890.....	3,264,995	1898.....	9,073,384	1906.....	24,744,762
1891.....	3,310,183	1899.....	13,594,524	1907.....	25,597,272
1892.....	4,210,684	1900.....	15,979,909	1908.....	25,264,939
1893.....	5,191,223	1901.....	16,714,308	1909.....	27,327,428
1894.....	4,765,793	1902.....	17,981,597	1910.....	31,291,351
1895.....	5,319,885	1903.....	22,951,805	1911.....	36,241,683
1896.....	4,643,729	1904.....	21,654,892	1912.....	41,436,327

PRODUCTION OF NATURAL GAS.

The United States Geological Survey gives the approximate value of the natural gas produced and consumed in the United States in 1912 as \$84,563,957, which exceeds the value reported for 1911 by \$10,436,423. From 1882 to 1912 the production of natural gas rose rapidly from an approximate value of \$215,000 in 1882 to an approximate value of \$84,563,957 in 1912.

PRODUCTION OF PETROLEUM IN 1911 AND 1912.

The production of crude petroleum in 1912, as ascertained by Dr. David T. Day for the United States Geological Survey, amounted to 222,113,218 barrels, as compared with 220,449,391 barrels in 1911, an increase of 1,663,827 barrels, or less than 1 per cent. California produced 86,450,767 barrels, or over 38.9 per cent. of the total, in 1912, as compared with 81,134,391 barrels, or over 36.8 per cent. of the total, in 1911. Oklahoma was the next largest producer, its output in 1912 amounting to 51,427,071 barrels, as compared with 56,069,637 barrels in 1911. Illinois produced 28,601,308 barrels in 1912, against 31,317,038 barrels in 1911; West Virginia, 12,128,962 barrels, against 9,795,464 barrels in 1911; Texas, 11,735,057 barrels, against 9,526,474 barrels in 1911; Louisiana, 9,263,439 barrels, against 10,720,420 barrels in 1911; Ohio, Michigan, and Missouri, 8,969,007 barrels, against 8,825,107 barrels in 1911; and Pennsylvania, 7,837,948 barrels, against 8,248,158 barrels in 1911.

AVERAGE MONTHLY PRICES OF IRON AND STEEL.

In the following table we give the average monthly prices of iron and steel in Pennsylvania in 1910, 1911, 1912, and the first half of 1913. The prices are averaged from weekly quotations

and are per gross ton, except for bar iron, which is quoted by the 100 pounds from store at Philadelphia and from mills at Pittsburgh, and for steel bars by the 100 pounds at Pittsburgh.

Months.	Old iron T rails at Philadelphia.	No. 1 foundry pig iron at Philadelphia.	Gray forge pig iron at Philadelphia.	Gray forge pig iron at Pittsburgh.	Bessemer pig iron at Pittsburgh.	Bessemer steel rails at mills in Pa.	Bessemer steel billets at mills at Pitta.	Best refined bar iron from store, Phila.	Best refined bar iron at mills, Pittsburgh.	Bar steel at mills at Pittsburgh.
January, 1910	\$20.50	\$19.50	\$17.75	\$17.40	\$19.90	\$28.00	\$27.50	\$1.96	\$1.75	\$1.50
February.....	20.12	19.19	17.50	17.02	19.34	28.00	27.50	1.96	1.75	1.50
March.....	20.30	18.50	16.90	16.15	18.60	28.00	27.50	1.96	1.75	1.50
April.....	20.50	18.25	16.62	16.09	18.34	28.00	26.75	1.90	1.70	1.50
May.....	20.00	17.50	15.94	15.90	17.52	28.00	26.12	1.86	1.70	1.47
June.....	19.80	17.15	15.65	15.20	16.62	28.00	25.30	1.86	1.65	1.45
July.....	18.62	16.75	15.37	14.52	16.40	28.00	24.87	1.86	1.65	1.45
August.....	18.00	16.50	15.00	14.30	16.09	28.00	24.50	1.76	1.60	1.36
September.....	18.00	16.50	14.75	14.15	15.90	28.00	24.40	1.76	1.60	1.40
October.....	18.00	16.31	14.50	14.15	15.90	28.00	23.75	1.76	1.55	1.40
November.....	18.00	16.19	14.37	14.09	15.80	28.00	23.37	1.76	1.55	1.40
December.....	17.20	16.00	14.25	13.90	15.90	28.00	23.00	1.76	1.50	1.40
January, 1911	17.00	16.00	14.25	14.09	15.90	28.00	23.00	1.67	1.50	1.40
February.....	17.37	16.00	14.25	14.27	15.90	28.00	23.00	1.67	1.50	1.40
March.....	18.50	16.00	14.60	14.40	15.90	28.00	23.00	1.67	1.45	1.40
April.....	17.50	16.00	14.75	14.40	15.90	28.00	23.00	1.67	1.45	1.40
May.....	16.75	16.00	14.75	14.27	15.90	28.00	23.00	1.69	1.40	1.34
June.....	16.60	15.75	14.55	14.00	15.90	28.00	21.00	1.62	1.40	1.25
July.....	17.06	15.50	14.50	13.90	15.90	28.00	21.00	1.62	1.40	1.23
August.....	17.40	15.50	14.30	13.90	15.90	28.00	21.00	1.62	1.40	1.20
September.....	17.00	15.50	14.44	13.84	15.90	28.00	20.75	1.62	1.35	1.18
October.....	16.37	15.50	14.25	13.65	15.44	28.00	20.00	1.62	1.35	1.11
November.....	15.50	15.45	14.25	13.47	15.00	28.00	19.50	1.62	1.35	1.10
December.....	15.75	15.35	14.25	13.40	15.02	28.00	19.25	1.62	1.35	1.12
January, 1912	16.37	15.35	14.25	13.40	15.09	28.00	20.00	1.62	1.35	1.15
February.....	15.80	15.35	14.25	13.40	14.90	28.00	20.00	1.62	1.35	1.11
March.....	15.50	15.42	14.25	13.44	15.09	28.00	19.75	1.62	1.35	1.10
April.....	15.87	15.50	14.44	13.65	15.15	28.00	20.00	1.62	1.35	1.14
May.....	16.50	15.72	14.50	13.82	15.15	28.00	20.80	1.64	1.35	1.20
June.....	16.50	15.81	14.56	13.90	15.15	28.00	20.87	1.67	1.35	1.21
July.....	16.50	16.19	14.94	13.90	15.15	28.00	21.50	1.71	1.40	1.25
August.....	16.50	16.35	15.35	14.25	15.45	28.00	22.00	1.71	1.40	1.30
September.....	16.87	17.09	15.87	14.65	16.15	28.00	23.62	1.81	1.45	1.35
October.....	17.60	18.10	16.90	16.27	17.80	28.00	26.00	1.96	1.50	1.39
November.....	18.75	18.81	17.62	16.67	18.02	28.00	27.00	1.96	1.65	1.42
December.....	18.12	19.00	17.75	17.15	18.15	28.00	27.00	2.06	1.75	1.45
January, 1913	18.00	19.00	17.65	17.15	18.15	28.00	28.30	2.06	1.75	1.45
February.....	18.00	18.75	17.31	17.15	18.15	28.00	28.50	2.06	1.75	1.42
March.....	18.00	18.27	16.87	16.92	18.15	28.00	28.50	2.06	1.75	1.40
April.....	18.12	18.00	16.56	16.30	17.90	28.00	28.50	1.96	1.75	1.40
May.....	18.00	17.30	15.85	15.20	17.74	28.00	27.50	1.96	1.75	1.40
June.....	17.62	16.69	15.37	14.71	17.11	28.00	26.50	1.96	1.75	1.40

AVERAGE MONTHLY PRICES OF BESSEMER PIG IRON.

The following table gives the average monthly and yearly prices of Bessemer pig iron at Pittsburgh from 1903 to 1912, compiled from authoritative weekly quotations, per gross ton.

Months.	1903.	1904.	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912.
January.....	\$22.85	\$13.90	\$16.72	\$18.35	\$23.35	\$19.00	\$17.34	\$19.90	\$15.90	\$15.09
February.....	21.91	13.66	16.20	18.35	23.25	17.90	16.77	19.34	15.90	14.90
March	21.85	14.03	16.35	18.35	22.95	17.86	16.34	18.60	15.90	15.09
April.....	21.28	14.19	16.35	18.19	23.55	17.49	15.80	18.34	15.90	15.15
May.....	20.01	13.60	16.16	18.10	24.05	16.96	15.84	17.52	15.90	15.15
June.....	19.72	12.81	15.65	18.47	24.50	16.90	16.02	16.62	15.90	15.15
July	18.93	12.46	14.97	18.60	23.80	16.83	16.40	16.40	15.90	15.15
August.....	18.35	12.76	15.25	19.10	22.95	16.26	17.02	16.09	15.90	15.45
September.....	17.22	12.69	15.87	19.66	22.85	15.90	18.05	15.90	15.90	16.15
October.....	16.00	13.10	16.54	20.51	22.90	15.75	19.52	15.90	15.44	17.80
November.....	15.19	15.15	17.90	23.00	20.35	16.59	19.90	15.80	15.00	18.02
December.....	14.40	16.72	18.35	23.85	19.60	17.40	19.90	15.90	15.02	18.15
Average.....	\$18.98	\$13.76	\$16.36	\$19.54	\$22.84	\$17.07	\$17.41	\$17.19	\$15.71	\$15.94

AVERAGE MONTHLY PRICES OF BASIC PIG IRON.

The following table, which has been compiled from authoritative weekly quotations, gives the average monthly and yearly prices of basic pig iron at Philadelphia and Pittsburgh from 1908 to 1912, per gross ton of 2,240 pounds.

Months.	Average prices at Philadelphia.					Average prices at Pittsburgh.				
	1908.	1909.	1910.	1911.	1912.	1908.	1909.	1910.	1911.	1912.
January	\$17.10	\$16.75	\$18.75	\$14.50	\$14.25	\$18.00	\$16.40	\$17.77	\$14.15	\$13.27
Feb.....	17.25	16.56	18.50	14.44	14.25	16.87	16.09	17.21	14.52	13.15
March	17.25	15.75	18.25	15.20	14.37	16.60	15.84	16.90	14.65	13.64
April	17.25	15.00	17.56	15.19	14.87	16.30	15.05	16.84	14.65	13.90
May.....	16.37	15.12	16.69	14.75	15.15	16.09	15.02	16.09	14.30	13.90
June.....	15.50	15.50	16.10	14.50	15.25	16.16	15.59	15.60	13.96	14.02
July.....	15.10	15.80	15.69	14.37	15.50	15.90	15.95	15.40	14.02	14.27
August....	15.00	17.06	15.12	14.65	15.95	15.59	16.15	15.02	13.90	14.75
Sept.....	15.44	18.10	15.00	14.69	16.25	15.34	16.80	14.60	13.70	15.27
Oct.....	15.80	18.37	15.00	14.50	17.43	14.94	17.84	14.05	13.42	16.78
Nov.....	16.19	18.81	14.75	14.50	18.12	15.75	18.15	14.15	13.29	17.27
Dec	16.70	18.75	14.75	14.31	18.25	16.50	17.95	14.30	13.15	17.36
Average	\$16.25	\$16.80	\$16.35	\$14.63	\$15.80	\$16.17	\$16.40	\$15.66	\$13.98	\$14.80

AVERAGE PRICES OF LAKE SUPERIOR CHARCOAL PIG IRON.

The following table, which has been compiled from weekly quotations in the *Iron Age*, gives the average monthly and yearly

prices of Lake Superior charcoal pig iron at Chicago during the last twenty-four years, per gross ton of 2,240 pounds.

Years.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Average.
	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
1889.....	20 00	19 50	19 50	19 25	18 75	18 50	18 50	18 50	18 75	19 50	20 00	22 00	19 40
1890.....	23 00	23 00	22 50	21 50	21 00	20 50	20 00	20 25	20 25	19 75	19 25	18 75	20 81
1891.....	18 50	18 25	18 00	18 00	17 00	16 75	17 00	17 00	17 25	17 00	17 00	16 75	17 37
1892.....	17 25	17 00	17 00	16 75	16 50	16 50	16 50	16 50	16 50	16 75	16 50	16 50	16 69
1893.....	16 50	16 50	16 50	16 50	16 50	16 00	16 00	16 00	16 00	16 00	15 75	15 50	16 15
1894.....	15 50	15 40	15 25	15 25	15 25	15 25	15 00	14 50	14 25	14 00	13 50	13 00	14 68
1895.....	13 00	13 00	13 00	12 75	13 00	13 00	13 50	13 50	14 50	15 50	15 50	16 00	13 85
1896.....	14 50	14 00	13 50	13 50	13 50	13 50	13 50	13 50	13 50	13 50	13 50	13 50	13 62
1897.....	13 50	13 50	13 50	13 50	13 00	13 00	13 00	13 00	12 50	12 50	12 50	12 50	13 00
1898.....	12 50	11 50	11 50	11 50	11 50	11 50	11 50	11 50	11 50	11 50	11 50	11 50	11 58
1899.....	11 50	12 50	15 75	17 00	17 25	19 50	21 50	22 50	24 25	25 00	25 50	25 50	19 81
1900.....	25 50	25 50	25 50	25 50	24 50	23 00	22 00	20 00	18 50	18 00	17 00	18 25	21 94
1901.....	19 00	17 50	17 50	18 00	17 50	17 00	17 00	17 00	17 00	17 00	17 50	18 00	17 50
1902.....	19 25	20 25	20 65	21 50	22 80	23 50	25 00	25 75	26 00	26 00	26 00	25 25	23 50
1903.....	25 60	26 50	26 50	25 30	24 12	24 00	22 20	20 62	19 00	18 10	17 12	16 50	22 13
1904.....	16 62	15 87	15 00	15 19	15 00	14 70	14 50	14 87	14 75	15 31	16 37	17 80	15 50
1905.....	18 50	18 50	18 50	18 50	17 75	17 00	16 50	16 40	16 87	18 25	19 20	20 00	18 00
1906.....	20 40	20 13	19 75	19 44	19 05	19 00	19 06	19 35	20 13	21 50	24 63	26 13	20 71
1907.....	26 80	27 00	26 75	26 50	27 40	27 50	27 00	27 20	27 00	26 20	25 12	24 25	26 56
1908.....	22 50	21 38	21 25	20 30	20 00	20 00	20 00	19 50	19 50	19 50	19 50	19 50	20 24
1909.....	19 50	19 50	19 50	19 50	19 50	19 50	19 50	19 50	19 50	19 50	19 50	19 50	19 50
1910.....	19 50	19 50	19 30	19 00	18 62	18 50	18 50	18 50	18 40	18 12	18 00	18 00	18 66
1911.....	17 87	17 50	17 50	17 50	17 25	16 80	16 50	16 50	16 50	16 50	16 50	16 37	16 94
1912.....	16 00	15 95	15 75	15 75	15 75	16 25	16 25	16 25	17 12	18 45	18 62	18 75	16 74

AVERAGE PRICES OF FOUNDRY PIG IRON AT CINCINNATI.

The following table, for which we are also indebted to the *Iron Age*, gives the average monthly and yearly prices of Southern No. 2 foundry pig iron at Cincinnati in the ten years from 1903 to 1912, per gross ton of 2,240 pounds.

Months.	1903.	1904.	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912.
January...	\$21.65	\$12.37	\$16.25	\$16.75	\$26.00	\$16.15	\$16.25	\$17.25	\$14.25	\$13.25
February..	21.50	12.12	16.25	16.75	26.00	15.75	16.13	17.06	14.25	13.31
March.....	21.37	12.10	16.25	16.65	26.00	15.50	15.05	16.30	14.25	13.50
April.....	20.15	12.50	16.25	16.63	25.06	15.20	14.25	15.37	14.25	13.75
May.....	18.87	12.25	15.81	16.75	24.25	14.75	14.50	15.00	13.95	14.15
June.....	17.75	11.80	14.65	16.44	24.10	15.25	14.70	14.85	13.44	14.25
July.....	16.15	11.81	13.94	16.06	23.85	15.00	15.75	14.75	13.25	14.70
August.....	15.19	12.00	14.40	17.30	23.00	15.25	16.38	14.31	13.45	15.06
September	14.75	12.00	14.37	18.69	21.50	15.65	17.35	14.25	13.31	15.87
October....	13.50	12.81	15.31	20.00	20.95	15.75	17.88	14.25	13.25	16.80
November	12.00	15.19	16.60	23.38	19.50	16.00	17.75	14.25	13.20	17.25
December.	12.05	15.85	16.75	25.00	17.00	16.25	17.45	14.25	13.19	17.25
Average.	\$17.08	\$12.73	\$15.57	\$18.37	\$23.10	\$15.54	\$16.12	\$15.16	\$13.67	\$14.93

AVERAGE MONTHLY PRICES OF FORGE PIG IRON.

The following table gives the average monthly and yearly prices of forge pig iron at Pittsburgh from 1903 to 1912, per gross ton, compiled from authoritative weekly quotations.

Months.	1903.	1904.	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912.
January.....	\$20.50	\$12.81	\$16.11	\$17.30	\$22.58	\$17.00	\$15.40	\$17.40	\$14.09	\$13.40
February.....	20.50	12.75	15.99	17.29	22.20	15.99	15.09	17.02	14.27	13.40
March.....	20.87	13.17	16.00	16.91	21.76	15.90	14.65	16.15	14.40	13.44
April.....	20.45	13.09	15.77	16.66	21.72	15.45	14.40	16.09	14.40	13.65
May.....	19.87	12.62	15.57	16.49	22.88	14.90	14.40	15.90	14.27	13.82
June.....	18.87	12.27	15.18	16.35	23.15	14.90	14.77	15.20	14.00	13.90
July.....	17.90	11.92	14.55	16.41	22.96	14.90	14.85	14.52	13.90	13.90
August.....	16.04	11.89	14.36	17.75	21.90	14.71	15.21	14.30	13.90	14.25
September.....	15.25	11.75	14.72	18.35	21.15	14.46	16.15	14.15	13.84	14.65
October.....	14.20	12.30	15.66	19.47	20.40	14.40	17.02	14.15	13.65	16.27
November.....	13.00	14.25	16.58	22.45	19.17	14.90	17.27	14.09	13.47	16.67
December.....	12.80	15.85	16.97	22.85	18.40	15.25	17.40	13.90	13.40	17.15
Average.....	\$17.52	\$12.89	\$15.62	\$18.19	\$21.52	\$15.23	\$15.55	\$15.24	\$13.97	\$14.54

PRICES OF NO. 2 FOUNDRY AND LOW-PHOSPHORUS PIG IRON.

The following table gives the average monthly and yearly prices at Philadelphia of No. 2 foundry and low-phosphorus pig iron from 1908 to 1912, compiled from authoritative sources.

Months.	No. 2 foundry at Philadelphia.					Low-phosphorus at Philadelphia.				
	1908.	1909.	1910.	1911.	1912.	1908.	1909.	1910.	1911.	1912.
January.	\$18.20	\$17.25	\$19.00	\$15.50	\$14.85	\$24.70	\$21.50	\$22.81	\$21.75	\$19.19
Feb.....	18.25	17.00	18.69	15.50	14.85	24.50	21.50	22.94	21.25	19.00
March....	18.12	16.37	18.00	15.50	14.92	23.87	21.37	23.00	21.35	19.00
April.....	17.65	16.20	17.75	15.50	15.00	23.40	20.70	23.00	21.50	19.44
May.....	16.94	16.06	17.00	15.50	15.22	21.62	19.56	23.00	21.00	19.55
June.....	16.62	16.44	16.65	15.25	15.31	21.00	19.50	22.90	20.60	19.75
July.....	16.50	16.55	16.25	15.00	15.69	21.00	19.50	22.56	20.50	20.00
August...	16.50	17.06	16.00	15.00	15.85	20.87	20.25	22.50	20.00	20.65
Sept.....	16.62	18.05	16.00	15.00	16.59	20.25	21.00	22.50	20.00	21.50
October...	16.75	18.69	15.81	15.00	17.60	20.00	22.25	22.50	20.00	22.60
Nov.....	17.00	19.00	15.69	14.95	18.31	20.62	22.75	22.50	19.55	23.75
Dec.....	17.25	19.00	15.50	14.85	18.50	21.40	22.75	22.40	19.25	24.00
Average..	\$17.20	\$17.31	\$16.86	\$15.21	\$16.06	\$21.94	\$21.05	\$22.72	\$20.56	\$20.70

AVERAGE MONTHLY PRICES OF PIG IRON AT BIRMINGHAM.

The following table, for which we are indebted to the *Iron Trade Review*, gives the average monthly prices of No. 2 foundry pig iron at Birmingham, Ala., from 1904 to 1912, per gross ton.

Months.	1904.	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912.
January.....	\$9.75	\$13.50	\$14.00	\$23.00	\$12.80	\$13.00	\$14.00	\$11.00	\$10.00
February....	9.50	13.50	14.00	23.00	12.50	12.70	13.88	11.00	10.00
March.....	9.70	13.50	13.70	22.75	12.12	11.75	13.00	11.00	10.06
April.....	10.00	13.25	13.65	22.00	11.90	11.00	12.12	11.00	10.50
May.....	9.65	12.75	13.75	21.40	11.50	11.00	11.81	10.75	10.95
June.....	9.15	11.85	13.50	21.25	12.00	11.31	11.60	10.25	11.00
July.....	9.15	11.00	13.00	20.50	11.60	12.30	11.38	10.00	11.25
August.....	9.50	11.65	14.15	19.80	12.06	13.00	11.00	10.05	11.65
September..	9.50	11.75	16.00	18.12	12.50	14.00	11.00	10.10	12.50
October.....	10.65	12.50	17.15	17.65	12.50	14.50	11.00	10.00	13.45
November..	12.75	14.00	21.25	16.00	12.50	14.50	11.00	9.75	13.75
December...	13.05	14.00	22.00	14.91	13.00	14.00	11.00	10.00	13.50
Average..	\$10.20	\$12.77	\$15.51	\$20.03	\$12.25	\$12.75	\$11.90	\$10.41	\$11.55

In January, 1913, the average monthly price of No. 2 foundry at Birmingham was \$13.70; in February, \$13.44; in March, \$13.06; in April, \$12.40; in May, \$11.69; and in June, \$10.81.

AVERAGE MONTHLY PRICES OF SPIEGELEISEN AND FERRO-MANGANESE AT PITTSBURGH FROM 1908 TO 1912.

The following table gives the average monthly prices of spiegeleisen and ferro-manganese at Pittsburgh from 1908 to 1912.

Months.	Spiegeleisen—Gross tons.					Ferro-manganese—Gross tons.				
	1908.	1909.	1910.	1911.	1912.	1908.	1909.	1910.	1911.	1912.
January.	\$33.75	\$31.00	\$26.25	\$23.90	\$21.50	\$49.25	\$46.30	\$47.55	\$40.45	\$42.95
Feb.....	33.00	30.00	26.50	23.90	21.50	47.70	45.24	46.17	39.70	42.85
March...	33.00	29.62	26.50	23.90	21.50	45.87	43.36	46.05	39.45	43.71
April.....	30.75	29.50	26.50	23.90	21.50	44.75	43.87	44.09	38.55	44.95
May.....	30.00	29.50	26.50	23.90	22.50	45.40	42.49	42.07	38.20	53.85
June.....	30.50	29.50	26.50	23.90	22.50	46.62	42.32	41.70	37.95	52.95
July.....	31.00	29.50	25.46	23.90	22.50	46.00	43.25	41.15	38.55	51.20
August...	31.00	29.50	24.30	23.00	22.50	45.40	43.45	41.57	38.82	53.75
Sept.....	31.00	27.50	23.90	23.50	22.50	45.00	44.70	41.26	38.55	58.45
Oct.	30.00	25.50	23.90	23.25	22.50	45.00	45.15	40.85	38.87	67.85
Nov.....	30.50	25.50	23.90	21.50	25.70	46.62	46.70	40.45	39.57	76.45
Dec.	31.00	25.50	23.90	21.50	26.90	46.50	47.02	40.35	40.05	76.70
Average..	\$31.29	\$28.51	\$25.34	\$23.34	\$22.80	\$46.18	\$44.49	\$42.77	\$39.06	\$55.47

In January, 1913, the average monthly price of ferro-manganese was \$72.85, in February it was \$66.45, in March it was \$65.87, in April it was \$63.15, in May it was \$62.70, and in June it was \$61.16. The average monthly price of spiegeleisen in January was \$26.65, and in February, March, April, May, and June it was \$25.90.

AVERAGE PRICES OF FERRO-SILICON AT PITTSBURGH.

The following table, compiled from quotations in the *Industrial World*, gives the average monthly and yearly prices of 10 and 50 per cent. ferro-silicon at Pittsburgh since 1908, per gross ton.

Months.	50 per cent. ferro-silicon.					10 per cent. ferro-silicon.				
	1908.	1909.	1910.	1911.	1912.	1908.	1909.	1910.	1911.	1912.
January.....	\$93.50	\$63.80	\$62.37	\$54.50	\$69.50	\$30.75	\$26.00	\$23.00	\$24.90	\$22.65
February.....	87.00	61.50	62.00	54.75	68.00	29.50	26.00	23.00	24.40	21.90
March.....	84.00	59.62	62.00	54.37	68.60	28.75	25.62	23.00	23.90	21.90
April.....	80.00	59.25	61.20	54.50	68.70	26.62	25.50	23.36	23.90	21.90
May.....	72.40	61.20	59.25	53.00	70.00	26.40	25.20	24.15	23.90	21.90
June.....	69.00	61.25	58.50	52.00	69.00	26.00	24.00	24.40	24.90	21.90
July.....	69.00	63.40	57.50	52.10	70.25	26.25	23.90	24.50	24.90	22.15
August.....	67.80	64.62	57.50	52.87	70.50	26.50	23.87	24.40	24.90	21.90
September.....	68.50	64.00	57.50	55.00	70.75	26.00	24.00	23.90	24.90	21.90
October.....	66.00	64.00	55.40	58.12	71.12	24.80	25.00	23.90	24.15	23.40
November.....	64.37	63.75	54.75	63.25	74.00	24.75	24.97	23.90	23.90	25.90
December.....	64.00	62.50	54.90	67.60	74.25	25.87	24.34	24.10	23.50	25.90
Average.....	\$73.80	\$62.41	\$58.57	\$56.00	\$70.39	\$26.85	\$24.87	\$23.80	\$24.35	\$22.77

AVERAGE QUARTERLY PRICES OF BEAMS AND CHANNELS.

The following table gives the average quarterly prices of steel beams and channels at Pittsburgh since 1894, per 100 pounds.

Years.	Average price per 100 pounds.					Years.	Average price per 100 pounds.				
	First quarter.	Second quarter.	Third quarter.	Fourth quarter.	Average.		First quarter.	Second quarter.	Third quarter.	Fourth quarter.	Average.
1894...	\$1.21	\$1.20	\$1.27	\$1.25	\$1.23	1904...	\$1.60	\$1.60	\$1.55	\$1.41	\$1.54
1895...	1.21	1.25	1.56	1.58	1.40	1905...	1.55	1.60	1.63	1.70	1.62
1896...	1.44	1.49	1.55	1.50	1.49	1906...	1.70	1.70	1.70	1.70	1.70
1897...	1.55	1.33	.98	1.09	1.24	1907...	1.70	1.70	1.70	1.70	1.70
1898...	1.15	1.15	1.19	1.20	1.17	1908...	1.70	1.68	1.60	1.60	1.64
1899...	1.35	1.60	2.12	2.25	1.83	1909...	1.45	1.25	1.40	1.53	1.41
1900...	2.25	2.21	1.68	1.50	1.91	1910...	1.55	1.53	1.41	1.40	1.47
1901...	1.51	1.60	1.60	1.60	1.58	1911...	1.40	1.38	1.30	1.16	1.31
1902...	1.60	1.60	1.60	1.60	1.60	1912...	1.15	1.24	1.34	1.45	1.29
1903...	1.60	1.60	1.60	1.60	1.60	1913...	1.45	1.45	.....	.....	.....

During the above period the lowest average quarterly price was in the third quarter of 1897, when the ruling price was 98 cents per 100 pounds. The highest average quarterly price was in the last quarter of 1899 and the first quarter of 1900, when the ruling price was \$2.25.

AVERAGE MONTHLY PRICES OF STEEL SHIP PLATES.

The following table gives the average monthly prices of steel ship plates, per gross ton, free on board at Pittsburgh, from January, 1903, to December, 1912. In 1901 the average annual price per gross ton was \$34.87 and in 1902 it was \$35.84.

Months.	1903.	1904.	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912.
January.....	\$35.84	\$35.84	\$33.60	\$35.84	\$38.08	\$38.08	\$35.84	\$34.72	\$31.36	\$25.85
February.....	35.84	35.84	35.35	35.84	38.08	38.08	32.48	34.72	31.36	25.33
March.....	35.84	35.84	35.84	35.84	38.08	38.08	29.12	34.72	31.36	26.23
April.....	35.84	35.84	35.84	35.84	38.08	38.08	28.67	34.72	31.36	27.22
May.....	35.84	35.84	35.84	35.84	38.08	38.08	28.22	34.72	31.36	28.00
June.....	35.84	35.84	35.84	35.84	38.08	36.59	29.12	33.38	30.24	28.22
July.....	35.84	35.84	35.84	35.84	38.08	35.84	30.02	31.85	29.57	29.14
August.....	35.84	35.84	35.84	35.84	38.08	35.84	31.36	31.36	29.12	30.24
September.....	35.84	32.48	35.84	35.84	38.08	35.84	32.93	31.36	28.54	30.91
October.....	35.84	31.36	35.84	35.84	38.08	35.84	33.60	31.36	25.70	32.26
November.....	35.84	31.36	35.84	35.84	38.08	35.84	34.34	31.36	24.47	32.48
December.....	35.84	32.37	35.84	35.84	38.08	35.84	34.72	31.36	26.57	32.48
Average.....	\$35.84	\$34.52	\$35.61	\$35.84	\$38.08	\$36.84	\$31.70	\$32.97	\$29.25	\$29.03

In the first six months of 1913 the average monthly price of steel ship plates at Pittsburgh, per gross ton, was \$32.48.

AVERAGE MONTHLY PRICES OF STEEL BARS AT PITTSBURGH.

The following table, compiled from quotations in the *American Manufacturer* and the *Industrial World*, gives the average monthly prices of steel bars, per 100 pounds, at mills in Pittsburgh. In April, May, June, and July, 1898, steel bars sold at Pittsburgh for 95 cents per 100 pounds, the lowest price recorded.

Months.	1902.	1903.	1904.	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912.
January...	\$1.58	\$1.64	\$1.30	\$1.45	\$2.00	\$1.60	\$1.60	\$1.40	\$1.50	\$1.40	\$1.15
February.	1.50	1.60	1.30	1.45	1.75	1.60	1.60	1.35	1.50	1.40	1.11
March.....	1.50	1.60	1.33	1.50	1.50	1.60	1.60	1.20	1.50	1.40	1.10
April.....	1.67	1.60	1.35	1.50	1.50	1.60	1.60	1.17	1.50	1.40	1.14
May.....	1.80	1.60	1.32	1.50	1.50	1.60	1.60	1.18	1.47	1.34	1.20
June.....	1.80	1.60	1.30	1.50	1.50	1.60	1.40	1.20	1.45	1.25	1.21
July.....	1.72	1.60	1.30	1.50	1.50	1.60	1.40	1.23	1.45	1.23	1.25
August.....	1.75	1.60	1.31	1.50	1.50	1.60	1.40	1.32	1.36	1.20	1.30
September	1.75	1.60	1.33	1.62	1.50	1.60	1.40	1.37	1.40	1.18	1.35
October....	1.69	1.60	1.30	1.70	1.50	1.60	1.40	1.45	1.40	1.11	1.39
November	1.60	1.37	1.32	1.80	1.56	1.60	1.40	1.46	1.40	1.10	1.42
December.	1.68	1.30	1.38	1.97	1.60	1.60	1.40	1.50	1.40	1.12	1.45
Average	\$1.67	\$1.56	\$1.32	\$1.58	\$1.58	\$1.60	\$1.48	\$1.32	\$1.44	\$1.26	\$1.26

PRICES OF BEST REFINED BAR IRON AT PITTSBURGH.

The following table, for which we are indebted to a leading Pittsburgh iron manufacturer, gives the average prices of best refined bar iron at mills at Pittsburgh since 1902, in 100-pound lots.

Months.	1902.	1903.	1904.	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912.
January.....	\$1.87	\$2.00	\$1.30	\$1.80	\$2.20	\$1.90	\$1.70	\$1.55	\$1.75	\$1.50	\$1.35
February.....	1.90	2.00	1.31	1.80	2.15	1.90	1.70	1.55	1.75	1.50	1.35
March	1.90	2.00	1.38	1.90	2.10	1.90	1.70	1.55	1.75	1.45	1.35
April.....	1.95	2.00	1.50	1.82	1.80	1.90	1.70	1.55	1.70	1.45	1.35
May.....	2.02	2.00	1.50	1.80	1.80	2.00	1.70	1.60	1.70	1.40	1.35
June.....	2.10	1.77	1.50	1.80	1.85	2.00	1.65	1.60	1.65	1.40	1.35
July	1.86	1.70	1.50	1.80	1.85	2.00	1.50	1.60	1.65	1.40	1.40
August.....	1.95	1.70	1.50	1.80	1.85	2.00	1.50	1.60	1.60	1.40	1.40
September.....	2.00	1.70	1.50	1.84	1.85	2.00	1.50	1.70	1.60	1.35	1.45
October.....	1.92	1.70	1.50	1.85	1.90	1.90	1.50	1.70	1.55	1.35	1.50
November.....	1.85	1.34	1.52	2.03	1.90	1.90	1.50	1.75	1.55	1.35	1.65
December.....	2.00	1.30	1.76	2.20	1.90	1.90	1.50	1.75	1.50	1.35	1.75
Average.....	\$1.94	\$1.77	\$1.48	\$1.87	\$1.93	\$1.94	\$1.60	\$1.62	\$1.65	\$1.41	\$1.44

PRICES OF BAR IRON FROM STORE AT PHILADELPHIA.

The following table gives the average prices from store at Philadelphia of best refined bar iron since 1902, per 100 pounds. These prices have been furnished by Mr. Walter W. Cook, Secretary of the Iron Merchants' Association of Philadelphia.

Months.	1902.	1903.	1904.	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912.
January.....	\$1.90	\$2.20	\$1.71	\$1.91	\$1.96	\$2.08	\$1.76	\$1.74	\$1.96	\$1.67	\$1.62
February.....	2.00	2.20	1.71	1.91	1.96	2.16	1.76	1.73	1.96	1.67	1.62
March	2.10	2.20	1.71	1.91	1.96	2.16	1.76	1.62	1.96	1.67	1.62
April.....	2.10	2.20	1.71	1.91	1.96	2.16	1.76	1.62	1.90	1.67	1.62
May.....	2.10	2.16	1.71	1.91	1.96	2.16	1.76	1.62	1.86	1.69	1.64
June.....	2.20	2.08	1.71	1.91	1.96	2.16	1.66	1.67	1.86	1.62	1.67
July	2.20	2.01	1.71	1.91	1.96	2.16	1.66	1.67	1.86	1.62	1.71
August.....	2.20	1.93	1.71	1.91	1.96	2.16	1.66	1.76	1.76	1.62	1.71
September.....	2.20	1.81	1.71	1.91	1.96	2.16	1.66	1.81	1.76	1.62	1.81
October.....	2.20	1.81	1.71	1.91	1.96	2.06	1.66	1.91	1.76	1.62	1.96
November.....	2.20	1.71	1.71	1.96	2.06	1.96	1.66	1.96	1.76	1.62	1.96
December.....	2.20	1.71	1.81	1.96	2.06	1.96	1.66	1.96	1.76	1.62	2.06
Average.....	\$2.13	\$2.00	\$1.72	\$1.92	\$1.98	\$2.11	\$1.70	\$1.76	\$1.85	\$1.64	\$1.75

AVERAGE MONTHLY PRICES OF CUT NAILS AT PHILADELPHIA.

The following table gives the average monthly base prices of cut nails, per keg of 100 pounds, from store at Philadelphia, as

reported by the Duncannon Iron Company from 1902 to 1907, by the Williamsport Iron and Nail Company from 1908 to 1910, and by Edward L. Hand & Co., of Philadelphia, for 1911 and 1912.

Months.	1902.	1903.	1904.	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912.
January.....	\$2.30	\$2.33	\$2.05	\$2.05	\$2.05	\$2.30	\$2.35	\$2.00	\$2.15	\$2.00	\$1.90
February...	2.20	2.36	2.00	2.10	2.10	2.35	2.35	2.00	2.15	2.05	1.90
March.....	2.25	2.36	2.00	2.10	2.10	2.35	2.35	2.00	2.15	2.05	1.90
April.....	2.30	2.41	2.05	2.10	2.10	2.35	2.35	2.00	2.15	2.05	1.90
May.....	2.30	2.41	2.05	2.10	2.10	2.35	2.25	2.05	2.15	2.05	1.90
June.....	2.30	2.41	2.05	2.00	2.10	2.35	2.15	2.05	2.15	2.05	1.90
July.....	2.30	2.41	2.05	1.95	2.10	2.40	2.15	2.05	2.15	2.05	1.90
August.....	2.30	2.41	2.00	1.90	2.10	2.40	2.15	2.10	2.10	2.00	1.90
September..	2.30	2.41	1.95	1.87	2.15	2.40	2.15	2.10	2.05	2.00	1.95
October.....	2.30	2.41	1.90	1.92	2.20	2.40	2.10	2.10	2.05	2.00	1.95
November..	2.30	2.20	2.00	1.95	2.20	2.35	2.05	2.10	2.00	1.95	1.95
December...	2.30	2.20	2.05	2.01	2.30	2.35	2.00	2.10	1.90	1.95	2.00
Average..	\$2.29	\$2.36	\$2.01	\$2.00	\$2.13	\$2.36	\$2.20	\$2.05	\$2.10	\$2.02	\$1.92

AVERAGE MONTHLY PRICES OF WIRE NAILS AT CHICAGO.

The following table, compiled from quotations in the *Iron Age* and *Hardware Age*, gives the average monthly base prices of standard sizes of wire nails, per keg of 100 pounds, in carload lots, free on board at Chicago, from 1902 to 1912 inclusive.

Months.	1902.	1903.	1904.	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912.
January.....	\$2.16	\$2.08	\$2.04	\$1.90	\$1.94	\$2.15	\$2.23	\$2.13	\$2.03	\$1.89	\$1.74
February...	2.20	2.12	2.05	1.95	1.95	2.15	2.23	2.13	2.03	1.93	1.78
March.....	2.20	2.20	2.09	1.95	1.95	2.15	2.23	2.13	2.03	1.97	1.78
April.....	2.20	2.15	2.10	1.95	1.95	2.15	2.23	2.13	2.03	1.98	1.78
May.....	2.20	2.15	2.10	1.95	1.95	2.15	2.23	1.83	2.03	1.98	1.78
June.....	2.20	2.15	2.07	1.95	1.95	2.18	2.13	1.88	2.03	1.94	1.78
July.....	2.20	2.15	2.05	1.95	1.95	2.18	2.13	1.90	1.94	1.88	1.78
August.....	2.20	2.15	1.90	1.87	1.95	2.18	2.13	1.98	1.88	1.88	1.84
September..	2.15	2.15	1.75	1.87	1.96	2.23	2.13	1.98	1.88	1.88	1.88
October.....	2.05	2.15	1.75	1.95	2.00	2.23	2.13	1.98	1.88	1.87	1.88
November..	2.00	2.15	1.77	1.95	2.04	2.23	2.13	1.98	1.88	1.80	1.88
December...	2.00	2.00	1.88	1.95	2.15	2.23	2.13	2.00	1.88	1.73	1.90
Average..	\$2.15	\$2.13	\$1.96	\$1.93	\$1.98	\$2.18	\$2.17	\$2.00	\$1.96	\$1.89	\$1.82

AVERAGE WHOLESALE MONTHLY PRICES OF TINPLATES.

The following table gives the average wholesale monthly and yearly prices of domestic tinplates, I. C., 14 by 20, per box of 100 pounds, at tinplate mills in Pennsylvania, from 1902 to 1912 inclusive.

Months.	1902.	1903.	1904.	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912.
January.....	\$4.00	\$3.60	\$3.56	\$3.55	\$3.47	\$3.90	\$3.74	\$3.70	\$3.60	\$3.60	\$3.40
February...	4.00	3.60	3.45	3.55	3.50	3.90	3.70	3.70	3.60	3.67	3.40
March.....	4.00	3.80	3.45	3.55	3.50	3.90	3.70	3.53	3.60	3.70	3.40
April.....	4.00	3.80	3.45	3.55	3.57	3.90	3.70	3.40	3.60	3.70	3.40
May.....	4.00	3.80	3.45	3.55	3.66	3.90	3.70	3.40	3.60	3.70	3.42
June.....	4.00	3.80	3.45	3.55	3.75	3.90	3.70	3.40	3.60	3.70	3.50
July.....	4.00	3.80	3.41	3.55	3.75	3.90	3.70	3.40	3.60	3.70	3.50
August.....	4.00	3.80	3.30	3.55	3.75	3.90	3.70	3.40	3.60	3.70	3.50
September..	4.00	3.80	3.30	3.55	3.75	3.90	3.70	3.40	3.60	3.67	3.58
October.....	4.00	3.80	3.30	3.36	3.75	3.90	3.70	3.50	3.60	3.52	3.60
November...	3.60	3.65	3.39	3.34	3.90	3.90	3.70	3.56	3.60	3.40	3.60
December...	3.60	3.60	3.47	3.40	3.90	3.90	3.70	3.60	3.60	3.40	3.60
Average..	\$3.93	\$3.74	\$3.41	\$3.50	\$3.69	\$3.90	\$3.70	\$3.50	\$3.60	\$3.62	\$3.49

AVERAGE YEARLY PRICES OF IRON AND STEEL.

The following table gives the average yearly domestic prices of leading articles of iron and steel from 1908 to 1912. These prices are per ton of 2,240 pounds, except for bar iron, bar steel, beams and channels, and cut and wire nails, which are quoted by the 100 pounds and 100-pound kegs respectively.

Articles.	1908.	1909.	1910.	1911.	1912.
Old iron T rails at Philadelphia.....	\$18.61	\$19.42	\$19.09	\$16.90	\$16.74
No. 1 foundry pig iron at Philadelphia	17.70	17.81	17.36	15.71	16.56
No. 2 foundry pig iron at Philadelphia	17.20	17.31	16.86	15.21	16.06
No. 2 foundry pig iron at Birmingham	12.25	12.75	11.90	10.41	11.55
No. 2 foundry pig iron at Cincinnati...	15.54	16.12	15.16	13.67	14.93
Lake Sup. charcoal pig iron, Chicago..	20.24	19.50	18.66	16.94	16.74
Low-phosphorus at Philadelphia.....	21.94	21.05	22.72	20.56	20.70
Gray forge pig iron at Philadelphia...	15.72	16.13	15.72	14.43	15.39
Gray forge pig iron at Pittsburgh.....	15.23	15.55	15.24	13.97	14.54
Bessemer pig iron at Pittsburgh.....	17.07	17.41	17.19	15.71	15.94
Basic pig iron at Philadelphia.....	16.25	16.80	16.35	14.63	15.80
Basic pig iron at Pittsburgh.....	16.17	16.40	15.66	13.98	14.80
Spiegeleisen at Pittsburgh.....	31.29	28.51	25.34	23.34	22.80
Ferro-manganese at Pittsburgh.....	46.18	44.49	42.77	39.06	55.47
Ferro-silicon, (50 per cent.,) Pittsburgh	73.80	62.41	58.57	56.00	70.39
Ferro-silicon, (10 per cent.,) Pittsburgh	26.85	24.87	23.80	24.35	22.77
Bessemer steel rails at mills in Pa..	28.00	28.00	28.00	28.00	28.00
Bessemer steel billets, mills, Pittsburgh	26.31	24.62	25.38	21.46	22.38
Steel ship plates at Pittsburgh.....	36.84	31.70	32.97	29.25	29.03
Beams and channels at Pittsburgh....	1.64	1.41	1.47	1.31	1.29
Best bar iron from store, Philadelphia	1.70	1.76	1.85	1.64	1.75
Best bar iron at mills at Pittsburgh...	1.60	1.62	1.65	1.41	1.44
Bar steel at mills at Pittsburgh.....	1.48	1.32	1.44	1.26	1.26
Cut nails from store at Philadelphia....	2.20	2.05	2.10	2.02	1.92
Wire nails, base price, at Chicago.....	2.17	2.00	1.96	1.89	1.82

AVERAGE MONTHLY AND YEARLY PRICES OF BESSEMER PIG IRON IN ENGLAND.

The following table, which we have compiled from quotations in the British Blue Book and in the London *Iron and Coal Trades Review*, gives the average monthly and yearly prices of Bessemer pig iron in the northwest of England from 1903 to 1912. The prices are per gross ton of 2,240 pounds.

Months.	1903.	1904.	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912.
January...	\$14.47	\$13.25	\$13.52	\$17.63	\$19.95	\$15.97	\$14.23	\$15.79	\$16.60	\$16.28
February.	14.49	13.19	14.17	17.15	19.77	14.49	13.94	16.20	16.58	16.28
March.....	14.92	13.13	14.19	16.54	19.32	15.02	13.86	16.52	16.26	16.28
April.....	14.90	13.46	14.23	16.26	18.77	15.08	14.08	17.07	15.99	16.83
May.....	14.47	13.50	14.19	16.34	19.95	15.04	14.25	16.66	15.81	17.45
June.....	14.47	13.40	13.88	16.42	19.85	14.80	14.23	16.46	15.57	17.68
July.....	14.33	13.19	13.86	16.18	19.95	14.35	14.23	16.12	15.33	18.62
August.....	14.23	13.03	13.94	16.14	19.81	14.13	14.41	16.16	15.43	19.05
September	14.00	13.01	14.82	16.62	19.03	14.66	15.06	16.46	15.57	19.93
October ...	13.80	13.01	16.93	16.91	18.24	14.80	15.18	16.36	15.39	20.65
November	13.62	13.01	17.31	17.37	17.13	14.55	15.14	16.18	15.20	20.73
December	13.40	13.78	17.43	20.13	16.58	14.25	15.24	16.08	15.75	21.02
Average	\$14.26	\$13.25	\$14.87	\$16.97	\$19.03	\$14.76	\$14.49	\$16.34	\$15.79	\$18.40

AVERAGE MONTHLY AND YEARLY PRICES OF NO. 3 CLEVELAND PIG IRON IN ENGLAND.

The following table, which we have compiled from quotations in the British Blue Book and in the London *Iron and Coal Trades Review*, gives the average monthly and yearly prices of No. 3 Cleveland pig iron, at Cleveland, England, during the last ten years, per gross ton of 2,240 pounds.

Months.	1903.	1904.	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912.
January...	\$11.51	\$10.36	\$11.88	\$13.09	\$14.70	\$11.78	\$11.88	\$12.65	\$12.14	\$12.16
February.	11.74	10.40	11.53	12.30	13.74	12.00	11.70	12.54	11.96	12.00
March	12.54	10.50	11.88	11.88	13.33	12.56	11.39	12.56	11.78	12.39
April	11.94	10.86	11.90	11.98	13.68	12.58	11.63	12.42	11.43	12.95
May	11.31	10.76	11.90	12.28	14.94	12.54	11.76	12.18	11.29	13.21
June	11.27	10.46	11.07	12.30	14.13	12.44	11.84	12.02	11.33	13.33
July	11.35	10.42	11.05	12.34	14.04	12.32	11.80	11.96	11.41	13.99
August	11.37	10.50	11.35	12.95	14.00	12.48	12.28	12.12	11.51	14.83
September	11.19	10.46	11.82	13.35	13.52	12.62	12.50	12.02	11.43	16.13
October	10.68	10.56	12.83	13.84	13.31	12.04	12.60	12.08	11.35	16.20
November	10.48	11.05	12.81	14.33	12.32	12.00	12.40	12.08	11.57	16.38
December	10.26	11.65	12.95	15.24	12.12	11.94	12.34	12.14	12.08	16.42
Average	\$11.30	\$10.66	\$11.91	\$12.99	\$13.65	\$12.27	\$12.01	\$12.23	\$11.61	\$14.17

AVERAGE MONTHLY PRICES OF ENGLISH STEEL RAILS.

The following table gives the average monthly and yearly prices of steel rails in England from 1904 to 1912, per gross ton of 2,240 pounds. The averages have been compiled from weekly quotations in the *London Iron and Coal Trades Review*. We have reduced the English prices to American equivalents.

Months.	1904.	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912.
January	\$23.47	\$22.14	\$29.35	\$32.23	\$29.80	\$26.91	\$26.15	\$27.21	\$27.52
February	22.50	24.57	29.95	32.84	29.80	26.76	26.15	27.97	27.97
March	22.50	24.57	30.41	32.84	29.35	26.61	26.15	27.97	27.97
April	22.50	26.15	30.41	32.84	28.82	26.15	26.30	27.97	28.12
May	22.50	26.15	30.89	32.84	28.58	26.15	26.76	27.67	29.56
June	22.50	26.15	31.02	32.84	28.58	26.15	26.76	27.37	30.71
July	22.50	26.15	31.02	32.84	28.58	26.15	26.76	27.37	31.02
August	22.50	26.15	31.02	33.45	28.28	26.15	26.76	27.37	31.14
September	22.26	26.15	31.02	32.84	27.98	26.15	26.76	27.37	31.78
October	22.21	26.15	31.02	32.84	27.97	26.15	26.76	27.37	32.23
November	22.21	28.82	31.02	31.63	27.82	26.15	26.76	27.37	32.23
December	22.21	29.44	31.63	31.02	27.37	26.15	26.76	27.37	32.53
Average	\$22.49	\$26.05	\$30.73	\$32.59	\$28.58	\$26.30	\$26.57	\$27.53	\$30.23

In the first half of 1913 the average monthly prices of English steel rails were as follows: January, February, and March, \$32.84; April, \$32.38; and May and June, \$32.23.

TOTAL PRODUCTION OF PIG IRON.

Twenty States made pig iron in 1912, against 21 States in 1911. The total production of all kinds of pig iron in 1912 amounted to 29,726,937 gross tons, against 23,649,547 tons in 1911, an increase of 6,077,390 tons, or over 25.6 per cent. The production in 1912 was the largest in our history. The following table gives the production of pig iron in half-yearly periods from 1907 to 1912, in gross tons. Several thousand tons of ferro-phosphorus, ferro-titanium, ferro-vanadium, and other alloys are included. The figures for the first half of 1912 and for all prior years were compiled by the American Iron and Steel Association, but for the last half of 1912 they were compiled by the Bureau of Statistics of the American Iron and Steel Institute.

Periods.	1907.	1908.	1909.	1910.	1911.	1912.
First half....	13,478,044	6,918,004	11,022,346	14,978,738	11,666,996	14,072,274
Second half.	12,303,317	9,018,014	14,773,125	12,324,829	11,982,551	15,654,663
Total	25,781,361	15,936,018	25,795,471	27,303,567	23,649,547	29,726,937

PRODUCTION OF PIG IRON BY STATES.

The following table gives the production of all kinds of pig iron by States in 1911 and 1912 according to their rank in each year.

States.	1911.			States.	1912.		
	Rank.	Gross tons.	Per cent.		Rank.	Gross tons.	Per cent.
Pennsylvania	1	9,807,073	41.47	Pennsylvania	1	12,552,131	42.23
Ohio.....	2	5,310,506	22.46	Ohio.....	2	6,802,493	22.88
Illinois.....	3	2,108,002	8.91	Illinois.....	3	2,887,359	9.71
Alabama.....	4	1,712,211	7.24	New York.....	4	1,939,231	6.52
New York.....	5	1,562,756	6.61	Alabama.....	5	1,862,681	6.27
Ind. & Mich....	6	1,163,932	4.92	Ind. & Mich....	6	1,770,628	5.96
Mo., Col., Cal.	7	395,968	1.68	Mo., Col., Cal.	7	397,731	1.34
Tennessee.....	8	324,648	1.37	Tennessee.....	8	338,238	1.14
Virginia.....	9	293,642	1.24	Wis. & Minn....	9	303,370	1.02
West Virginia	10	291,472	1.23	West Virginia	10	274,360	.92
Wis. & Minn....	11	276,807	1.17	Virginia.....	11	256,167	.86
Maryland.....	12	255,816	1.08	Maryland.....	12	219,546	.74
Kentucky.....	13	95,202	.40	Kentucky.....	13	68,760	.23
New Jersey....	14	40,663	.17	New Jersey....	14	36,876	.12
Conn. & Mass..	15	9,649	.04	Conn. & Mass..	15	17,366	.06
Ga. & Texas....	16	1,200	.01	Ga. & Texas....	16	.....	.....
Total.....	...	23,649,547	100.00	Total.....	...	29,726,937	100.00

COMPARATIVE PRODUCTION OF PIG IRON BY STATES.

States—Gross tons.	Production.		Increase or decrease.	Per cent. of increase or decrease.
	1911.	1912.		
Massachusetts and Conn.	9,649	17,366	7,717	79.9
New York.....	1,562,756	1,939,231	376,475	24.0
New Jersey.....	40,663	36,876	*3,787	*9.3
Pennsylvania.....	9,807,073	12,552,131	2,745,058	27.9
Maryland.....	255,816	219,546	*36,270	*14.1
Virginia.....	293,642	256,167	*37,475	*12.7
Georgia and Texas.....	1,200	.....	*1,200	*100.0
Alabama.....	1,712,211	1,862,681	150,470	8.7
West Virginia.....	291,472	274,360	*17,112	*5.8
Kentucky.....	95,202	68,760	*26,442	*27.7
Tennessee.....	324,648	338,238	13,590	4.1
Ohio.....	5,310,506	6,802,493	1,491,987	28.0
Illinois.....	2,108,002	2,887,359	779,357	36.9
Indiana and Michigan..	1,163,932	1,770,628	606,696	52.1
Wisconsin and Minn....	276,807	303,370	26,563	9.5
Mo., Colorado, and Cal..	395,968	397,731	1,763	0.4
Total.....	23,649,547	29,726,937	6,077,390	25.6

* Decrease.

HALF-YEARLY PRODUCTION OF PIG IRON BY STATES IN 1912.

The following table gives the half-yearly production of pig iron by States in 1912, arranged according to geographical position.

States.	Blast furnaces.				Production—Gross tons. (Includes spiegeleisen, ferro-mang., ferro-silicon, ferro-phosphorus, etc.)		
	In blast June 30, 1912.	December 31, 1912.			First half of 1912.	Second half of 1912.	Total for 1912.
		In.	Out.	Total.			
Massachusetts..	1	2	0	2	8,793	8,573	17,366
Connecticut....	3	3	0	3			
New York.....	17	19	10	29	880,581	1,058,650	1,939,231
New Jersey.....	1	1	6	7	2,773	34,103	36,876
Pennsylvania..	108	128	35	163	6,035,773	6,516,358	12,552,131
Maryland.....	2	3	2	5	107,027	112,519	219,546
Virginia.....	6	7	18	25	120,127	136,040	256,167
Georgia.....	0	0	3	3	.....	.....	.....
Texas.....	0	0	4	4			
Alabama.....	19	25	24	49	887,512	975,169	1,862,681
West Virginia..	2	3	1	4	129,155	145,205	274,360
Kentucky.....	1	3	5	8	24,017	44,743	68,760
Tennessee.....	9	7	12	19	145,076	193,162	338,238
Ohio.....	49	58	17	75	3,285,752	3,516,741	6,802,493
Illinois.....	20	22	4	26	1,304,227	1,583,132	2,887,359
Indiana.....	10	10	0	10	788,252	982,376	1,770,628
Michigan.....	10	12	4	16			
Wisconsin.....	3	5	2	7	153,420	149,950	303,370
Minnesota.....	1	1	0	1			
Missouri.....	1	1	1	2	199,789	197,942	397,731
Colorado.....	3	3	3	6			
Oregon.....	0	0	1	1			
Washington....	0	0	1	1			
California.....	0	0	0	0			
Total.....	266	313	153	466	14,072,274	15,654,663	29,726,937

The production in the second half of 1912 shows an increase of 1,582,389 tons, or over 11.2 per cent., as compared with the production in the first half of that year. In Pennsylvania the increase amounted to 480,585 tons, in Ohio to 230,989 tons, in Illinois to 278,905 tons, in Indiana and Michigan to 194,124 tons, in New York to 178,069 tons, and in Alabama to 87,657 tons.

Georgia, Texas, Oregon, and Washington were the only States having one or more blast furnaces that did not make pig iron in 1912. California, which does not have a blast furnace, produced a small tonnage of low-phosphorus pig iron in an electric furnace direct from the ore. Georgia last made pig iron in 1911, Washington in 1910, Texas in 1909, and Oregon in 1894.

HALF-YEARLY PRODUCTION OF PIG IRON FOR 30 YEARS.

The following table gives the production of pig iron in the United States in half-yearly periods from 1883 to 1912 inclusive, the increase or decrease in output of the second half year as compared with the first half year being shown.

Years. Gross tons.	First half.	Second half.	Total.	Increase in second half.	Decrease in second half.
1883.....	2,352,019	2,243,491	4,595,510	.....	108,528
1884.....	2,024,126	2,073,742	4,097,868	49,616	.....
1885.....	1,920,371	2,124,155	4,044,526	203,784	.....
1886.....	2,637,687	3,045,642	5,683,329	407,955	.....
1887.....	3,049,295	3,367,853	6,417,148	318,558	.....
1888.....	3,020,092	3,469,646	6,489,738	449,554	.....
1889.....	3,661,603	3,942,039	7,603,642	280,436	.....
1890.....	4,560,513	4,642,190	9,202,703	81,677	.....
1891.....	3,368,107	4,911,763	8,279,870	1,543,656	.....
1892.....	4,769,683	4,387,317	9,157,000	.....	382,366
1893.....	4,562,918	2,561,584	7,124,502	.....	2,001,334
1894.....	2,717,983	3,939,405	6,657,388	1,221,422	.....
1895.....	4,087,558	5,358,750	9,446,308	1,271,192	.....
1896.....	4,976,236	3,646,891	8,623,127	.....	1,329,345
1897.....	4,403,476	5,249,204	9,652,680	845,728	.....
1898.....	5,869,703	5,904,231	11,773,934	34,528	.....
1899.....	6,289,167	7,331,536	13,620,703	1,042,369	.....
1900.....	7,642,569	6,146,673	13,789,242	.....	1,495,896
1901.....	7,674,613	8,203,741	15,878,354	529,128	.....
1902.....	8,808,574	9,012,733	17,821,307	204,159	.....
1903.....	9,707,367	8,301,885	18,009,252	.....	1,405,482
1904.....	8,173,438	8,323,595	16,497,033	150,157	.....
1905.....	11,163,175	11,829,205	22,992,380	666,030	.....
1906.....	12,582,250	12,724,941	25,307,191	142,691	.....
1907.....	13,478,044	12,303,317	25,781,361	.....	1,174,727
1908.....	6,918,004	9,018,014	15,936,018	2,100,010	.....
1909.....	11,022,346	14,773,125	25,795,471	3,750,779	.....
1910.....	14,978,738	12,324,829	27,303,567	.....	2,653,909
1911.....	11,666,996	11,982,551	23,649,547	315,555	.....
1912.....	14,072,274	15,654,663	29,726,937	1,582,389	.....

In the last half of 1912 the output of pig iron in this country was slightly larger than the annual output in Germany and Luxemburg as late as the year 1911, when these countries produced 15,574,039 metric tons. Next to the United States, Germany has in recent years been the largest maker of pig iron in the world. In the whole of 1912 the total output of pig iron in the United States was greater than the combined output in 1911 of Great Britain, France, Belgium, Austria-Hungary, Italy, Spain, Sweden, Russia, Canada, Mexico, India, Japan, and China.

PRODUCTION OF PIG IRON ACCORDING TO FUEL.

The production of pig iron from 1908 to 1912, classified according to the fuel used, was as follows, in gross tons.

Fuel used—Gross tons.	1908.	1909.	1910.	1911.	1912.
Bituminous, chiefly coke	15,331,863	24,721,037	26,257,978	23,141,296	29,132,733
Anthracite and coke.....	353,315	682,383	628,579	212,548	236,467
Anthracite alone.....	1,694	16,048	20,503	17,027	10,712
Charcoal.....	249,146	376,003	396,507	278,676	347,025
Total.....	15,936,018	25,795,471	27,303,567	23,649,547	29,726,937

Small quantities of pig iron made with charcoal and electricity are included in the charcoal figures given above. The totals for each of the five years also include small tonnages of ferro-alloys made with electricity, coke and electricity, etc.

Comparing 1912 with 1908, which was a year of greatly reduced production, a decrease of 107,830 tons is shown in the production of pig iron with anthracite coal alone and with anthracite coal and coke mixed, while in the output of pig iron with bituminous fuel an increase of 13,800,870 tons is shown. In the output of charcoal pig iron the increase amounted to 97,879 tons.

The maximum production of bituminous pig iron, including coke and coal and coke mixed, was in 1912, when 29,132,733 tons were made; of anthracite alone and mixed anthracite coal and coke the maximum was reached in 1890, when the production amounted to 2,186,411 tons; and of charcoal the maximum was also reached in 1890, when 628,145 tons were made.

The following table gives the production of bituminous pig iron by States in 1911 and 1912 in gross tons of 2,240 pounds.

States—Gross tons.	1911.	1912.	States—Gross tons.	1911.	1912.
Pennsylvania.....	9,573,985	12,301,120	Tennessee	320,942	335,552
Ohio.....	5,308,604	6,800,568	Virginia and Ga.	292,147	253,921
Illinois.....	2,108,002	2,887,359	West Virginia...	291,472	274,360
New York.....	1,562,756	1,939,231	Maryland	255,186	218,603
Alabama.....	1,679,654	1,828,648	Kentucky	93,574	68,580
Ind., Mich., and Wisconsin.....	1,166,237	1,765,941	New Jersey.....	40,663	36,876
Minn., Mo., and Colorado.....	448,074	421,974	.....	.....	.....
			Total.....	*23,141,296	*29,132,733

* Include ferro-alloys made with coke and electricity, coal and natural gas, etc.

The following table gives the production by States of pig iron made with anthracite coal alone and with mixed anth-

racite coal and coke for the years 1907 to 1912. New Jersey has not made pig iron with mixed fuel since 1910.

States.	1907.	1908.	1909.	1910.	1911.	1912.
Pennsylvania	1,254,266	} 355,009	698,431	649,082	229,575	247,179
New Jersey...	117,288					
Total.....	1,371,554	355,009	698,431	649,082	229,575	247,179

The following table gives the production of charcoal pig iron, including pig iron and ferro-alloys made with charcoal and electricity, by States in 1911 and 1912. Michigan, the leading producer, made over 66.6 per cent. of the total in 1912, as compared with over 57.7 per cent. in 1911. Alabama was the next largest producer in 1912, followed by Wisconsin, Missouri, and Connecticut in the order named. Gross tons are used.

States—Gross tons.	1911.	1912.	States—Gross tons.	1911.	1912.
Michigan	160,884	231,169	Md. and Va.....	3,325	3,189
Wis., Missouri, and California..	} 61,512	52,645	Ky. and Tenn.....	5,334	2,866
Alabama.....			Ohio.....	1,902	1,925
Mass. and Conn..	9,649	17,366	.....	.....	.....
Pennsylvania.....	3,513	3,832	Total.....	278,676	347,025

PRODUCTION OF PIG IRON IN PENNSYLVANIA BY DISTRICTS.

The following table gives the production of all kinds of pig iron in Pennsylvania by districts from 1908 to 1912.

Districts—Gross tons.	1908.	1909.	1910.	1911.	1912.
Lehigh Valley.....	470,460	690,488	759,250	887,013	952,068
Schuylkill Valley.....	420,077	722,529	803,362	722,265	909,337
Lower Susquehanna Valley	276,537	609,971	643,270	446,671	562,774
Juniata Valley.....	120,168	131,015	191,554	93,624	123,021
Allegheny County.....	3,917,938	5,497,372	5,330,982	5,116,442	6,107,226
Shenango Valley.....	1,050,301	1,627,628	1,924,508	1,252,344	2,063,300
Other Western Penna. bit.	729,231	1,637,130	1,615,125	1,285,201	1,830,573
Charcoal.....	2,479	2,691	4,272	3,513	3,832
Total.....	6,987,191	10,918,824	11,272,323	9,807,073	12,552,131

The production of pig iron in 1912 increased in every district in Pennsylvania as compared with 1911. In 1912 Pennsylvania made over 42.2 per cent. of the total production of pig iron in the United States, as compared with over 41.4 per cent. of the total production in 1911.

PRODUCTION OF PIG IRON IN OHIO BY DISTRICTS.

The following table gives the production of all kinds of pig iron in Ohio by districts from 1908 to 1912 in gross tons.

Districts—Gross tons.	1908.	1909.	1910.	1911.	1912.
Mahoning Valley.....	1,242,084	2,278,650	2,534,969	2,393,575	2,889,419
Hocking Valley.....	1,050,292	1,565,203	1,474,465	1,577,528	2,050,163
Lake Counties.....					
Miscellaneous bituminous	308,875	1,254,160	1,285,775	1,056,178	1,457,552
Hanging Rock bituminous	257,674	453,532	455,843	281,323	403,434
Hanging Rock charcoal...	2,400	.....	1,060	1,902	1,925
Total.....	2,861,325	5,551,545	5,752,112	5,310,506	6,802,493

Every producing district in Ohio increased its output in 1912 as compared with 1911. The Hocking Valley last made pig iron in 1909. Of the country's total production in 1912, Ohio made over 22.8 per cent., against over 22.4 per cent. in 1911.

PRODUCTION OF BESSEMER AND LOW-PHOSPHORUS PIG IRON.

The production of Bessemer and low-phosphorus pig iron in 1912 was 11,664,015 tons, against 9,409,303 tons in 1911, an increase of 2,254,712 tons, or over 23.9 per cent. The maximum production of Bessemer pig iron alone was reached in 1906, when 13,611,749 tons were made. The maximum production of low-phosphorus pig iron was reached in 1911, when the output was 101 tons greater than in 1912.

The following table gives the production of Bessemer and low-phosphorus pig iron by States from 1908 to 1912. Bessemer and low-phosphorus pig iron made with charcoal and with charcoal and electricity are included. Gross tons are used.

States—Gross tons.	1908.	1909.	1910.	1911.	1912.
Pennsylvania.....	3,069,015	3,851,606	4,393,905	3,461,265	4,402,291
Ohio	1,907,529	3,628,046	3,460,736	3,283,970	4,174,226
Illinois.....	1,367,283	1,804,402	1,826,407	1,455,865	1,823,655
New York.....	483,900	628,426	834,632	449,841	621,891
West Va., Tenn., & Ky.	121,703	293,837	267,577	367,436	316,817
Maryland and Virginia	183,879	284,356	326,614	258,236	218,603
Mich., Wis., Minn., Colorado, and Cal....	83,667	66,697	135,771	132,690	106,532
Total.....	7,216,976	10,557,370	11,245,642	9,409,303	11,664,015
Total Bessemer.....	7,086,360	10,344,755	10,986,565	9,126,843	11,381,656
Total low-phosphorus	130,616	212,615	259,077	282,460	282,359

Eleven States made either Bessemer or low-phosphorus pig iron in 1911 and 1912, against 14 States in 1910 and 12 States in 1909 and 1908.

Pennsylvania made over 37.7 per cent. of the total production of Bessemer and low-phosphorus pig iron in 1912, against over 36.7 per cent. in 1911; Ohio over 35.7 per cent., against over 34.8 per cent. in 1911; Illinois over 15.6 per cent., against over 15.4 per cent. in 1911; and New York over 5.3 per cent., against over 4.7 per cent. in 1911. No other State made over 2.4 per cent. in 1912 or over 3.1 per cent. in 1911.

The following table gives the production of Bessemer and low-phosphorus pig iron in Pennsylvania and Ohio by districts since 1908. Bessemer and low-phosphorus pig iron made with charcoal and with charcoal and electricity are included.

Districts—Gross tons.	1908.	1909.	1910.	1911.	1912.
Lehigh Valley.....	53,486	61,324	60,924	103,506	136,219
Schuylkill Valley.....	55,702	81,223	104,052	70,481	94,826
L. Susquehanna Valley	69,980	119,874	126,463	87,305	92,484
Allegheny County.....	1,922,962	2,143,009	2,352,149	2,078,757	2,517,529
Shenango Valley.....	772,001	985,670	1,279,380	790,871	1,154,790
Miscellaneous bitum....	194,884	460,506	470,937	330,345	406,443
Total for Penna....	3,069,015	3,851,606	4,393,905	3,461,265	4,402,291
Mahoning Valley.....	966,916	1,682,839	1,738,907	1,640,588	1,935,959
Lake Counties.....	817,186	1,051,329	830,921	862,031	1,236,446
Miscellaneous bitum....	71,427	826,863	837,166	727,591	949,193
Hanging Rock bitum....	52,000	67,015	53,742	53,760	52,628
Total for Ohio.....	1,907,529	3,628,046	3,460,736	3,283,970	4,174,226

Comparing 1912 with 1908, which, as already stated, was a year of greatly reduced production, the increase in the production of Bessemer and low-phosphorus pig iron in Pennsylvania amounted to 1,333,276 tons, or over 43.4 per cent., while the increase in Ohio in the same period amounted to 2,266,697 tons, or over 118.8 per cent. In 1908 the output in Pennsylvania was 1,161,486 tons greater than in Ohio, but in 1912 the output in Pennsylvania was only 228,065 tons greater than in Ohio.

PRODUCTION OF BASIC PIG IRON.

The production of basic pig iron in 1912, not including charcoal pig iron of basic quality, was 11,417,886 tons, against 8,520,020 tons in 1911, an increase of 2,897,866 tons, or over 34 per cent. The production in 1912 was much the largest in our his-

tory; the year of next largest production was 1910. The following table gives the production by States since 1908 in gross tons.

States—Gross tons.	1908.	1909.	1910.	1911.	1912.
New York and New Jersey...	110,167	466,919	414,228	321,765	386,457
Pennsylvania.....	2,697,862	5,256,245	5,247,065	5,168,762	6,490,096
Virginia and Alabama.....	450,753	402,903	697,377	445,892	671,478
Ohio.....	278,386	845,956	1,155,434	1,111,741	1,557,955
Indiana and Illinois.....	270,750	970,471	1,281,904	1,224,254	2,035,910
Mich., Mo., and Colorado.....	202,226	307,731	288,600	247,606	275,990
Total.....	4,010,144	8,250,225	9,084,608	8,520,020	11,417,886

Pennsylvania made over 56.8 per cent. of the total production of basic pig iron in 1912, as compared with over 60.6 per cent. in 1911; Ohio over 13.6 per cent., as compared with over 13 per cent. in 1911; Indiana over 11.5 per cent., as compared with over 9.9 per cent. in 1911; Illinois over 6.2 per cent., as compared with over 4.4 per cent. in 1911; Alabama over 5.8 per cent., against over 5 per cent. in 1911; and New York over 3.1 per cent., against over 3.6 per cent. in 1911. No other State made over 2.3 per cent. in 1912 or over 2.7 per cent. in 1911.

The following table gives the production of basic pig iron in Pennsylvania and Ohio by districts since 1908 in gross tons.

Districts—Gross tons.	1908.	1909.	1910.	1911.	1912.
Lehigh Valley.....	189,440	297,007	366,132	471,838	521,495
Schuylkill Valley.....	139,862	275,270	391,582	423,846	462,020
L. Susquehanna Valley	161,524	331,177	362,708	222,440	314,079
Allegheny County	1,854,327	3,187,687	2,807,551	2,883,927	3,355,490
Shenango Valley.....	181,194	553,206	620,658	451,607	890,087
Miscellaneous bitum....	171,515	611,898	698,434	715,104	946,925
Total for Penna....	2,697,862	5,256,245	5,247,065	5,168,762	6,490,096
Mahoning Valley	37,377	296,467	416,995	430,367	620,421
Lake Counties.....	36,671	164,085	273,946	339,883	423,048
Miscellaneous bitum....	204,338	378,130	411,446	293,022	447,865
Hanging Rock bitum....	.....	7,274	53,047	48,469	66,621
Total for Ohio.....	278,386	845,956	1,155,434	1,111,741	1,557,955

Comparing 1912 with 1908, the increase in the production of basic pig iron in Pennsylvania amounted to 3,792,234 tons, or over 140.5 per cent., while the increase in Ohio in the same period amounted to 1,279,569 tons, or over 459.6 per cent. In 1908 Pennsylvania led Ohio by 2,419,476 gross tons and in 1912 this lead was increased to 4,932,141 gross tons.

PRODUCTION OF SPIEGELEISEN AND FERRO-MANGANESE.

The production of spiegeleisen and ferro-manganese in 1912 amounted to 221,724 tons, against 184,718 tons in 1911, an increase of 37,006 tons. Of ferro-manganese alone the production in 1912 amounted to 125,378 tons, against 74,482 tons in 1911. Of spiegeleisen alone the production amounted to 96,346 tons in 1912, against 110,236 tons in 1911. Their total production since 1889 is given in the following table in gross tons.

Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.
1889	76,628	1897.....	173,695	1905.....	289,983
1890.....	133,180	1898.....	213,769	1906.....	300,500
1891.....	127,766	1899.....	219,768	1907.....	339,348
1892.....	179,131	1900.....	255,977	1908.....	152,018
1893.....	81,118	1901.....	291,461	1909.....	225,040
1894.....	120,180	1902.....	212,934	1910.....	224,431
1895.....	171,724	1903.....	192,661	1911.....	184,718
1896.....	131,940	1904.....	219,446	1912.....	221,724

In addition to the above, 47 tons of ferro-phosphorus were produced in 1902, 946 tons in 1904, 1,243 tons in 1905, 142 tons in 1906, 1,273 tons in 1908, 3,385 tons in 1909, 3,471 tons in 1910, 6,820 tons in 1911, and 6,697 tons in 1912. In 1903 and 1907 ferro-phosphorus was not reported. Ferro-titanium, ferro-vanadium, and other ferro-alloys are referred to on pages 77-78.

METHODS BY WHICH PIG IRON WAS CAST OR DELIVERED.

The forms in which the pig iron made in 1912 was cast or delivered to mixers, open-hearth furnaces, etc., are given below. Similar details for previous years were not collected.

States. Gross tons.	Molten condition.	Sand cast.	Machine cast.	Chill cast.	Direct cast- ings.	Total. Gross tons.
Mass. and Conn. ....	.....	17,366	.....	.....	.....	17,366
N. Y., N. J., Md.	918,768	725,911	463,367	87,026	581	2,195,653
Pennsylvania.....	7,625,333	1,567,511	2,966,429	387,216	5,642	12,552,131
Va., Ala., W. Va.	674,361	1,456,182	225,763	35,201	1,701	2,393,208
Kentucky.....	.....	68,760	.....	.....	.....	68,760
Tennessee.....	.....	331,516	.....	6,697	25	338,238
Ohio.....	3,722,985	1,355,933	1,511,867	209,877	1,831	6,802,493
Indiana, Ill., Mich., & Col. }	3,525,275	462,957	1,046,695	.....	802	5,035,729
Wis., Minn., Mo., and Cal. .... } .....	.....	323,359	.....	.....	.....	323,359
Total.....	16,466,722	6,309,495	6,214,121	726,017	10,582	29,726,937

Nearly 55.4 per cent. of the pig iron made in 1912 was delivered to steel plants in a molten condition, over 21.2 per cent. was sand cast, and about 23.4 per cent. was machine cast, chill cast, etc.

COMPLETED AND REBUILDING BLAST FURNACES.

The following table gives the number of completed and rebuilding blast furnaces on December 31 of each year since 1907.

Fuel used—Blast furnaces.	1907.	1908.	1909.	1910.	1911.	1912.
Bituminous coal and coke.....	337	365	372	382	385	395
Anthracite and anth. and coke...	56	45	48	42	35	26
Charcoal.....	50	49	49	50	45	45
Total.....	443	459	469	474	465	466

FURNACES IN BLAST AND OUT OF BLAST.

The following table gives the number of furnaces in blast on December 31 of each year since 1907 according to fuel used.

Fuel used—Active blast furnaces.	1907.	1908.	1909.	1910.	1911.	1912.
Bituminous coal and coke.....	122	205	289	174	206	282
Anthracite and anth. and coke..	23	13	25	10	6	10
Charcoal.....	22	18	24	22	19	21
Total.....	167	236	338	206	231	313

There were 313 furnaces in blast on December 31, 1912, against 266 on June 30, 1912, and 231 on December 31, 1911.

The following table gives the number of furnaces which were idle on December 31 of each year since 1907, according to fuel used.

Fuel used—Idle blast furnaces.	1907.	1908.	1909.	1910.	1911.	1912.
Bituminous coal and coke.....	215	160	83	208	179	113
Anthracite and anth. and coke..	33	32	23	32	29	16
Charcoal.....	28	31	25	28	26	24
Total.....	276	223	131	268	234	153

FURNACES ACTUALLY IN BLAST.

During the first six months of 1912 the total number of furnaces actually in blast during any part or the whole of the period was 302, and during the last half of the year the number was 337. During the first half of 1911 the number of furnaces actually in blast was 297, as compared with 275 in the second half.

The following table gives by States the number of furnaces that were actually in blast in the first and second six months

of 1912, as compared with the number of furnaces that were active on June 30 and December 31, 1912. Rebuilding furnaces are included with completed stacks for the two periods.

States.	Completed June 30.	In blast.		States.	Completed Dec. 31.	In blast.	
		June 30, 1912.	1st half 1912.			Dec. 31, 1912.	2d half 1912.
Massachusetts..	2	1	1	Massachusetts.	2	2	2
Connecticut.....	3	3	3	Connecticut....	3	3	3
New York.....	29	17	18	New York.....	29	19	21
New Jersey.....	7	1	1	New Jersey....	7	1	1
Pennsylvania..	163	108	117	Pennsylvania.	163	128	133
Maryland.....	5	2	4	Maryland.....	5	3	4
Virginia.....	25	6	9	Virginia.....	25	7	10
Georgia.....	4	0	0	Georgia.....	3	0	0
Alabama.....	49	19	25	Alabama.....	49	25	26
Texas.....	4	0	0	Texas.....	4	0	0
West Virginia.	4	2	3	West Virginia.	4	3	3
Kentucky.....	8	1	2	Kentucky.....	8	3	3
Tennessee.....	19	9	9	Tennessee.....	19	7	12
Ohio.....	75	49	58	Ohio.....	75	58	63
Indiana.....	10	10	10	Indiana.....	10	10	10
Illinois.....	26	20	20	Illinois.....	26	22	23
Michigan.....	15	10	11	Michigan.....	16	12	12
Wisconsin.....	7	3	5	Wisconsin.....	7	5	5
Minnesota.....	1	1	1	Minnesota.....	1	1	1
Missouri.....	2	1	1	Missouri.....	2	1	1
Colorado.....	6	3	4	Colorado.....	6	3	4
Oregon.....	1	0	0	Oregon.....	1	0	0
Washington....	1	0	0	Washington....	1	0	0
Total.....	466	266	302	Total.....	466	313	337

The following table gives by fuels the number of blast furnaces which were active during a part or the whole of each half year in 1911 and 1912; also the number of idle furnaces.

Fuel used—Active and idle furnaces.	1911.						1912.					
	First half.			Second half.			First half.			Second half.		
	Active.	Idle.	Total.	Active.	Idle.	Total.	Active.	Idle.	Total.	Active.	Idle.	Total.
Bituminous, chiefly coke	260	126	386	244	141	385	274	121	395	301	94	395
Anthracite and coke.....	8	25	33	8	23	31	2	20	22	9	13	22
Anthracite alone.....	1	3	4	1	3	4	0	4	4	1	3	4
Charcoal.....	28	21	49	22	23	45	26	19	45	26	19	45
Total.....	297	175	472	275	190	465	302	164	466	337	129	466

ACTIVE AND IDLE PENNSYLVANIA AND OHIO FURNACES.

The total number of active mineral fuel furnaces in Pennsylvania on December 31, 1912, was 125, of which 15 were in the Lehigh Valley, 12 in the Schuylkill Valley, 11 in the Lower Susquehanna Valley, 3 in the Juniata Valley, 44 in Pittsburgh and Allegheny County, 22 in the Shenango Valley, and 18 in other Western Pennsylvania counties. On the same date there were 31 idle mineral fuel furnaces in Pennsylvania, of which 10 were in the Lehigh Valley, 6 in the Schuylkill Valley, 4 in the Lower Susquehanna Valley, 4 in the Juniata Valley, 3 in Allegheny County, 2 in the Shenango Valley, and 2 in other Western Pennsylvania counties. Of the 7 charcoal furnaces in Pennsylvania 3 were active and 4 were idle at the end of 1912.

The total number of active mineral fuel furnaces in Ohio on December 31, 1912, was 58, of which 20 were in the Mahoning Valley, 16 in the Hocking Valley and the Lake counties, 9 in the Hanging Rock district, and 13 in other Ohio river and interior counties. On the same date there were 15 idle mineral fuel furnaces in Ohio, of which 4 were in the Mahoning Valley, 2 in the Hocking Valley and Lake counties, 6 in the Hanging Rock district, and 3 in other Ohio river and interior counties. Of the 2 charcoal furnaces in Ohio both were idle on December 31.

BUILDING AND REBUILDING BLAST FURNACES.

On December 31, 1912, there were 7 furnaces in course of erection and 8 were being rebuilt. Of the building furnaces 3 were in Pennsylvania, 1 was in Virginia, 1 was in Ohio, and 2 were in Minnesota. When completed all will use coke for fuel. They will have a total annual capacity of 1,097,500 tons. Of the 8 rebuilding furnaces 1 was in New Jersey, 1 was in Pennsylvania, 1 was in Maryland, 1 was in Virginia, 1 was in Alabama, and 3 were in Ohio. When rebuilt 1 furnace will use anthracite coal and coke and 7 furnaces will use coke. Work on the New Jersey furnace has been temporarily suspended.

BLAST FURNACES COMPLETED IN 1912.

In 1912 there were 9 entirely new blast furnaces built, 8 coke and 1 charcoal, with an annual capacity of 1,059,500 gross tons, as follows: New York, 2, with an annual capacity of 225,000 tons; Pennsylvania, 3, with an annual capacity of 414,500 tons; Indiana, 1, with an annual capacity of 150,000 tons; Illinois, 2, with an annual capacity of 250,000 tons; and Michigan, 1, (charcoal,) with an annual capacity of 20,000 tons.

BLAST FURNACES ABANDONED OR DISMANTLED IN 1912.

During 1912 there were 8 blast furnaces abandoned or dismantled, with a total annual capacity of 228,500 gross tons, as follows: New York, 2, with an annual capacity of 75,000 tons; New Jersey, 1, with an annual capacity of 35,000 tons; Pennsylvania, 4, with an annual capacity of 105,000 tons; and Georgia, 1, with an annual capacity of 13,500 tons. When last in blast 1 furnace, with an annual capacity of 13,500 tons, used charcoal and 7 furnaces, with an annual capacity of 215,000 tons, used mineral fuel. Some of these furnaces had been idle for many years.

ELECTRIC AND SPECIAL FURNACES.

In 1912 there were 7 plants in the United States which manufactured pig iron, ferro-silicon, ferro-titanium, ferro-vanadium, or other ferro-alloys by electricity, electricity and charcoal, etc. In addition 1 plant made ferro-alloys in special furnaces with mineral fuel and oil, while another plant made metal suitable for use in puddling and open-hearth steel furnaces with bituminous fuel. Still another plant which was equipped to make metal for puddling and open-hearth furnaces was idle during 1912.

ACTIVE AND IDLE BLAST FURNACES SINCE 1873.

The following table gives the number of active, idle, and completed blast furnaces at the close of each year since 1873.

Years.	Active.	Idle.	Completed.	Years.	Active.	Idle.	Completed.
1873.....	413	244	657	1893.....	137	381	518
1874.....	365	328	693	1894.....	185	326	511
1875.....	293	420	713	1895.....	242	226	468
1876.....	236	476	712	1896.....	159	311	470
1877.....	270	446	716	1897.....	191	232	423
1878.....	265	427	692	1898.....	202	212	414
1879.....	388	309	697	1899.....	289	125	414
1880.....	446	255	701	1900.....	232	174	406
1881.....	455	261	716	1901.....	266	140	406
1882.....	417	270	687	1902.....	307	105	412
1883.....	307	376	683	1903.....	182	243	425
1884.....	236	433	669	1904.....	261	168	429
1885.....	276	315	591	1905.....	313	111	424
1886.....	331	246	577	1906.....	340	89	429
1887.....	339	244	583	1907.....	167	276	443
1888.....	332	257	589	1908.....	236	222	458
1889.....	344	226	570	1909.....	338	130	468
1890.....	311	251	562	1910.....	206	267	473
1891.....	313	256	569	1911.....	231	234	465
1892.....	253	311	564	1912.....	313	153	466

ANNUAL CONSUMPTION OF PIG IRON FOR 23 YEARS.

The approximate annual consumption of pig iron in the United States from 1890 to 1912 is given below. Unsold stocks are included down to 1904, when their collection was discontinued.

Years. Gross tons.	Production.	Add stocks unsold on January 1.	Add imports.	Deduct stocks Dec. 31.	Deduct exports.	Approx. consumption.
1890.....	9,202,703	283,879	134,955	661,858	16,341	8,943,338
1891.....	8,279,870	661,858	67,179	627,233	14,946	8,366,728
1892.....	9,157,000	627,233	70,125	535,616	15,427	9,303,315
1893.....	7,124,502	535,616	54,394	707,318	24,587	6,982,607
1894.....	6,657,388	707,318	15,582	661,328	24,482	6,694,478
1895.....	9,446,308	661,328	53,232	506,132	26,164	9,628,572
1896.....	8,623,127	506,132	56,272	847,686	62,071	8,275,774
1897.....	9,652,680	847,686	19,212	874,978	262,686	9,381,914
1898.....	11,773,934	874,978	25,152	415,333	253,057	12,005,674
1899.....	13,620,703	415,333	40,393	68,309	228,678	13,779,442
1900.....	13,789,242	68,309	52,565	446,020	286,687	13,177,409
1901.....	15,878,354	446,020	62,930	73,647	81,211	16,232,446
1902.....	17,821,307	73,647	619,354	49,951	27,487	18,436,870
1903.....	18,009,252	49,951	599,574	598,489	20,879	18,039,909
1904.....	16,497,033	598,489	79,500	446,442	49,025	16,679,555
1905.....	22,992,380	*.....	212,466	*.....	49,221	23,155,625
1906.....	25,307,191	.....	379,828	.....	83,317	25,603,702
1907.....	25,781,361	.....	489,475	.....	73,703	26,197,133
1908.....	15,936,018	.....	92,202	.....	46,696	15,981,524
1909.....	25,795,471	.....	176,442	.....	61,989	25,909,924
1910.....	27,303,567	.....	237,233	.....	127,385	27,413,415
1911.....	23,649,547	.....	148,459	.....	120,799	23,677,207
1912.....	29,726,937	.....	129,325	.....	272,676	29,583,586

* Collection of unsold stock statistics discontinued.

IMPORTS AND EXPORTS OF PIG IRON.

The following table gives our imports of pig iron, spiegel-eisen, ferro-manganese, and ferro-silicon by leading countries in calendar years from 1908 to 1912. Gross tons are used.

Countries. Gross tons.	1908.	1909.	1910.	1911.	1912.
Austria-Hungary....	248	1,973	6,069	590	400
Germany.....	3,008	3,185	7,417	4,286	5,924
Netherlands.....	1,226	7,137	15,737	9,719	492
United Kingdom...	75,757	151,563	182,082	114,947	110,526
Canada.....	1,976	2,844	3,175	4,260	4,998
China.....	3,194	4,836	13,924	11,857	1,750
Other countries.....	6,793	4,904	8,829	2,800	5,235
Total.....	92,202	176,442	237,233	148,459	129,325

In addition to the countries named above we imported 1,976 tons of pig iron from Belgium in 1912, 1,135 tons from Switzerland, 2,013 tons from Sweden, France, and other parts of Europe, and 111 tons from India.

In the following table the exports of all kinds of pig iron from the United States to leading foreign countries are given from 1908 to 1912 in calendar years. Gross tons are used.

Countries. Gross tons.	1908.	1909.	1910.	1911.	1912.
Canada.....	23,852	44,758	115,642	98,293	208,581
Austria-Hungary...	6,000	2,000	1,050	.....	14,806
Italy.....	7,190	3,130	3,027	7,710	11,954
United Kingdom...	5,439	5,980	3,994	8,526	25,617
Germany.....	32	.....	336	293	2,403
Belgium.....	12	10	189	622	1,698
France.....	.....	.....	48	202	827
Denmark.....	.....	.....	.....	125	168
Mexico.....	796	406	719	444	804
Panama.....	2,192	4,907	400	1,079	1,606
Cuba.....	86	178	733	1,122	734
Brazil.....	.....	75	.....	.....	50
Chile.....	.....	.....	100	600	1,964
Peru.....	950	310	550	875	835
Philippines.....	52	100	407	.....	259
Other countries.....	95	135	190	908	370
Total.....	46,696	61,989	127,385	120,799	272,676

In 1912 over 76.4 per cent. of our exports of pig iron were sent to Canada, as compared with over 81.3 per cent. in 1911. To the United Kingdom we sent nearly 9.4 per cent. in 1912, as compared with over 7 per cent. in 1911.

CONSUMPTION OF COAL, COKE, AND CHARCOAL.

In 1912 there were consumed in making the 29,726,937 gross tons of pig iron produced in that year about 35,721,127 net tons of coke, about 47,022 net tons of bituminous coal, about 73,794 gross tons of anthracite coal, and about 35,436,017 bushels of charcoal. The average consumption of coke and bituminous coal per ton of pig iron made with these fuels in 1912 was about 2,436.5 pounds; of anthracite coal and coke mixed, about 565.2 pounds of anthracite coal and about 2,341.6 pounds of coke per ton of pig iron made; of anthracite coal alone, about 2,954.7 pounds per ton of pig iron made; and of charcoal, about 102.1 bushels per ton of pig iron made. Details of fuel consumption were not collected for previous years.

In the following table will be found the consumption by States of coke and bituminous coal by the bituminous furnaces of the country in 1912 in net tons. Fuel used for smelting purposes only is included. Coke consumed by blast furnaces which used anthracite coal and coke mixed for fuel is not included.

States.	Coke and bit. coal consumed. Net tons.	Bituminous pig iron made. Gross tons.	Pounds coke and coal consumed per gross ton pig iron made.
New York	2,378,475	1,939,231	2,453.0
New Jersey	47,012	36,876	2,549.7
Pennsylvania.....	14,898,852	12,301,120	2,422.3
Maryland and Va...	736,520	472,524	3,117.4
Alabama.....	2,760,218	1,828,648	3,018.8
West Virginia.....	317,284	274,360	2,312.9
Kentucky.....	115,830	68,580	3,377.9
Tennessee	566,439	335,552	3,376.1
Ohio.....	7,613,706	6,800,568	2,239.1
Illinois.....	3,304,492	2,887,359	2,288.9
Indiana and Mich....	1,766,946	1,539,459	2,295.5
Wis., Minn., and Col.	985,518	648,456	3,039.5
Total.....	* 35,491,292	† 29,132,733	2,436.5

* Include 35,444,270 net tons of coke and 47,022 net tons of bituminous coal.

† Include ferro-alloys made with coke and electricity, coke and natural gas, etc.

The following table gives the consumption of coke and anthracite coal in Pennsylvania by blast furnaces by districts in 1912. No State other than Pennsylvania made pig iron in 1912 with anthracite coal alone or with anthracite coal and coke mixed. Net tons are used for coke and gross tons for anthracite coal.

Districts.	Anth. alone and anth. and coke mixed.		Anth. and anth. and coke pig iron made. Gross tons.	Materials consumed per ton pig iron made.	
	Coke con- sumed. Net tons.	Anth. coal consumed. Gross tons.		Coke. Pounds.	Anthracite coal. Pounds.
Lehigh Valley	106,545	43,981	110,938	1,920.8	888.0
Schuylkill Valley....	102,049	23,373	85,465	2,388.1	612.6
L. Susq. Valley.....	} 68,263	6,440	50,776	2,688.8	284.1
Juniata Valley.....					
Total	276,857	73,794	247,179	2,240.1	668.7

The following table gives the consumption of charcoal by States by the charcoal furnaces of the country in the calendar year 1912 in bushels.

States.	Charcoal consumed. Bushels.	Charcoal pig iron made. Gross tons.	Bushels of charcoal consumed per gross ton pig iron made.
Mass. and Conn.....	2,435,789	17,366	140.2
Pennsylvania	590,645	3,832	154.1
Maryland and Va....	558,079	3,189	175.0
Alabama	4,170,580	34,033	122.5
Kentucky and Tenn.	457,365	2,866	159.5
Ohio	301,000	1,925	156.3
Michigan	21,457,413	231,169	92.8
Wis., Mo., and Cal...	5,465,146	52,645	103.8
Total.....	35,436,017	* 347,025	102.1

* Include pig iron and ferro-alloys made with charcoal and electricity.

CONSUMPTION OF IRON ORE, MILL CINDER, SCALE, ETC.

We estimate the total consumption of domestic and foreign iron ore, ore briquettes, etc., not including mill cinder, scale, scrap, etc., in the manufacture of pig iron in 1912 at about 55,656,000 gross tons, as compared with about 43,980,000 gross tons in 1911. The average consumption of iron ore in 1912 per ton of pig iron made was about 1.872 tons, as compared with about 1.859 tons in 1911. About 850,000 tons of iron ore are also annually consumed by rolling mills and steel works.

In addition to the 55,656,000 gross tons of iron ore, ore briquettes, etc., consumed in 1912 by blast furnaces in the manufacture of pig iron about 4,319,000 tons of mill cinder, scale, scrap, slag, zinc residuum, etc., were also used, as compared with about 3,761,000 tons in 1911. Adding these figures to the ore reported gives a total consumption in 1912 of about 59,975,000 tons, or an average of about 2.017 tons of ore and other metallic material used per ton of pig iron made, as compared with a consumption of about 47,741,000 tons, or an average of 2.018 tons, in 1911.

Of the total consumption of ore, mill cinder, scale, etc., by blast furnaces in 1912 about 92.8 per cent. was iron ore, briquettes, etc., and about 7.2 per cent. was mill cinder, scale, scrap, etc., against about 92.1 per cent. of iron ore and about 7.9 per cent. of mill cinder, scale, scrap, etc., consumed in 1911.

The following table gives the consumption of iron ore, mill cinder, scale, scrap, etc., by States, by the blast furnaces of the country in 1911 and 1912; also the consumption of the materials named per ton of pig iron made. Gross tons of 2,240 pounds are used throughout.

States. Gross tons.	1911—Gross tons.			1912—Gross tons.		
	Produc- tion of pig iron.	Consump- tion of iron ore, cinder, scale, scrap, etc.	Ore, cinder, etc., consumed per ton of pig iron.	Produc- tion of pig iron.	Consump- tion of iron ore, cinder, scale, scrap, etc.	Ore, cinder, etc., consumed per ton of pig iron.
Mass. & Conn..	9,649	22,650	2.347	17,366	41,522	2.391
New York.....	1,562,756	3,085,499	1.974	1,939,231	3,830,380	1.975
New Jersey.....	40,663	77,426	1.904	36,876	67,763	1.838
Pennsylvania..	9,807,073	19,254,523	1.963	12,552,131	24,627,239	1.962
Maryland and Virginia.....	549,458	1,161,605	2.114	475,713	994,770	2.091
Ga. and Ky....	96,402	194,867	2.021	68,760	132,584	1.928
Alabama.....	1,712,211	4,386,908	2.562	1,862,681	4,881,534	2.621
West Virginia.	291,472	547,690	1.879	274,360	512,685	1.869
Tennessee.....	324,648	762,756	2.349	338,238	788,854	2.332
Ohio.....	5,310,506	10,288,019	1.937	6,802,493	13,248,496	1.948
Illinois.....	2,108,002	4,092,938	1.942	2,887,359	5,720,421	1.981
Ind. & Mich...	1,163,932	2,459,096	2.113	1,770,628	3,687,555	2.083
Wis. & Minn..	276,807	589,941	2.131	303,370	615,685	2.029
Mo., Col., Cal..	395,968	817,082	2.064	397,731	825,512	2.076
Total.....	23,649,547	47,741,000	2.018	29,726,937	59,975,000	2.017

LIMESTONE CONSUMED IN MAKING PIG IRON.

The following table gives the consumption of limestone, dolomite, etc., by blast furnaces for fluxing purposes since 1908.

States—Gross tons.	1908.	1909.	1910.	1911.	1912.
Mass. and Conn.....	5,228	6,669	5,909	3,685	6,897
New York.....	557,077	934,230	1,042,411	881,114	1,030,600
New Jersey.....	143,278	201,154	179,845	30,700	28,630
Pennsylvania.....	3,844,926	5,801,958	6,172,796	5,212,548	6,844,271
Maryland and Va.....	421,210	590,778	709,020	458,769	393,857
Georgia and Texas....	15,905	13,214	5,199	480	.....
Alabama.....	606,593	874,316	918,006	574,981	442,981
West Virginia.....	40,517	111,273	93,952	137,946	136,198
Kentucky.....	25,773	68,521	58,418	56,373	43,897
Tennessee.....	197,630	206,769	231,152	204,222	195,005
Ohio.....	1,525,836	2,697,717	2,819,761	2,648,284	3,445,617
Illinois.....	835,419	1,175,137	1,195,660	952,157	1,286,693
Indiana and Michigan	149,270	376,254	468,691	466,221	737,068
Wisconsin and Minn..	78,131	183,240	156,686	117,777	142,241
Mo., Col., Wash., Cal..	211,765	333,137	470,392	341,699	358,211
Total.....	8,658,558	13,574,367	14,527,898	12,086,956	15,092,166

The average consumption of limestone per ton of pig iron made was 1,137.2 pounds in 1912, against 1,144.8 pounds in 1911. By

anthracite and bituminous furnaces the consumption in 1912 was 1,146.1 pounds, against 1,153.6 pounds in 1911, and by charcoal furnaces it was 381.6 pounds, against 405.4 pounds in 1911.

ANNUAL CAPACITY OF BLAST FURNACES.

The following table gives by States and by fuels the number and annual capacity of the completed and rebuilding blast furnaces on December 31, 1912; also building furnaces. Some of the completed furnaces have been idle for several years but have not been abandoned and are therefore retained in our active list.

States. Gross tons.	Completed, rebuilding, and building blast furnaces on December 31, 1912.				Annual capacity of completed and rebuilding blast furnaces on December 31, 1912; also building furnaces.			
	Anth.*	Bitum.†	Char.	Total.	Anth.*	Bitum.†	Char.	Total.
Massachusetts	0	0	2	2	.....	.....	10,000	10,000
Connecticut...	0	0	3	3	.....	.....	16,000	16,000
New York.....	3	24	2	29	123,000	2,812,000	15,000	2,950,000
New Jersey...	1	6	0	7	70,000	485,000	.....	555,000
Pennsylvania..	22	134	7	163	798,000	15,894,800	16,700	16,709,500
Maryland.....	0	4	1	5	.....	547,500	5,000	552,500
Virginia.....	0	21	4	25	.....	1,026,000	33,500	1,059,500
West Virginia	0	4	0	4	.....	393,000	.....	393,000
Kentucky.....	0	7	1	8	.....	331,000	3,000	334,000
Tennessee.....	0	18	1	19	.....	882,000	5,000	887,000
Georgia.....	0	2	1	3	.....	96,000	20,000	116,000
Alabama	0	45	4	49	.....	3,582,000	81,500	3,663,500
Texas	0	3	1	4	.....	97,000	15,000	112,000
Ohio.....	0	73	2	75	.....	8,730,200	9,500	8,739,700
Indiana	0	10	0	10	.....	1,532,000	.....	1,532,000
Illinois	0	26	0	26	.....	3,609,100	.....	3,609,100
Michigan	0	3	13	16	.....	227,000	381,500	608,500
Wisconsin.....	0	6	1	7	.....	401,600	45,600	447,200
Minnesota	0	1	0	1	.....	90,000	.....	90,000
Missouri.....	0	1	1	2	.....	45,000	22,000	67,000
Colorado.....	0	6	0	6	.....	766,500	.....	766,500
Washington...	0	1	0	1	.....	24,000	.....	24,000
Oregon.....	0	0	1	1	.....	.....	15,000	15,000
Total comp.	26	395	45	466	991,000	41,571,700	694,300	43,257,000
Total build.	0	7	0	7	.....	1,097,500	.....	1,097,500
Grand total.	26	402	45	473	991,000	42,669,200	694,300	44,354,500

* Include 4 furnaces in Pennsylvania which use anthracite coal alone for fuel and 22 furnaces in New York, New Jersey, and Pennsylvania which use anthracite coal and coke mixed.

† Include 5 furnaces (2 in Kentucky and 3 in Ohio) which use coke and raw bituminous coal and 390 furnaces in Kentucky, Ohio, and other States which use coke alone.

Of the total annual capacity of the completed, rebuilding, and building furnaces on December 31, 1912, about 96.2 per cent. represented the capacity of the bituminous furnaces, about 2.2 per cent. the capacity of the anthracite and mixed anthracite and coke furnaces, and about 1.6 per cent. the capacity of the charcoal furnaces.

In addition to the blast furnaces enumerated in the table, 2 plants in New York, 1 in Pennsylvania, 2 in Virginia, 1 in West Virginia, and 1 in California are equipped for the production by electricity of pig iron, ferro-chrome, ferro-silicon, ferro-tungsten, and other ferro-alloys. One plant in Pennsylvania is also equipped to make ferro-alloys in special furnaces and 2 plants in Michigan are equipped to make metal suitable for special purposes.

FIG IRON CAPACITY AND PRODUCTION COMPARED.

The following table gives by States the number of completed and rebuilding blast furnaces on December 31, 1912, the annual capacity of these furnaces on that date, the total production of pig iron in the calendar year 1912, and the annual capacity of the furnaces over production at the close of the year.

States—Gross tons.	Blast furnaces.	Capacity on Dec. 31, 1912.	Production in 1912.	Capacity over production.
Massachusetts.....	2	10,000	17,366	8,634
Connecticut.....	3	16,000		
New York.....	29	2,950,000	1,939,231	1,010,769
New Jersey.....	7	555,000	36,876	518,124
Pennsylvania.....	163	16,709,500	12,552,131	4,157,369
Maryland.....	5	552,500	219,546	332,954
Virginia.....	25	1,059,500	256,167	803,333
Georgia.....	3	116,000	.....	116,000
Texas.....	4	112,000	.....	112,000
Alabama.....	49	3,663,500	1,862,681	1,800,819
West Virginia.....	4	393,000	274,360	118,640
Kentucky.....	8	334,000	68,760	265,240
Tennessee.....	19	887,000	338,238	548,762
Ohio.....	75	8,739,700	6,802,493	1,937,207
Illinois.....	26	3,609,100	2,887,359	721,741
Indiana.....	10	1,532,000	1,770,628	369,872
Michigan.....	16	608,500		
Wisconsin.....	7	447,200	303,370	233,830
Minnesota.....	1	90,000		
Missouri.....	2	67,000	397,731	474,769
Colorado.....	6	766,500		
Oregon.....	1	15,000		
Washington.....	1	24,000		
California.....	0	.....	
Total.....	466	43,257,000	29,726,937	13,530,063

California does not have a blast furnace but makes pig iron in electric furnaces. It last made pig iron in 1886, when 1,562 gross tons of charcoal pig iron were produced.

In the following table the pig iron capacity of the completed and rebuilding furnaces in Pennsylvania and Ohio on December 31, 1912, is compared by districts with the production of pig iron in these States in 1912. Gross tons of 2,240 pounds are used.

Districts—Gross tons.	Blast furnaces.	Capacity on Dec. 31, 1912.	Production in 1912.	Capacity over production.
Lehigh Valley.....	25	1,529,000	952,068	576,932
Schuylkill Valley.....	18	1,616,300	909,337	706,963
Lower Susquehanna Valley...	15	994,000	562,774	431,226
Juniata Valley	7	411,000	123,021	287,979
Allegheny County.....	47	6,718,250	6,107,226	611,024
Shenango Valley.....	24	3,001,250	2,063,300	937,950
Miscellaneous bituminous.....	20	2,423,000	1,830,573	592,427
Charcoal.....	7	16,700	3,832	12,868
Total for Pennsylvania.....	163	16,709,500	12,552,131	4,157,369
Mahoning Valley.....	24	3,475,200	2,889,419	585,781
Lake Counties.....	17	2,457,000	2,050,163	471,837
Hocking Valley.....	1	65,000		
Miscellaneous bituminous.....	16	1,840,000	1,457,552	382,448
Hanging Rock bituminous.....	15	893,000	403,434	489,566
Hanging Rock charcoal.....	2	9,500	1,925	7,575
Total for Ohio.....	75	8,739,700	6,802,493	1,937,207

PRODUCTION OF PIG IRON BY GRADES.

The production of pig iron by grades in 1911 and 1912 is given in the following table; also the increase or decrease by grades in 1912 as compared with 1911. Gross tons are used.

Grades—Gross tons.	1911.	1912.	Inc. or Dec.	Per cent.
Bessemer and low-phos.....	9,409,303	11,664,015	2,254,712	23.9
Basic (mineral fuel).....	8,520,020	11,417,886	2,897,866	34.0
Foundry and ferro-silicon..	4,468,940	5,073,873	604,933	13.5
Malleable Bessemer.....	612,533	825,643	213,110	34.7
Forge pig iron.....	408,841	469,183	60,342	14.7
Spiegeleisen.....	110,236	96,346	* 13,890	* 12.6
Ferro-manganese.....	74,482	125,378	50,896	68.3
White and mottled, direct castings, ferro-tit., etc.....	45,192	54,613	9,421	20.8
Total.....	23,649,547	29,726,937	6,077,390	25.6

* Decrease.

The Bessemer figures include low-phosphorus pig iron, that is, iron running below 0.04 per cent. in phosphorus. Pig iron containing from 0.04 to 0.10 per cent. of phosphorus is classified as Bessemer. The basic figures do not include the small quantity of basic iron that is made with charcoal. Castings made direct from the furnace are included in the totals for white and mottled and miscellaneous grades of pig iron; also a small tonnage of ferro-titanium, ferro-vanadium, and ferro-alloys other than spiegeleisen and ferro-manganese.

Of the total production of pig iron in 1912 over 39.2 per cent. was Bessemer and low-phosphorus, compared with over 39.7 per cent. in 1911; over 17 per cent. was foundry, ferro-silicon, and high-silicon, against over 18.8 per cent. in 1911; over 38.4 per cent. was basic, against over 36 per cent. in 1911; over 1.5 per cent. was forge, against over 1.7 per cent. in 1911; over 0.7 per cent. was spiegeleisen and ferro-manganese, against over 0.7 per cent. in 1911; and over 2.7 per cent. was malleable Bessemer, against over 2.5 per cent. in 1911. White and mottled, miscellaneous ferro-alloys, direct furnace castings, etc., did not amount to one-fifth of 1 per cent. in 1911 or 1912.

The following table gives the production by States of Bessemer and low-phosphorus and basic pig iron in 1910, 1911, and 1912.

States. Gross tons.	Bessemer and low-phosphorus.			Basic pig iron.		
	1910.	1911.	1912.	1910.	1911.	1912.
N. Y. and N. J.	834,632	449,841	621,891	414,228	321,765	386,457
Pennsylvania..	4,393,905	3,461,265	4,402,291	5,247,065	5,168,762	6,490,096
Maryland.....	325,614	255,186	218,603	.....	.....	.....
Va. and Ala....	1,000	3,050	.....	697,377	445,892	671,478
W. Va., Ky., and Tenn.....	267,577	367,436	316,817	.....	.....	.....
Ohio.....	3,460,736	3,283,970	4,174,226	1,155,434	1,111,741	1,557,955
Illinois.....	1,826,407	1,455,865	1,823,655	1,281,904	1,224,254	2,035,910
Indiana.....	.....	.....	.....
Mich., Minn., Wis., Mo., Col., & Cal..	135,771	132,690	106,532	288,600	247,606	275,990
Total.....	11,245,642	9,409,303	11,664,015	9,084,608	8,520,020	11,417,886

In 1912 the production of Bessemer pig iron alone, omitting low-phosphorus pig iron, amounted to 11,381,656 tons, against 9,126,843 tons in 1911. The production of low-phosphorus pig iron alone in 1912 amounted to 282,359 tons, against 282,460 tons in 1911.

The production of foundry, high-silicon, ferro-silicon, and forge pig iron by States in 1910, 1911, and 1912 was as follows.

States, Gross tons.	Foundry, ferro-sil., high-sil., etc.			Forge pig iron.		
	1910.	1911.	1912.	1910.	1911.	1912.
Mass. and Conn.	16,582	9,649	17,366	.....	.....	.....
New York.....	581,996	621,647	785,190	47,535	30,884	.....
New Jersey.....	112,059	20,769	9,142	22,045	4,279	.....
Pennsylvania....	1,123,679	771,303	1,180,096	294,647	198,956	234,558
Md., Va., W. Va.	380,041	247,557	229,796	29,200	22,524	21,421
Kentucky.....	25,106	50,722	50,361	4,341	.....	.....
Tennessee.....	308,749	275,091	299,529	52,258	6,089	2,579
Georgia.....	14,725	1,200	.....	.....	.....	.....
Alabama.....	1,200,346	1,240,808	1,075,564	58,321	38,715	115,303
Ohio.....	781,404	616,904	666,659	55,810	107,394	95,322
Indiana and Ill.	101,811	99,115	119,103	.....	.....	.....
Michigan.....	352,053	258,851	347,781	.....	.....	.....
Wisconsin.....	185,265	160,231	213,045	.....	.....	.....
Minnesota.....	44,796	71,850	44,232	.....	.....	.....
Mo., Col., Wash.	31,835	23,243	36,009	.....	.....	.....
Total.....	5,260,447	4,468,940	5,073,873	564,157	408,841	469,183

Ferro-silicon, Bessemer ferro-silicon, electrolytic ferro-silicon, and high-silicon pig iron are included with foundry iron. Pennsylvania was the largest producer of foundry pig iron in 1912, but Alabama was the largest producer in 1910 and 1911. In 1912, Pennsylvania made over 23.2 per cent. of the total output of foundry pig iron, while Alabama made over 21.1 per cent. In 1911, Alabama made over 27.7 per cent., while Pennsylvania made over 17.2 per cent. In 1912, Pennsylvania made over 49.9 per cent. of the total output of forge pig iron, against over 48.6 per cent. in 1911 and over 52.2 per cent. in 1910.

Included in the 5,073,873 tons of foundry pig iron reported for 1912 are 104,017 tons of ferro-silicon, Bessemer ferro-silicon, and electrolytic ferro-silicon, made in New York, Pennsylvania, Virginia, West Virginia, Kentucky, Ohio, and Illinois. In 1911, 71,211 tons of ferro-silicon, Bessemer ferro-silicon, and electrolytic ferro-silicon were made. Pig iron containing 7 per cent. of silicon and over is classified as ferro-silicon. Nearly all the charcoal iron we have classified as foundry pig iron.

The following table gives the production by States of malleable Bessemer and white and mottled pig iron, direct castings, ferro-phosphorus, ferro-titanium, ferro-vanadium, ferro-tungsten, and ferro-alloys other than spiegeleisen, ferro-manganese, and ferro-silicon since 1910.

States—Gross tons.	Malleable Bessemer.			White and mottled, etc.		
	1910.	1911.	1912.	1910.	1911.	1912.
New York and N. J....	177,753	145,868	166,604	12,940	8,366	6,823
Pennsylvania.....	29,502	45,934	37,141	26,926	14,041	20,335
Va., W. Va., and Ky..	2,465	.....	550	1,435	5,297	3,189
Tenn. and Alabama...	.....	.....	.....	29,246	14,624	14,562
Ohio	294,493	189,245	301,346	4,235	1,252	6,985
Indiana and Illinois..	227,546	142,580	208,185	1,084	435	2,169
Michigan and Wis.....	111,364	88,906	111,817	5,293	1,177	550
Total.....	843,123	612,533	825,643	81,159	45,192	54,613

The production of spiegeleisen and ferro-manganese by States in 1910, 1911, and 1912 was as follows. As a rule spiegeleisen contains from 9 to 22 per cent. of manganese and ferro-manganese from 45 to 82 per cent. The standard for spiegeleisen is 20 per cent. and for ferro-manganese it is 80 per cent.

States. Gross tons.	Spiegeleisen.			Ferro-manganese.		
	1910.	1911.	1912.	1910.	1911.	1912.
Pennsylvania ...	87,037	72,330	66,591	69,562	74,482	121,023
Illinois.....	66,018	37,906	29,755	1,814	.....	4,355
Total.....	153,055	110,236	96,346	71,376	74,482	125,378

In the following table the production of all kinds of pig iron by grades is given from 1900 to 1912 in gross tons. The increase in the output of Bessemer and low-phosphorus pig iron in the thirteen years amounted to 3,684,688 tons, while the increase in the output of basic pig iron amounted to 10,345,510 tons.

Years.	Bessemer and low-phosphorus	Basic. (Mineral fuel only.)	Forge pig iron.	Foundry and ferro-silicon.	Mall. Bessemer.	Spiegel., ferro-manganese, etc.	Total. Gross tons.
1900...	7,979,327	1,072,376	793,092	3,376,445	173,413	394,589	13,789,242
1901...	9,596,793	1,448,850	639,454	3,548,718	256,532	388,007	15,878,354
1902...	10,393,168	2,038,590	833,093	3,851,276	311,458	393,722	17,821,307
1903...	9,989,908	2,040,726	783,016	4,409,023	473,781	312,798	18,009,252
1904...	9,098,659	2,483,104	550,836	3,827,229	263,529	273,676	16,497,033
1905...	12,407,116	4,105,179	727,817	4,758,038	635,236	358,994	22,992,380
1906...	13,840,518	5,018,674	597,420	4,773,011	699,701	377,867	25,307,191
1907...	13,231,620	5,375,219	683,167	5,151,209	920,290	419,856	25,781,361
1908...	7,216,976	4,010,144	457,164	3,637,622	414,957	199,155	15,936,018
1909...	10,557,370	8,250,225	725,624	5,322,415	658,048	281,789	25,795,471
1910...	11,245,642	9,084,608	564,157	5,260,447	843,123	305,590	27,303,567
1911...	9,409,303	8,520,020	408,841	4,468,940	612,533	229,910	23,649,547
1912...	11,664,015	11,417,886	469,183	5,073,873	825,643	276,337	29,726,937

PRODUCTION OF BESSEMER STEEL.

The production of Bessemer steel ingots and castings in 1912 was 10,327,901 tons, against 7,947,854 tons in 1911, an increase of 2,380,047 tons, or over 29.9 per cent. The production in 1912 was 1,947,929 tons less than in 1906, when the maximum production of 12,275,830 tons was reached. The year of next largest output was 1907. Of the total production in 1912, 10,260,913 tons were made by the standard Bessemer process, 33,555 tons by the Tropenas process, and 33,433 tons by other modifications of the standard Bessemer process.

The following table gives the production by States of Bessemer steel ingots and castings in the six years from 1907 to 1912.

States—Gross tons.	1907.	1908.	1909.	1910.	1911.	1912.
Ohio	3,636,679	1,955,446	3,466,077	3,314,053	3,268,994	4,285,673
Pennsylvania.....	4,351,841	2,106,382	2,845,602	2,975,750	2,338,813	3,157,928
Illinois.....	1,723,073	1,237,747	1,632,444	1,693,053	1,335,053	1,559,576
Other States.....	1,955,956	817,180	1,386,660	1,429,916	1,004,994	1,324,724
Total.....	11,667,549	6,116,755	9,330,783	9,412,772	7,947,854	10,327,901

We estimate that the total production of Bessemer steel in 1912 includes about 178,241 tons which were treated with ferro-vanadium, ferro-titanium, ferro-chrome, nickel, or other alloys. Of the total about 159,427 tons were ingots and about 18,814 tons were direct castings. In 1911 the total production so treated amounted to about 163,930 tons, of which about 149,894 tons were ingots and about 14,036 tons were castings.

Bessemer steel was made in 1912 by 83 works, located in 25 States, the District of Columbia, and the Canal Zone, Panama, as follows: Massachusetts, 2; Connecticut, 1; New York, 5; New Jersey, 3; Pennsylvania, 14; Delaware, 3; Maryland, 1; District of Columbia, 1; Virginia, 1; West Virginia, 2; Kentucky, 1; Louisiana, 2; Texas, 1; Ohio, 17; Illinois, 9; Michigan, 4; Wisconsin, 3; Minnesota, 2; Iowa, 1; Missouri, 1; Oklahoma, 1; Colorado, 1; Utah, 1; Washington, 2; Oregon, 1; California, 2; and the Canal Zone, Panama, 1. Of the active works in 1912 18 made ingots but not castings, 59 made castings but not ingots, and 6 made both ingots and castings. Seventy-four works in 25 States and the District of Columbia made Bessemer steel in 1911.

Twenty-three plants for the manufacture of steel by the standard Bessemer process were active in 1912, against 22 in 1911; and 31 Tropenas plants were active in 1912, against 27 in 1911.

In addition 1 Robert-Bessemer plant was active in 1912 and 28 plants made steel by other minor Bessemer processes. The modified Bessemer plants make a specialty of steel castings.

In 1912 there were 15 idle Bessemer steel plants. In addition there were 4 plants which operated Bessemer converters for de-siliconizing and decarburizing metal for open-hearth furnaces but did not produce any Bessemer steel. These plants are not included in the 15 idle Bessemer plants enumerated above. There were also 3 plants in 1912 which made Bessemer steel and which also made partly-purified metal for open-hearth furnaces. These 3 plants are included in the 83 active Bessemer works.

BESSEMER STEEL INGOTS AND CASTINGS.

The following table gives separately by States the production of Bessemer ingots and castings in 1912, all made by the acid process. With the exception of 91 tons all the ingots produced in 1912 were made in standard Bessemer converters. Of the total production of steel castings in 1912 only 1,853 tons were made by the standard Bessemer process. By the Tropenas process the production of castings in that year amounted to 33,464 tons and by the Robert-Bessemer, Bretau, Paxson-Deemer, Zenzes, and other modified Bessemer processes to 33,433 tons.

States—Gross tons of Bessemer steel.	Ingots.	Castings.	Total.
Ohio.....	4,278,872	6,801	4,285,673
Pennsylvania....	3,147,405	10,523	3,157,928
Illinois.....	1,547,940	11,636	1,559,576
Mass., New York, Md., and other States....	1,284,934	39,790	1,324,724
Total for 1912.....	10,259,151	68,750	10,327,901
Total for 1911.....	7,890,753	57,101	7,947,854

The following table gives separately the production of Bessemer steel ingots and castings from 1898 to 1912 in gross tons.

Years.	Ingots.	Castings.	Total.	Years.	Ingots.	Castings.	Total.
1898.....	6,605,478	3,539	6,609,017	1906.....	12,243,229	32,601	12,275,830
1899.....	7,582,415	3,939	7,586,354	1907.....	11,634,276	33,273	11,667,549
1900.....	6,678,303	6,467	6,684,770	1908.....	6,096,196	20,559	6,116,755
1901.....	8,706,538	6,764	8,713,302	1909.....	9,296,969	33,814	9,330,783
1902.....	9,125,815	12,548	9,138,363	1910.....	9,354,437	58,335	9,412,772
1903.....	8,574,730	18,099	8,592,829	1911.....	7,890,753	57,101	7,947,854
1904.....	7,843,089	16,051	7,859,140	1912.....	10,259,151	68,750	10,327,901
1905.....	10,919,272	22,103	10,941,375	.....	.....	.....	.....

COMPLETED, BUILDING, AND PROJECTED BESSEMER PLANTS.

On December 31, 1912, 102 plants were equipped to make steel by the standard Bessemer process or some of its modifications, as compared with 89 plants on December 31, 1911, an increase of 13 plants. At the close of 1912, thirty plants were equipped to make steel by the standard Bessemer process, 35 plants by the Tropenas process, and 37 plants by other modifications of the standard Bessemer process, while at the close of 1911, twenty-nine plants were equipped to make steel by the standard Bessemer process, 29 by the Tropenas process, and 31 by other modifications of the standard Bessemer process. There were no Bessemer steel plants in course of construction at the close of 1912, but at the close of 1911 six plants with 7 converters were under construction. On December 31, 1912, 13 plants were projected, as compared with 4 plants on December 31, 1911.

PRODUCTION OF OPEN HEARTH STEEL.

The total production of open-hearth steel ingots and direct castings in 1912 amounted to 20,780,723 tons, against 15,598,650 tons in 1911, an increase of 5,182,073 tons, or over 33.2 per cent. In 1908, the production of open-hearth steel for the first time exceeded the production of Bessemer steel, the excess amounting to 1,719,974 tons. In 1912, the output of open-hearth steel exceeded the output of Bessemer steel by 10,452,822 tons, or over 101.2 per cent. Of the total production of open-hearth steel in 1912, 19,909,875 tons were ingots and 870,848 tons were castings, against 15,027,459 tons of ingots and 571,191 tons of castings in 1911.

The following table gives the production of open-hearth steel ingots and castings by States in the last six years in gross tons.

States—Gross tons.	1907.	1908.	1909.	1910.	1911.	1912.
New England....	239,797	158,417	257,392	223,158	189,879	214,325
N. Y. and N. J..	706,019	350,348	618,117	713,245	679,152	792,201
Pennsylvania.....	7,868,353	5,322,229	9,400,287	10,153,816	9,594,914	12,408,109
Del., Md., and Dist. of Col....	34,163	28,689	35,285	158,827	128,309	44,079
West Va., Ky., Ga., and Ala...	378,493	470,407	477,365	738,392	636,625	967,557
Ohio.....	819,642	525,171	1,424,452	1,733,409	1,721,549	2,565,343
Indiana.....	181,662	167,299	783,957	1,307,129	1,394,520	2,001,937
Illinois.....	1,013,251	483,104	1,052,572	995,011	801,624	1,235,166
Mich. and Wis...	26,767	19,615	28,512	38,638	27,993	41,827
Other States.....	281,589	311,450	415,997	442,884	424,085	510,179
Total.....	11,549,736	7,836,729	14,493,936	16,504,509	15,598,650	20,780,723

In addition to the States named in the table, Massachusetts, Rhode Island, Connecticut, Iowa, Missouri, Kansas, Colorado, and California made open-hearth steel ingots or castings in 1912.

We estimate that about 573,880 tons of open-hearth steel ingots and direct castings which were treated with ferro-vanadium, ferro-titanium, ferro-chrome, nickel, or other alloys are included in the total for 1912, as compared with about 296,065 tons in 1911. Of the total in 1912, about 493,195 tons were ingots and about 80,685 tons were castings, while in 1911, about 255,333 tons were ingots and about 40,732 tons were castings.

OUTPUT OF OPEN HEARTH INGOTS AND CASTINGS COMPARED.

The production of open-hearth steel ingots alone in 1912, not including castings, amounted to 19,909,875 tons, against 15,027,459 tons in 1911, an increase of 4,882,416 tons, or over 32.4 per cent. The production of open-hearth castings alone in 1912 amounted to 870,848 tons, against 571,191 tons in 1911, an increase of 299,657 tons, or over 52.4 per cent.

The open-hearth steel produced in 1912, including both ingots and castings, was made by 157 works in 22 States and the District of Columbia. There were 25 idle open-hearth plants in 1912. Of the active plants, 55 made ingots but not castings, 70 made castings but not ingots, and 32 made both ingots and castings.

In 1911 there were 177 completed plants, of which 149 were active during the year and 28 were idle. The following table gives the production by States of ingots and castings in 1912.

States—Gross tons of ingots and castings.	Ingots.	Castings.	Total.
New England, New York, and New Jersey..	917,924	88,602	1,006,526
Pennsylvania.....	12,068,935	339,174	12,408,109
Ohio.....	2,417,200	148,143	2,565,343
Indiana.....	1,965,285	36,652	2,001,937
Illinois.....	1,114,378	120,788	1,235,166
Ala., Md., Mich., Wis., District of Col., etc....	1,426,153	137,489	1,563,642
Total for 1912.....	19,909,875	870,848	20,780,723
Total for 1911.....	15,027,459	571,191	15,598,650

Pennsylvania made over 59.7 per cent. of the total production of open-hearth steel ingots and castings in 1912, against over 61.5 per cent. in 1911. The next largest producers in the order of their prominence in 1912 were Ohio, Indiana, Illinois, Alabama, New York, Colorado, Massachusetts, New Jersey, Kentucky, West Virginia, Georgia, Missouri, Connecticut, Maryland, Wisconsin,

Rhode Island, Iowa, California, Michigan, Delaware, District of Columbia, and Kansas.

The following table gives separately the production of open-hearth steel ingots and castings from 1898 to 1912 in gross tons.

Years.	Ingots.	Castings.	Total.	Years.	Ingots.	Castings.	Total.
1898...	2,109,705	120,587	2,230,292	1906...	10,260,522	719,891	10,980,413
1899...	2,777,587	169,729	2,947,316	1907...	10,803,211	746,525	11,549,736
1900...	3,220,644	177,491	3,398,135	1908...	7,524,952	311,777	7,836,729
1901...	4,354,687	301,622	4,656,309	1909...	13,892,896	601,040	14,493,936
1902...	5,319,850	367,879	5,687,729	1910...	15,641,158	863,351	16,504,509
1903...	5,429,563	400,348	5,829,911	1911...	15,027,459	571,191	15,598,650
1904...	5,605,332	302,834	5,908,166	1912...	19,909,875	870,848	20,780,723
1905...	8,444,836	526,540	8,971,376	.....	.....	.....	.....

OUTPUT OF BASIC AND ACID OPEN HEARTH STEEL COMPARED.

In 1912 there were 19,641,502 tons of open-hearth steel made by the basic process and 1,139,221 tons by the acid process, while in 1911 the production by the basic process amounted to 14,685,932 tons and by the acid process to 912,718 tons. Included in the total for 1912, are about 413,102 tons of basic and about 160,778 tons of acid open-hearth ingots and castings which were treated with ferro-vanadium, ferro-titanium, ferro-chrome, etc., as compared with about 214,031 tons of basic and 82,034 tons of acid steel ingots and castings which were similarly treated in 1911.

The following table gives the production by States of both basic and acid open-hearth steel ingots and castings in 1912.

States—Gross tons of basic and acid steel.	Basic steel.	Acid steel.	Total.
New England.....	158,482	55,843	214,325
New York and New Jersey.....	712,998	79,203	792,201
Pennsylvania.....	11,556,362	851,747	12,408,109
Ohio.....	2,521,086	44,257	2,565,343
Indiana.....	1,965,003	36,934	2,001,937
Illinois.....	1,217,775	17,391	1,235,166
Ala., Md., Mich., Wis., Dist. of Col., etc..	1,509,796	53,846	1,563,642
Total for 1912.....	19,641,502	1,139,221	20,780,723
Total for 1911.....	14,685,932	912,718	15,598,650

In 1912 Pennsylvania made over 58.8 per cent. of the total production of basic ingots and castings and over 74.7 per cent. of the total production of acid ingots and castings, as compared with over 60.6 per cent. of the total production of basic and over 74.6 per cent. of the total output of acid ingots and castings in 1911.

Of the total production of basic open-hearth steel in 1912, 19,197,504 tons were ingots and 443,998 tons were castings, while of the total production of acid open-hearth steel in the same year, 712,371 tons were ingots and 426,850 tons were castings.

In 1912 there were 79 open-hearth works which made basic but not acid steel, 57 which made acid but not basic steel, and 21 which made both basic and acid steel.

The increase in the production of basic steel in 1912 over 1911 amounted to 4,955,570 tons, or over 33.7 per cent., while the increase in the production of acid steel amounted to 226,503 tons, or over 24.8 per cent.

The following table gives the production of open-hearth steel ingots and castings by processes from 1898 to 1912 in gross tons.

Years.	Basic.	Acid.	Total.	Years.	Basic.	Acid.	Total.
1898...	1,569,412	660,880	2,230,292	1906..	9,658,760	1,321,653	10,980,413
1899...	2,080,426	866,890	2,947,316	1907..	10,279,315	1,270,421	11,549,736
1900...	2,545,091	853,044	3,398,135	1908..	7,140,425	696,304	7,836,729
1901...	3,618,993	1,037,316	4,656,309	1909..	13,417,472	1,076,464	14,493,936
1902...	4,496,533	1,191,196	5,687,729	1910..	15,292,329	1,212,180	16,504,509
1903...	4,734,913	1,094,998	5,829,911	1911..	14,685,932	912,718	15,598,650
1904...	5,106,367	801,799	5,908,166	1912..	19,641,502	1,139,221	20,780,723
1905...	7,815,728	1,155,648	8,971,376	.....	.....	.....	.....

The maximum production of basic open-hearth ingots and castings was reached in 1912, but the maximum production of acid open-hearth ingots and castings was reached in 1906, when the output was 182,432 tons greater than in 1912.

BASIC AND ACID OPEN HEARTH STEEL INGOTS.

The production of open-hearth steel ingots in 1912, as already stated, amounted to 19,909,875 tons, as compared with 15,027,459 tons in 1911, an increase of 4,882,416 tons, or over 32.4 per cent. The production in 1912 by the basic process amounted to 19,197,504 tons, as compared with 14,419,306 tons in 1911, an increase of 4,778,198 tons, or over 33.1 per cent., while the production by the acid process in 1912 amounted to 712,371 tons, as compared with 608,153 tons in 1911, an increase of 104,218 tons, or over 17.1 per cent. Included in the total for 1912 are about 493,195 tons of open-hearth ingots which were treated with ferro-vanadium, ferro-titanium, ferro-chrome, nickel, or other alloys, as compared with about 255,333 tons in 1911. In 1912 about 408,007 tons were made by the basic process and about 85,188 tons were made by the acid process.

The following table gives the production of basic and acid open-hearth ingots in 1912 by States, omitting direct castings.

States—Gross tons of ingots only.	Basic ingots.	Acid ingots.	Total. Gross tons.
New England, New York, and New Jersey..	828,357	89,567	917,924
Pennsylvania.....	11,466,172	602,763	12,068,935
Ohio, Indiana, and Illinois.....	5,476,822	20,041	5,496,863
Md., W. Va., Ky., Ala., Col., and other States.	1,426,153	.....	1,426,153
Total for 1912..	19,197,504	712,371	19,909,875
Total for 1911.....	14,419,306	608,153	15,027,459

In addition to the States above named, Massachusetts, Rhode Island, Connecticut, Georgia, and California made open-hearth steel ingots in 1912; also the District of Columbia. The seven largest makers of open-hearth steel ingots in 1912 in the order named were Pennsylvania, Ohio, Indiana, Illinois, Alabama, New York, and Colorado. These States in the order named were also the largest makers of basic open-hearth ingots. The largest makers of acid open-hearth ingots were Pennsylvania, New Jersey, Massachusetts, Illinois, Ohio, Indiana, and New York.

The States which made basic but not acid ingots in 1912 were Rhode Island, Connecticut, Maryland, West Virginia, Kentucky, Georgia, Alabama, Colorado, and California; also the District of Columbia. No State made acid but not basic ingots. Both basic and acid ingots were made by Massachusetts, New York, New Jersey, Pennsylvania, Ohio, Indiana, and Illinois. Pennsylvania made over 60.6 per cent. of the total production of open-hearth steel ingots in 1912, against over 62.2 per cent. in 1911, while Ohio made over 12.1 per cent. in 1912, against over 10.9 per cent. in 1911. Of the total production of basic open-hearth ingots in 1912, Pennsylvania made over 59.7 per cent., against over 61.3 per cent. in 1911. Ohio was the next largest producer, its output amounting to over 12.5 per cent. of the total in 1912, as compared with 11.2 per cent. in 1911. Pennsylvania made over 84.6 per cent. of the total production of acid open-hearth steel ingots in 1912, against over 82.9 per cent. in 1911. New Jersey was the next largest producer of acid ingots in 1912, its output amounting to over 7.1 per cent. of the total, as compared with over 5 per cent. in 1911.

There were 87 works in 1912 which made open-hearth steel ingots, of which 60 made ingots by the basic but not by the acid

process, 10 made ingots by the acid but not by the basic process, and 17 made ingots by both the basic and acid processes. In 1911 there were 85 works which made open-hearth steel ingots.

The following table gives the production since 1898 of open-hearth steel ingots by the acid and basic processes in gross tons.

Years.	Basic.	Acid.	Total.	Years.	Basic.	Acid.	Total.
1898...	1,540,952	568,753	2,109,705	1906...	9,345,212	915,310	10,260,522
1899...	2,040,737	736,850	2,777,587	1907...	9,912,839	890,372	10,803,211
1900...	2,502,447	718,197	3,220,644	1908...	6,985,420	539,532	7,524,952
1901...	3,524,052	830,635	4,354,687	1909...	13,111,467	781,429	13,892,896
1902...	4,384,129	935,721	5,319,850	1910...	14,858,353	782,805	15,641,158
1903...	4,600,034	829,529	5,429,563	1911...	14,419,306	608,153	15,027,459
1904...	5,007,448	597,884	5,605,332	1912...	19,197,504	712,371	19,909,875
1905...	7,609,569	835,267	8,444,836	.....	.....	.....	.....

The maximum production of open-hearth ingots was reached in 1912. The year of next largest production was 1910, when the output was 4,268,717 tons less than in 1912. The maximum production of basic ingots was reached in 1912, but the maximum production of acid ingots was reached in 1902, when the output was 223,350 tons greater than in 1912. The increase in the production of basic ingots from 1898 to 1912 was 17,656,552 tons, but the increase in the production of acid ingots was only 143,618 tons. In both basic and acid ingots the increase in the fifteen years covered by the table amounted to 17,800,170 tons.

BASIC AND ACID OPEN HEARTH STEEL CASTINGS.

As already stated, the total production of open-hearth steel castings in 1912 amounted to 870,848 tons. Of the production in 1912, 443,998 tons were made by the basic process and 426,850 tons by the acid process. As compared with 1911, when 266,626 tons of castings were made by the basic process, the increase in 1912 by this process was 177,372 tons. By the acid process the increase was 122,285 tons, the production by this process in 1911 having amounted to 304,565 tons. Included in the total for 1912 are about 80,685 tons of open-hearth castings which were treated with ferro-vanadium, ferro-titanium, ferro-chrome, nickel, or other alloys, as compared with about 40,732 tons in 1911. In 1912 about 5,095 tons were made by the basic process and about 75,590 tons by the acid process.

The following table gives the production of basic and acid open-hearth castings in 1912 by States, ingots being omitted. Gross tons of 2,240 pounds are used.

States—Gross tons of castings only.	Basic castings.	Acid castings.	Total. Gross tons.
New England, New York, and New Jersey.	43,123	45,479	88,602
Pennsylvania	90,190	248,984	339,174
Ohio.....	111,729	36,414	148,143
Indiana and Illinois.....	115,313	42,127	157,440
W. Va., Mich., Wis., Col., and other States.	83,643	53,846	137,489
Total for 1912.....	443,998	426,850	870,848
Total for 1911.....	266,626	304,565	571,191

In addition to the States named in the table, Massachusetts, Delaware, Alabama, Missouri, Iowa, Kansas, and California made open-hearth castings in 1912. Of the total production of open-hearth castings in 1912, Pennsylvania made over 38.9 per cent., as compared with over 42.7 per cent. in 1911, while in 1912 Ohio made over 17 per cent. of the total, as compared with over 14 per cent. in 1911. Pennsylvania made over 58.3 per cent. of the total production of acid open-hearth castings in 1912, against over 57.9 per cent. in 1911, while Illinois made over 25.9 per cent. of the total production of basic open-hearth castings in 1912, against over 27 per cent. in 1911.

The States which made basic but not acid castings in 1912 were Alabama, Missouri, Iowa, Colorado, and California; the States which made acid but not basic castings were Massachusetts, Delaware, West Virginia, Michigan, and Kansas; and the States which made both basic and acid castings were New York, New Jersey, Pennsylvania, Ohio, Indiana, Illinois, and Wisconsin.

In 1912 there were 102 works which made open-hearth steel castings, of which 35 made castings by the basic but not by the acid process, 58 made castings by the acid but not by the basic process, and 9 made castings by both the basic and acid processes. In 1911 there were 98 works which made open-hearth castings. The following table gives the production since 1898.

Years.	Basic.	Acid.	Total.	Years.	Basic.	Acid.	Total.
1898...	28,460	92,127	120,587	1906...	313,548	406,343	719,891
1899...	39,689	130,040	169,729	1907...	366,476	380,049	746,525
1900...	42,644	134,847	177,491	1908...	155,005	156,772	311,777
1901...	94,941	206,681	301,622	1909...	306,005	295,035	601,040
1902...	112,404	255,475	367,879	1910...	433,976	429,375	863,351
1903...	134,879	265,469	400,348	1911...	266,626	304,565	571,191
1904...	98,919	203,915	302,834	1912...	443,998	426,850	870,848
1905...	206,159	320,381	526,540	.....	.....	.....	.....

The maximum production of open-hearth steel castings was reached in 1912. The next largest year was 1910, when the output was only 7,497 tons less than in 1912. The maximum production of basic castings was reached in 1912, while the maximum production of acid castings was reached in 1910, when the output exceeded that of 1912 by 2,525 tons. The increase in the production of basic castings from 1898 to 1912 was 415,538 tons, while in acid castings the increase was 334,723 tons. In both basic and acid castings the increase amounted to 750,261 tons.

COMPLETED, BUILDING, AND PROJECTED OPEN HEARTH PLANTS.

At the close of 1912 there were 182 completed open-hearth steel plants, of which 157 were active during the year and 25 were idle. Of the total, 113 were equipped to make basic steel, of which 101 were active during the year and 12 were idle; and 96 were equipped to make acid steel, of which 77 were active and 19 were idle. Some of the plants were equipped to make both basic and acid steel. Six plants were being built on December 31, 1912, located as follows: Pennsylvania, 2; Maryland, 1; Ohio, 2; and Minnesota, 1. On the same date work had been suspended upon 3 partly-erected plants. In addition 5 plants were projected, namely, 1 in the District of Columbia, 1 in West Virginia, 2 in Ohio, and 1 in Illinois.

At the close of 1911 there were 177 completed open-hearth steel plants, of which 149 were active during the year and 28 were idle. Of the total, 113 were equipped to make basic steel, of which 98 were active during the year and 15 were idle; and 92 were equipped to make acid steel, of which 71 were active in 1911 and 21 were idle. Several of the plants were equipped to make both basic and acid steel. Seven plants were being built on December 31, 1911, located in 4 States.

PRODUCTION OF DUPLEX STEEL INGOTS AND CASTINGS.

Included in the 19,641,502 tons of basic open-hearth steel ingots and castings produced in 1912 are 1,438,654 tons of duplex steel ingots and castings which were made from metal partly purified in Bessemer converters and finally purified in basic open-hearth steel furnaces. This steel was produced by 7 works in 4 States, as follows: Pennsylvania, 4; Maryland, 1; Alabama, 1; and Illinois, 1. Similar statistics for 1911 were not collected by the American Iron and Steel Association. No acid open-hearth steel was produced by the duplex process in 1912.

PRODUCTION OF CRUCIBLE STEEL.

The production of crucible steel in 1912 amounted to 121,517 tons, against 97,653 tons in 1911, an increase of 23,864 tons, or over 24.4 per cent. The maximum production was reached in 1907, when 131,234 tons were made. The year of next largest production was 1906. Included in the total for 1912 are about 30,761 tons of crucible steel which were treated with ferro-vanadium, ferro-titanium, ferro-chrome, or other alloys, of which about 27,553 tons were ingots and about 3,208 tons were castings. In 1911 the production of alloy-treated steel amounted to about 14,732 tons, of which about 13,330 tons were ingots and about 1,402 tons were castings. The following table gives by States the production of crucible steel ingots and castings in 1912.

States—Gross tons of crucible steel.	Ingots.	Castings.	Total.
Pennsylvania	62,074	1,613	63,687
Mass., Conn., New York, and other States	38,893	18,937	57,830
Total for 1912.....	100,967	20,550	121,517
Total for 1911.....	83,623	14,030	97,653

In addition to the States above named, New Jersey, Tennessee, Texas, Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Missouri, Iowa, Oregon, and California made crucible steel ingots or castings in 1912. The total number of completed crucible plants in 1912 was 108, of which 95 were active and 13 were idle. At the close of 1911, there were 100 completed plants, of which 87 were active during the year and 13 were idle. On December 31, 1912, one crucible steel plant was being built in Michigan, while at the close of 1911, three plants were in course of construction—1 in Pennsylvania and 2 in Michigan. Of the active works in 1912, there were 30 in 5 States which made ingots but not castings, 62 in 17 States which made castings but not ingots, and 3 in 3 States which made both ingots and castings.

Pennsylvania made 63,687 tons of crucible steel ingots and castings in 1912, or over 52.4 per cent. of the total output, against 52,732 tons, or almost 54 per cent., in 1911. New York was the next largest maker in 1912, producing 26,263 tons, or over 21.6 per cent., as compared with 21,678 tons, or almost 22.2 per cent., in 1911. No other State made over 8.2 per cent. in 1912 or over 8.3 per cent. in 1911.

The following table gives separately the production of crucible steel ingots and castings from 1898 to 1912 in gross tons.

Years.	Ingots.	Castings.	Total.	Years.	Ingots.	Castings.	Total.
1898.....	85,512	4,235	89,747	1906.....	117,170	10,343	127,513
1899.....	97,713	3,500	101,213	1907.....	121,001	10,233	131,234
1900.....	96,573	3,989	100,562	1908.....	55,360	8,271	63,631
1901.....	94,586	3,927	98,513	1909.....	94,672	12,683	107,355
1902.....	107,817	4,955	112,772	1910.....	107,671	14,632	122,303
1903.....	97,025	5,409	102,434	1911.....	83,623	14,030	97,653
1904.....	79,083	4,308	83,391	1912.....	100,967	20,550	121,517
1905.....	96,500	5,733	102,233	.....	.....	.....	.....

PRODUCTION OF ELECTRIC AND MISCELLANEOUS STEEL.

The production of steel by the electric process in 1912 amounted to 18,309 tons, as compared with 29,105 tons in 1911, a decrease of 10,796 tons. In 1910 the output was 52,141 tons, in 1909 it was 13,762 tons, and in 1908 it was 55 tons. In the latter year the production was included with that of open-hearth steel. Of the total output in 1912 about 14,147 tons were ingots and about 4,162 tons were castings, while in 1911 about 27,227 tons were ingots and about 1,878 tons were castings. In 1910 the output of ingots amounted to 50,821 tons and the output of castings to 1,320 tons, while in 1909 the ingots produced amounted to 13,456 tons and the castings to 306 tons. In 1908 ingots only were made.

The total production of electric steel in 1912 includes about 9,609 tons of steel ingots and castings which were treated with ferro-vanadium, ferro-titanium, ferro-chrome, etc., of which about 9,217 tons were ingots and about 392 tons were castings. In 1911 the production of similarly treated steel amounted to about 6,722 tons, of which about 6,612 tons were ingots and about 110 tons were castings.

There were 13 plants in 6 States which made steel by the electric process in 1912, as follows: Massachusetts, 1; New York, 3; Pennsylvania, 4; Indiana, 1; Illinois, 2; and Michigan, 2. In 1911 nine plants in 5 States made electric steel ingots or castings, namely, Massachusetts, 1; New York, 3; Pennsylvania, 3; Indiana, 1; and Illinois, 1; while in 1910 seven plants in 5 States made electric steel—Massachusetts, 1; New York, 1; Pennsylvania, 2; Indiana, 1; and Illinois, 2. In 1909 electric steel was made by 4 plants in 3 States—New York, 2; Pennsylvania, 1; and Illinois, 1; while in 1908 all the electric steel produced in that year was made by 1 plant in the State of New York.

On December 31, 1912, the number of completed plants which were equipped for the manufacture of steel by the electric process

was 14, as compared with 9 plants at the close of 1911, a gain of 5 plants. In addition 2 plants were being built on December 31, 1912—1 in New Jersey and 1 in the State of Washington—and 8 plants were projected—5 in Pennsylvania, 1 in Tennessee, 1 in Michigan, and 1 in Wisconsin.

The production of steel in 1912 by various minor processes amounted to 2,853 tons, against 2,844 tons in 1911. Of the production in 1912, about 542 tons were ingots and about 2,311 tons were direct castings. Included in the total are about 10 tons of nickel steel castings. In 1912 four plants made steel by the cementation and other minor processes, as follows: Connecticut, 1; Pennsylvania, 1; Ohio, 1; and Indiana, 1. In 1911 five plants were active. On December 31, 1912, one plant for the manufacture of steel by a special process was being built in the State of Washington. The following table gives the production of electric and miscellaneous steel ingots and castings since 1898.

Years.	Ingots.	Castings.	Total.	Years.	Ingots.	Castings.	Total.
1898.....	225	3,576	3,801	1906.....	3,510	10,870	14,380
1899.....	1,030	3,944	4,974	1907.....	989	13,086	14,075
1900.....	6	4,856	4,862	1908.....	519	5,613	6,132
1901.....	214	5,257	5,471	1909.....	14,242	8,705	22,947
1902.....	2,833	5,553	8,386	1910.....	50,821	4,514	55,335
1903.....	3,395	6,409	9,804	1911.....	27,644	4,305	31,949
1904.....	2,172	7,018	9,190	1912.....	14,689	6,473	21,162
1905.....	2,572	6,391	8,963	.....	.....	.....	.....

TOTAL PRODUCTION OF ALL KINDS OF STEEL.

The production of all kinds of steel ingots and castings in 1912 amounted to 31,251,303 tons, against 23,676,106 tons in 1911, an increase of 7,575,197 tons, or almost 32 per cent. The production in 1912 was much the largest in the country's history. The year of next largest production was 1910, when 26,094,919 tons were made. Of the total production in 1912, 30,284,682 tons were ingots and 966,621 tons were castings, against 23,029,479 tons of ingots and 646,627 tons of castings in 1911.

Included in the total for 1912 are about 792,501 tons of ingots and castings which were treated with ferro-vanadium, ferro-titanium, ferro-chrome, nickel, or other alloys, of which about 689,392 tons were ingots and about 103,109 tons were castings, as compared with about 481,459 tons in 1911, of which about 425,169 tons were ingots and about 56,290 tons were castings. Of the total in 1912 about 178,241 tons were Bessemer, about 573,-

880 tons were open-hearth, about 30,761 tons were crucible, about 9,609 tons were electric, and about 10 tons were miscellaneous.

The following table gives by States the production of all kinds of steel ingots and castings by processes in 1912 in gross tons.

States—Gross tons of all kinds of steel ingots and castings.	Bessemer.	Open-hearth.	Crucible and all other.	Total ingots and castings.
Mass., Rhode Island, and Conn.....	1,766	214,325	4,218	220,309
New York and New Jersey.....	514,657	792,201	42,628	1,349,486
Pennsylvania.....	3,157,928	12,408,109	67,717	15,633,754
Del., Md., Dist. of Col., Va., W. Va., Ky., Tenn., Ga., Ala., La., Tex...	695,846	1,011,636	1,150	1,708,632
Ohio.....	4,285,673	2,565,343	5,013	6,856,029
Indiana and Illinois.....	1,559,576	3,237,103	12,009	4,808,688
Mich., Wis., Minn., Mo., Iowa, Okl., Kan., Utah, Col., Ore., Wash., Cal., and Canal Zone, Panama...	112,455	552,006	9,944	674,405
Total for 1912.....	10,327,901	20,780,723	142,679	31,251,303
Total for 1911.....	7,947,854	15,598,650	129,602	23,676,106

Pennsylvania made over 50 per cent. of the total production of all kinds of steel ingots and castings in 1912, as compared with over 50.6 per cent. in 1911; Ohio, which was the next largest maker in both years, made over 21.9 per cent. in 1912, as compared with over 21 per cent. in 1911; Illinois, the next largest maker, made over 8.9 per cent. in 1912, as compared with over 9 per cent. in 1911; while Indiana, the fourth largest maker, made over 6.4 per cent. in 1912, as compared with over 5.8 per cent. in 1911. No other State made 4 per cent. in 1911 or 1912. The next largest makers in 1912 were New York, Alabama, Colorado, West Virginia, Maryland, Kentucky, Massachusetts, New Jersey, Missouri, Georgia, Connecticut, Wisconsin, Rhode Island, Iowa, Michigan, California, Delaware, the District of Columbia, Oregon, Utah, Louisiana, Tennessee, Minnesota, Washington, Texas, Canal Zone, (Panama,) Virginia, Oklahoma, and Kansas.

PRODUCTION OF ALL KINDS OF STEEL INGOTS AND CASTINGS IN PENNSYLVANIA AND OHIO BY DISTRICTS.

The following table gives the production of all kinds of steel ingots and castings in Pennsylvania by districts from 1908 to 1912. Comparing 1912 with 1908, the increase in Pennsylvania in the production of all kinds of steel ingots and castings amounted to 8,167,889 tons, or over 109.4 per cent.

Districts.	1908.	1909.	1910.	1911.	1912.
Philadelphia County	66,715	100,318	139,003	98,234	125,646
Lehigh Valley	332,958	496,928	480,577	568,388	1,152,781
Schuylkill Valley...	321,394	629,329	728,610	614,142	810,420
Eastern Penna.....	280,467	478,314	557,136	478,364	575,459
Upper Susq. Valley.	400,144	649,454	730,688	641,196	770,018
Lower Susq. Valley.					
Juniata Valley.....					
Allegheny County...	4,489,456	6,690,893	7,145,711	6,451,373	7,786,455
Shenango Valley.....	729,055	1,165,826	1,206,527	1,041,309	1,776,958
Western Penna.....	845,676	2,098,727	2,219,287	2,097,517	2,636,017
Total.....	7,465,865	12,309,789	13,207,539	11,990,523	15,633,754

The following table gives the production of all kinds of steel ingots and castings in Ohio by districts from 1908 to 1912.

Districts.	1908.	1909.	1910.	1911.	1912.
Mahoning Valley.....	1,153,959	2,021,707	2,136,557	2,129,342	2,950,783
Lake Counties.....	1,018,374	1,516,127	1,387,565	1,467,822	1,943,758
Hanging Rock.....	138,005	300,508	459,236	361,609	684,131
Interior Counties.....					
Ohio River Counties.....	171,451	1,054,332	1,067,250	1,035,337	1,277,357
Total.....	2,481,789	4,892,674	5,050,608	4,994,110	6,856,029

In Ohio the increase in the production of all kinds of steel ingots and steel castings in 1912 as compared with 1908 amounted to 4,374,240 gross tons, or over 176.2 per cent.

PERCENTAGE OF THE PRODUCTION OF STEEL BY PROCESSES.

As shown by the following table about 66.5 per cent. of the total production of ingots and castings in 1912 was made by the open-hearth process, as compared with about 65.9 per cent. in 1911; about 33 per cent. by the standard Bessemer process or some of its modifications, as compared with about 33.6 per cent. in 1911; and about 0.5 per cent. by the crucible, electric, etc., processes, as compared with about the same percentage in 1911.

Processes.	1911.			1912.		
	Ingots.	Castings.	Total.	Ingots.	Castings.	Total.
Open-hearth.....	65.2	88.3	65.9	65.7	90.1	66.5
Bessemer.....	34.3	8.8	33.6	33.9	7.1	33.0
Crucible and all other	.5	2.9	.5	.4	2.8	.5
Total	100.0	100.0	100.0	100.0	100.0	100.0

In 1912 there were 306 works in 31 States, the District of Columbia, and the Canal Zone, Panama, which made steel ingots or castings, against 282 works in 31 States and the District of Columbia in 1911. The following table gives the production of all kinds of steel ingots and castings by processes since 1898.

Years—Gross tons of ingots and castings.	Bessemer.	Open-hearth.	Crucible.	Electric and all other.	Total ingots and castings.
1898	6,609,017	2,230,292	89,747	3,801	8,932,857
1899	7,586,354	2,947,316	101,213	4,974	10,639,857
1900	6,684,770	3,398,135	100,562	4,862	10,188,329
1901	8,713,302	4,656,309	98,513	5,471	13,473,595
1902	9,138,363	5,687,729	112,772	8,386	14,947,250
1903	8,592,829	5,829,911	102,434	9,804	14,534,978
1904	7,859,140	5,908,166	83,391	9,190	13,859,887
1905	10,941,375	8,971,376	102,233	8,963	20,023,947
1906	12,275,830	10,980,413	127,513	14,380	23,398,136
1907	11,667,549	11,549,736	131,234	14,075	23,362,594
1908	6,116,755	7,836,729	63,631	6,132	14,023,247
1909	9,330,783	14,493,936	107,355	22,947	23,955,021
1910	9,412,772	16,504,509	122,303	55,335	26,094,919
1911	7,947,854	15,598,650	97,653	31,949	23,676,106
1912	10,327,901	20,780,723	121,517	21,162	31,251,303

The following table gives separately the production of all kinds of steel ingots and direct steel castings from 1898 to 1912.

Years—Gross tons of ingots and castings.	All kinds of ingots.	All kinds of castings.	Total. Gross tons.
1898	8,800,920	131,937	8,932,857
1899	10,458,745	181,112	10,639,857
1900	9,995,526	192,803	10,188,329
1901	13,156,025	317,570	13,473,595
1902	14,556,315	390,935	14,947,250
1903	14,104,713	430,265	14,534,978
1904	13,529,676	330,211	13,859,887
1905	19,463,180	560,767	20,023,947
1906	22,624,431	773,705	23,398,136
1907	22,559,477	803,117	23,362,594
1908	13,677,027	346,220	14,023,247
1909	23,298,779	656,242	23,955,021
1910	25,154,087	940,832	26,094,919
1911	23,029,479	646,627	23,676,106
1912	30,284,682	966,621	31,251,303

PRODUCTION OF ALL KINDS OF STEEL INGOTS.

The total production of all kinds of steel ingots in 1912, not including steel castings, amounted to 30,284,682 tons, against

23,029,479 tons in 1911, an increase of 7,255,203 tons, or over 31.5 per cent. The production in 1912 was the largest in our history. The year of next largest production was 1910, when 25,154,087 tons were made. The following table gives the production of all kinds of steel ingots by States in 1912.

States—Gross tons of ingots only.	Bessemer ingots.	Open-hearth ingots.	Crucible and all other.	Total ingots. Gross tons.
Mass., R. I., Conn., N. Y., N. J....	503,072	917,924	42,820	1,463,816
Pennsylvania.....	3,147,405	12,068,935	63,272	15,279,612
Md., D. of C., W. Va., Ky., Ga., Ala.	687,855	988,371	.....	1,676,226
Ohio.....	4,278,872	2,417,200	.....	6,696,072
Indiana, Ill., Mich., Col., and Wash.	1,641,947	3,517,445	9,564	5,168,956
Total for 1912.....	10,259,151	19,909,875	115,656	30,284,682
Total for 1911.....	7,890,753	15,027,459	111,267	23,029,479

Pennsylvania made 15,279,612 tons, or over 50.4 per cent., of the total production of steel ingots in 1912, against 11,736,329 tons, or over 50.9 per cent., in 1911; Ohio made 6,696,072 tons, or over 22.1 per cent., against 4,901,065 tons, or over 21.2 per cent., in 1911; and Illinois made 2,671,882 tons, or over 8.8 per cent., against 2,058,005 tons, or over 8.9 per cent., in 1911. The next largest makers of steel ingots in 1912 in the order of their prominence were Indiana, New York, Alabama, Colorado, West Virginia, Maryland, Kentucky, Massachusetts, New Jersey, Georgia, Connecticut, Rhode Island, California, and the District of Columbia.

Of the total production of ingots in 1912 about 689,392 tons were treated with ferro-vanadium, ferro-titanium, ferro-chrome, nickel, or other alloys, of which about 159,427 tons were Bessemer, about 493,195 tons were open-hearth, about 27,553 tons were crucible, and about 9,217 tons were electric.

There were 124 works in 17 States and the District of Columbia which made steel ingots in 1912, against 118 works in 17 States and the District of Columbia in 1911.

Of the total production of ingots in 1912, about 65.7 per cent. was made by the open-hearth process, as compared with about 65.2 per cent. in 1911; about 33.9 per cent by the standard Bessemer process or some of its modifications, as compared with about 34.3 per cent. in 1911; and about four-tenths of one per cent. by the crucible, electric, and minor processes, as compared with about one-half of one per cent. in 1911.

The following table gives the production by processes of all kinds of steel ingots from 1898 to 1912 in gross tons.

Years—Gross tons of ingots only.	Bessemer ingots.	Open-hearth ingots.	Crucible and all other.	Total ingots. Gross tons.
1898.....	6,605,478	2,109,705	85,737	8,800,920
1899.....	7,582,415	2,777,587	98,743	10,458,745
1900.....	6,678,303	3,220,644	96,579	9,995,526
1901.....	8,706,538	4,354,687	94,800	13,156,025
1902.....	9,125,815	5,319,850	110,650	14,556,315
1903.....	8,574,730	5,429,563	100,420	14,104,713
1904.....	7,843,089	5,605,332	81,255	13,529,676
1905.....	10,919,272	8,444,836	99,072	19,463,180
1906.....	12,243,229	10,260,522	120,680	22,624,431
1907.....	11,634,276	10,803,211	121,990	22,559,477
1908.....	6,096,196	7,524,952	55,879	13,677,027
1909.....	9,296,969	13,892,896	108,914	23,298,779
1910.....	9,354,437	15,641,158	158,492	25,154,087
1911.....	7,890,753	15,027,459	111,267	23,029,479
1912.....	10,259,151	19,909,875	115,656	30,284,682

PRODUCTION OF ALL KINDS OF STEEL CASTINGS.

In 1912 the production of all kinds of steel castings amounted to 966,621 tons, against 646,627 tons in 1911, an increase of 319,994 tons, or over 49.4 per cent. The following table gives by States the production by processes of steel castings in 1912.

States—Gross tons of castings only.	Bessemer castings.	Open-hearth castings.	Crucible and all other.	Total castings.
Mass., Conn., New York, and N. J....	13,351	88,602	4,026	105,979
Pennsylvania.....	10,523	339,174	4,445	354,142
Del., Dist. of Col., Va., W. Va., Ky., Tenn., Ala., La., Texas, and Ohio....	14,792	171,408	6,163	192,363
Indiana, Illinois, and Michigan.....	14,768	169,588	4,850	189,206
Wis., Minn., Iowa, Mo., Okl., Kan., Col., Utah, Ore., Wash., Cal., and Canal Zone, Panama.....	15,316	102,076	7,539	124,931
Total for 1912.....	68,750	870,848	27,023	966,621
Total for 1911.....	57,101	571,191	18,335	646,627

Of the total production in 1912, 68,750 tons were made by the Bessemer process or some of its modifications, 870,848 tons by the open-hearth process, 20,550 tons by the crucible process, 4,162 tons by the electric process, and 2,311 tons by various minor processes. Included in the total for 1912 are about 103,109 tons of steel castings which were treated with ferro-vanadium,

ferro-titanium, ferro-chrome, nickel, or other alloys, of which about 18,814 tons were Bessemer, about 80,685 tons were open-hearth, about 3,208 tons were crucible, about 392 tons were electric, and about 10 tons were miscellaneous.

Pennsylvania made 354,142 tons, or over 36.6 per cent., of the total production of steel castings in 1912, as compared with 254,194 tons, or over 39.3 per cent., in 1911; Ohio made 159,957 tons, or over 16.5 per cent., as compared with 93,045 tons, or over 14.3 per cent., in 1911; Illinois made 133,759 tons, or over 13.8 per cent., as compared with 85,441 tons, or over 13.2 per cent., in 1911. No other State made over 65,000 tons in 1912 or over 40,000 tons in 1911. The other States which made steel castings in 1912 were as follows, in the order of their prominence: New York, Missouri, Wisconsin, Indiana, New Jersey, Massachusetts, Iowa, Michigan, Delaware, West Virginia, Alabama, California, Colorado, Oregon, Connecticut, Utah, Louisiana, Tennessee, Minnesota, Washington, Kentucky, Texas, Virginia, Oklahoma, and Kansas. The District of Columbia and the Canal Zone, Panama, also made small quantities of steel castings in 1912.

There were 222 works in 28 States, the District of Columbia, and the Canal Zone, Panama, which made steel castings in 1912, against 207 works in 27 States and the District of Columbia in 1911. The following table gives by processes the production of all kinds of direct steel castings from 1898 to 1912.

Years—Gross tons of castings only.	Bessemer castings.	Open-hearth castings.	Crucible and all other.	Total castings. Gross tons.
1898.....	3,539	120,587	7,811	131,937
1899.....	3,939	169,729	7,444	181,112
1900.....	6,467	177,491	8,845	192,803
1901.....	6,764	301,622	9,184	317,570
1902.....	12,548	367,879	10,508	390,935
1903.....	18,099	400,348	11,818	430,265
1904.....	16,051	302,834	11,326	330,211
1905.....	22,103	526,540	12,124	560,767
1906.....	32,601	719,891	21,213	773,705
1907.....	33,273	746,525	23,319	803,117
1908.....	20,559	311,777	13,884	346,220
1909.....	33,814	601,040	21,388	656,242
1910.....	58,335	863,351	19,146	940,832
1911.....	57,101	571,191	18,335	646,627
1912.....	68,750	870,848	27,023	966,621

Of the total production of all kinds of steel castings in 1912, about 90.1 per cent. was made by the open-hearth process, as

compared with about 88.3 per cent. in 1911; about 7.1 per cent. by the standard Bessemer process or some of its modifications, as compared with about 8.8 per cent. in 1911; and about 2.8 per cent. by the crucible, electric, and various miscellaneous processes, as compared with about 2.9 per cent. in 1911.

PRODUCTION OF STEEL INGOTS AND CASTINGS TREATED WITH FERRO-VANADIUM, FERRO-TITANIUM, ETC.

The following table gives the approximate production in 1912 by processes of steel ingots and castings which were treated with ferro-vanadium, ferro-titanium, ferro-chrome, nickel, etc.

Processes—Gross tons.	Ingots.	Castings.	Total.
Bessemer steel.....	159,427	18,814	178,241
Open-hearth steel—acid.....	85,188	75,590	160,778
Open-hearth steel—basic.....	408,007	5,095	413,102
Crucible steel.....	27,553	3,208	30,761
Electric and miscellaneous steel.....	9,217	402	9,619
Total for 1912.....	689,392	103,109	792,501
Total for 1911.....	425,169	56,290	481,459
Total for 1910.....	538,462	29,357	567,819
Total for 1909.....	158,978	23,002	181,980

In 1912 there were 143 works in 21 States and the District of Columbia which made steel ingots or castings which were treated with ferro-vanadium, ferro-titanium, ferro-chrome, nickel, or other alloys, as follows: Massachusetts, 4; Connecticut, 1; New York, 13; New Jersey, 6; Pennsylvania, 54; Delaware, 3; Maryland, 1; District of Columbia, 1; West Virginia, 1; Kentucky, 1; Texas, 1; Ohio, 17; Indiana, 5; Illinois, 9; Michigan, 4; Wisconsin, 9; Missouri, 1; Iowa, 4; Colorado, 1; Washington, 1; Oregon, 2; and California, 4. In 1911 there were 116 works in 17 States and the District of Columbia which made similarly treated steel ingots or castings, as compared with 66 works in 17 States and the District of Columbia in 1910.

ACTIVE AND IDLE STEEL WORKS BY STATES.

The following table gives by States and by processes the number of plants which were equipped in 1912 to produce Bessemer, open-hearth, crucible, electric, or miscellaneous steel ingots or castings. There was an increase in 1912 as compared with 1911 of 5 in the number of open-hearth steel plants, of 13 in the number of Bessemer steel plants, and of 13 in the number of crucible, electric, and miscellaneous steel plants.

States.	Open-hearth steel plants.			Bessemer steel plants.			Cruc., elec., and misc. plants.		
	Act.	Idle.	Total.	Act.	Idle.	Total.	Act.	Idle.	Total.
Maine.....	0	1	1	0	0	0	0	0	0
Massachusetts.....	5	1	6	2	0	2	5	1	6
Rhode Island.....	1	0	1	0	0	0	0	0	0
Connecticut.....	1	2	3	1	0	1	3	1	4
New York.....	9	1	10	5	1	6	10	1	11
New Jersey.....	7	0	7	3	1	4	5	1	6
Pennsylvania.....	72	11	83	14	7	21	33	4	37
Delaware.....	2	1	3	3	0	3	0	0	0
Maryland.....	2	0	2	1	1	2	0	0	0
District of Columbia.....	1	0	1	1	0	1	0	0	0
Virginia.....	0	1	1	1	0	1	0	0	0
West Virginia.....	3	1	4	2	0	2	1	0	1
Kentucky.....	1	0	1	1	0	1	0	0	0
Tennessee.....	0	0	0	0	1	1	1	0	1
Georgia.....	1	0	1	0	0	0	0	0	0
Alabama.....	3	1	4	0	1	1	0	0	0
Louisiana.....	0	0	0	2	0	2	0	0	0
Texas.....	0	0	0	1	0	1	1	0	1
Ohio.....	21	1	22	17	0	17	10	3	13
Indiana.....	6	1	7	0	0	0	7	0	7
Illinois.....	8	1	9	9	0	9	6	1	7
Michigan.....	3	1	4	4	2	6	11	1	12
Wisconsin.....	4	0	4	3	2	5	10	2	12
Minnesota.....	0	0	0	2	0	2	2	0	2
Missouri.....	1	0	1	1	2	3	1	0	1
Iowa.....	2	0	2	1	0	1	2	0	2
Oklahoma.....	0	0	0	1	0	1	0	0	0
Kansas.....	1	0	1	0	0	0	0	0	0
Colorado.....	1	0	1	1	0	1	0	0	0
Utah.....	0	0	0	1	0	1	0	0	0
Washington.....	0	1	1	2	0	2	0	0	0
Oregon.....	0	0	0	1	0	1	1	0	1
California.....	2	0	2	2	1	3	3	0	3
Canal Zone, Panama.....	0	0	0	1	0	1	0	0	0
Total for 1912.....	157	25	182	83	*19	102	112	15	127
Total for 1911.....	149	28	177	74	*15	89	101	13	114

*Include 4 plants in 1912 and 2 plants in 1911 which were equipped with Bessemer steel converters, but which did not make Bessemer steel in either year, the converters in both years having been utilized for desiliconizing and decarburizing molten metal for open-hearth steel furnaces.

PRODUCTION OF ALL KINDS OF RAILS.

The production of all kinds of rails in 1912 amounted to 3,327,915 tons, against 2,822,790 tons in 1911, an increase of 505,125 tons, or over 17.8 per cent. Included in the total for

1912 are 174,004 tons of girder and high T steel rails for electric and street railways, against 205,409 tons in 1911. The maximum production of all kinds of rails was reached in 1906, when 3,977,887 tons were rolled, or 649,972 tons more than were produced in 1912.

Of the total production of rails in 1912, 3,165,939 tons were rolled from Bessemer, open-hearth, and electric steel blooms or billets; 42,586 tons were rolled from new seconds, defective new rails, and steel crop ends; and 119,390 tons were rerolled from old steel rails or were renewed steel rails. No iron rails were reported for 1912. In the following table the production of all kinds of rails in 1912 is given by States in gross tons.

States—Gross tons. All kinds of rails.	Bessemer rails.	Open-hearth rails.	Electric, re-rolled steel, and iron.	Total. Gross tons.
New York, New Jersey, and Md....	367,128	188,122	30,567	585,817
Pennsylvania.....	343,837	526,755	18,080	888,672
West Virginia, Alabama, and Ohio.	93	597,292	24,736	622,121
Indiana, Ill., Wis., Col., and Wash..	388,868	792,975	49,462	1,231,305
Total for 1912.....	1,099,926	2,105,144	122,845	3,327,915
Total for 1911.....	1,053,420	1,676,923	92,447	2,822,790

Included in the 122,845 tons of rails rolled in 1912 and classified as electric and rerolled steel are 3,455 tons of rails rolled from electric steel and 119,390 tons of renewed rails or rails rolled from old steel rails which the makers were unable to classify as Bessemer or open-hearth. Twenty-four works in 12 States rolled or rerolled rails in 1912, as compared with 25 works in 11 States in 1911.

The production of all kinds of rails by States is given in the following table from 1909 to 1912 in gross tons of 2,240 pounds.

States—Gross tons. All kinds of rails.	1909.	1910.	1911.	1912.
New York, New Jersey, and Md.....	621,373	711,975	490,980	585,817
Pennsylvania	855,707	986,702	839,663	888,672
West Virginia, Alabama, and Ohio	367,039	496,716	447,905	622,121
Ind., Ill., Wis., Col., Wash., and Cal.	1,179,726	1,440,638	1,044,242	1,231,305
Total	3,023,845	3,636,031	2,822,790	3,327,915

PRODUCTION OF BESSEMER STEEL RAILS.

The production of Bessemer steel rails in 1912 amounted to 1,099,926 tons, against 1,053,420 tons in 1911, an increase of

46,506 tons. Of the total in 1912, 1,070,480 tons were rolled from ingots and 29,446 tons were rolled from new seconds, defective new rails, crop ends, etc. Illinois was the largest maker of Bessemer rails in 1908, 1909, 1910, 1911, and 1912, but Pennsylvania was the largest maker in 1907. The maximum production of Bessemer rails was reached in 1906, when 3,791,459 tons were produced. Bessemer rails were rolled by 10 plants in 1912, against 7 plants in 1911. The following table gives the production of Bessemer steel rails by States in gross tons from 1907 to 1912.

States.	1907.	1908.	1909.	1910.	1911.	1912.
N.Y., N.J. & Md.	1,054,480	386,730	586,193	568,353	284,230	367,128
Pennsylvania.....	1,093,932	315,547	553,719	591,473	352,331	343,837
West Va., Ga., Ala., Ohio, Ind., and Ill.	978,685	576,040	627,259	724,616	416,859	388,961
Wis., Col., Cal., and Wash.....	252,928	70,836				
Total.....	3,380,025	1,349,153	1,767,171	1,884,442	1,053,420	1,099,926

PRODUCTION OF OPEN HEARTH STEEL RAILS.

The production of open-hearth steel rails in 1912 amounted to 2,105,144 tons, against 1,676,923 tons in 1911, an increase of 428,221 tons, or over 25.5 per cent. Of the total in 1912, 2,092,004 tons were rolled from ingots and 13,140 tons were rolled from new seconds, defective new rails, crop ends, etc. Almost all were rolled from basic steel. The maximum production was reached in 1912. The year of next largest production was 1910. The following table gives the production by States since 1907.

States—Gross tons.	1907.	1908.	1909.	1910.	1911.	1912.
N. Y., N. J., and Pa.	37,023	184,059	335,856	445,139	579,924	712,056
Md., Ga., Ala., & Ohio.	152,163	251,956	344,842	570,878	509,950	600,113
Ind., Ill., Wis., Col., and California.....	63,518	135,776	575,976	735,342	587,049	792,975
Total.....	252,704	571,791	1,256,674	1,751,359	1,676,923	2,105,144

It will be noticed that the production of open-hearth rails in 1912 was almost twice that of Bessemer rails in the same year.

In 1912 there were 16 works in 9 States which made open-hearth rails, as follows: New York, 1; Pennsylvania, 5; Maryland, 1; Alabama, 3; Ohio, 2; Indiana, 1; Illinois, 1; Wisconsin, 1; and Colorado, 1; against 16 works in 8 States in 1911.

Pennsylvania was the largest maker of open-hearth rails in 1911 and 1912. It also rolled more open-hearth rails than Bessemer rails in these two years, its production of open-hearth rails in 1912 exceeding its production of Bessemer rails by 182,918 tons and in 1911 by 124,897 tons. In 1909 and 1910 Indiana was the largest maker of open-hearth rails, but in 1907 and 1908 Alabama was the largest maker of rails of this kind.

PRODUCTION OF ELECTRIC STEEL RAILS.

In 1912 the production of rails rolled from steel made in electric furnaces amounted to 3,455 tons, as compared with 462 tons in 1911. In 1909 and 1910 small quantities of rails were also rolled from electric steel, but these rails were included with the Bessemer and open-hearth rails reported for these years.

PRODUCTION OF REROLLED AND RENEWED STEEL RAILS.

In 1912 the production of steel rails rolled from new seconds, defective new rails, crop ends, old steel rails, etc., including renewed rails, amounted to 161,976 tons, of which 42,586 tons were rolled from new seconds, etc., and 119,390 tons were renewed rails or were rerolled from old steel rails. Of the 42,586 tons rolled from new seconds, etc., 29,446 tons were rolled from Bessemer steel and 13,140 tons were rolled from open-hearth steel, and are therefore included in the totals given for Bessemer and open-hearth rails for that year. But, as the 119,390 tons of rails rolled from old steel rails in 1912, and the renewed rails as well, could not be classified by the manufacturers they are not included in the Bessemer or open-hearth rail output for that year, but are grouped under the general heading of electric and rerolled steel rails. Prior to 1911 all rails of this class are included with Bessemer or open-hearth steel rails.

PRODUCTION OF IRON RAILS.

No iron rails were rolled in 1912. In 1911 the production was 234 tons, all rolled in Illinois, and all weighing less than 45 pounds to the yard, against 230 tons in 1910.

WEIGHT PER YARD OF ALL KINDS OF RAILS.

The production in 1912 of rails weighing under 45 pounds to the yard shows an increase of 29,914 tons as compared with 1911; rails weighing 45 pounds and less than 85 pounds show an increase of 50,896 tons; and rails weighing 85 pounds and over show an increase of 424,315 tons. In 1912 over 41 per cent. of the rails weighing less than 45 pounds to the yard, near-

ly 53 per cent. of the rails weighing 45 pounds and less than 85 pounds, and over 20 per cent. of the rails weighing over 85 pounds were rolled from Bessemer steel, while in the same year over 30 per cent. of the rails weighing less than 45 pounds per yard, over 43 per cent. of the rails weighing 45 pounds and less than 85 pounds, and over 78 per cent. of the rails weighing 85 pounds and over were rolled from open-hearth steel.

The following table gives the production of all kinds of rails in 1912, classified according to their weight per yard.

Kinds of rails—Gross tons.	Under 45 pounds.	45 pounds and less than 85.	85 pounds and over.	Total. Gross tons.
Open-hearth steel rails.....	75,203	488,695	1,541,246	2,105,144
Bessemer steel rails.....	103,826	591,744	404,356	1,099,926
Electric & other steel rails	69,643	38,153	15,049	122,845
Iron rails.....	None.	None.	None.	None.
Total for 1912	248,672	1,118,592	1,960,651	3,327,915
Total for 1911.....	218,758	1,067,696	1,536,336	2,822,790

WEIGHT OF ALL KINDS OF RAILS FROM 1897 TO 1912.

The following table gives the production of all kinds of rails from 1897 to 1912 according to the weight of the rails per yard. Girder and high T steel rails for electric and street railways are included in the total. The maximum production of rails was reached in 1906. The year of next largest production was 1910.

Years—Gross tons.	Under 45 pounds per yard.	45 pounds and less than 85.	85 pounds and over per yard.	Total. Gross tons.
1897.....	88,896	1,223,435	335,561	1,647,892
1898.....	123,881	1,404,150	453,210	1,981,241
1899.....	133,836	1,559,340	579,524	2,272,700
1900.....	157,531	1,626,093	602,058	2,385,682
1901.....	155,406	2,225,411	493,822	2,874,639
1902.....	261,887	2,040,884	645,162	2,947,933
1903.....	221,262	1,603,088	1,168,127	2,992,477
1904.....	291,883	1,320,677	672,151	2,284,711
1905.....	228,252	1,601,624	1,546,053	3,375,929
1906.....	284,612	1,749,650	1,943,625	3,977,887
1907.....	295,838	1,569,985	1,767,831	3,633,654
1908.....	183,869	687,632	1,049,514	1,921,015
1909.....	255,726	1,024,856	1,743,263	3,023,845
1910.....	260,709	1,275,339	2,099,983	3,636,031
1911.....	218,758	1,067,696	1,536,336	2,822,790
1912.....	248,672	1,118,592	1,960,651	3,327,915

PRODUCTION OF ALL KINDS OF RAILS BY PROCESSES.

In the following table the production of all kinds of rails from 1897 to 1912 is given by processes in gross tons of 2,240 pounds. Of the total production of rails in 1912 about 33.05 per cent. was rolled from Bessemer steel, about 63.25 per cent. from acid and basic open-hearth steel, and about 3.70 per cent. from electric steel and from old steel rails.

Years—Rails.	Bessemer steel.	Open-hearth steel.	Rerolled steel.	Electric steel.	Iron.	Total.
1897	1,644,520	500	Included with Bessemer and open-hearth steel rails from 1897 to 1910 inclusive.	.....	2,872	1,647,892
1898	1,976,702	1,220		.....	3,319	1,981,241
1899	2,270,585	523		.....	1,592	2,272,700
1900	2,383,654	1,333		.....	695	2,385,682
1901	2,870,816	2,093		.....	1,730	2,874,639
1902	2,935,392	6,029		.....	6,512	2,947,933
1903	2,946,756	45,054		.....	667	2,992,477
1904	2,137,957	145,883		.....	871	2,284,711
1905	3,192,347	183,264		.....	318	3,375,929
1906	3,791,459	186,413		.....	15	3,977,887
1907	3,380,025	252,704		.....	925	3,633,654
1908	1,349,153	571,791		.....	71	1,921,015
1909	1,767,171	1,256,674		†	.....	3,023,845
1910	1,884,442	1,751,359		†	230	3,636,031
1911	1,053,420	1,676,923	*91,751	462	234	2,822,790
1912	1,099,926	2,105,144	*119,390	3,455	.....	3,327,915

* Rerolled from old steel rails which the manufacturers could not classify as Bessemer or open-hearth. † Small tonnages rolled in 1909 and 1910 but included with Bessemer and open-hearth rails for these years.

PRODUCTION OF ALLOY STEEL RAILS.

Included in the 3,327,915 tons of steel rails rolled in 1912 are 149,267 tons of rails rolled from alloy-treated steel, against 153,989 tons in 1911. The following table gives the production by processes of rails rolled from alloy-treated steel since 1909.

Alloy rails—Gross tons.	Bessemer.	Open-hearth and electric.	Total.
Titanium steel rails.....	103,941	37,832	141,773
Manganese, copper, and nickel.....	4,933	2,561	7,494
Total for 1912	108,874	40,393	149,267
Total for 1911	115,450	38,539	153,989
Total for 1910	229,935	27,389	257,324
Total for 1909	35,699	13,696	49,395

The following table gives the production of rails rolled from alloy-treated steel by weight per yard from 1909 to 1912.

Alloy rails—Gross tons.	Under 45 pounds.	45 pounds and less than 85.	85 pounds and over.	Total.
Titanium steel rails.....	.....	4,657	137,116	141,773
Mang., copper, and nickel	21	769	6,704	7,494
Total for 1912	21	5,426	143,820	149,267
Total for 1911 .....	.....	27,097	126,892	153,989
Total for 1910 .....	.....	70,170	187,154	257,324
Total for 1909 .....	.....	9,132	40,263	49,395

The following table gives the output by States of titanium, manganese, and other rails rolled from alloy-treated steel since 1909.

Alloy rails—Gross tons.	1909.	1910.	1911.	1912.
New York, N. J., and Pennsylvania.	46,759	191,265	91,304	54,767
Maryland, Ohio, Ind., and Illinois.	2,636	66,059	62,685	94,500
Total.....	49,395	257,324	153,989	149,267

The following table gives the output by kinds of titanium, manganese, and other rails rolled from alloy-treated steel since 1909.

Alloy rails—Gross tons.	1909.	1910.	1911.	1912.
Titanium steel rails.....	35,945	256,759	152,990	141,773
Manganese, copper, nickel, etc.....	13,450	565	999	7,494
Total.....	49,395	257,324	153,989	149,267

IMPORTS AND EXPORTS OF RAILS.

The following table gives our exports of steel rails to all countries during the past five calendar years in gross tons. Our imports of steel rails in 1912 amounted to 3,780 gross tons.

Countries—Calendar years.	1908.	1909.	1910.	1911.	1912.
Canada	14,807	32,988	25,341	88,047	133,351
Cent. America and Brit. Hond.	8,172	22,749	17,927	14,839	15,935
Mexico.....	61,687	65,838	63,082	35,152	32,402
West Indies and Bermuda.....	19,702	26,981	41,029	35,892	47,889
Argentina.....	28,510	101,943	64,370	57,385	13,574
Brazil			18,400	28,601	45,951
Other South America.			16,384	41,596	54,465
Japan.....	22,070	9,823	17,977	49,775	54,247
Other Asia and Oceanica.....	38,437	38,325	80,080	57,550	31,387
Other countries.....	3,125	893	8,590	12,037	17,272
Total.....	196,510	299,540	353,180	420,874	446,473

PRODUCTION AND CONSUMPTION OF ALL KINDS OF RAILS IN
THE UNITED STATES FROM 1874 TO 1912.

The annual consumption of rails in the United States is approximately ascertained by adding the quantity imported to the total production and deducting the quantity exported. The following table gives the approximate consumption, in gross tons, of all kinds of rails in the thirty-nine years from 1874 to 1912.

Years. Gross tons.	Production—Gross tons.			Add imports.	Deduct exports.	Approximate consumption.
	Iron.	Steel.	Total.			
1874.....	521,848	129,414	651,262	96,706	1,122	746,846
1875.....	447,901	259,699	707,600	17,364	1,080	723,884
1876.....	417,114	368,269	785,383	256	3,180	782,459
1877.....	296,911	385,865	682,776	31	6,647	676,160
1878.....	288,295	499,817	788,112	9	8,354	779,767
1879.....	375,143	618,850	993,993	39,417	3,066	1,030,344
1880.....	440,859	864,353	1,305,212	259,543	958	1,563,797
1881.....	436,233	1,210,285	1,646,518	344,929	611	1,990,836
1882.....	203,459	1,304,392	1,507,851	200,113	3,220	1,704,744
1883.....	57,994	1,156,911	1,214,905	34,801	2,308	1,247,398
1884.....	22,821	999,367	1,022,188	2,829	6,034	1,018,983
1885.....	13,228	963,750	976,978	2,189	7,757	971,410
1886.....	21,142	1,579,395	1,600,537	41,587	2,644	1,639,480
1887.....	20,591	2,119,049	2,139,640	137,830	549	2,276,921
1888.....	12,725	1,390,975	1,403,700	63,037	6,908	1,459,829
1889.....	9,159	1,513,045	1,522,204	6,217	9,325	1,519,096
1890.....	13,882	1,871,425	1,885,307	204	16,947	1,868,564
1891.....	8,240	1,298,936	1,307,176	253	11,239	1,296,190
1892.....	10,437	1,541,407	1,551,844	347	7,982	1,544,209
1893.....	6,090	1,130,368	1,136,458	2,888	19,876	1,119,470
1894.....	4,674	1,017,098	1,021,772	300	13,556	1,008,516
1895.....	5,810	1,300,325	1,306,135	1,447	15,599	1,291,983
1896.....	4,347	1,117,663	1,122,010	7,796	73,131	1,056,675
1897.....	2,872	1,645,020	1,647,892	415	148,221	1,500,086
1898.....	3,319	1,977,922	1,981,241	200	301,903	1,679,538
1899.....	1,592	2,271,108	2,272,700	2,134	277,714	1,997,120
1900.....	695	2,384,987	2,385,682	1,448	361,619	2,025,511
1901.....	1,730	2,872,909	2,874,639	1,905	318,956	2,557,588
1902.....	6,512	2,941,421	2,947,933	63,522	67,666	2,943,789
1903.....	667	2,991,810	2,992,477	95,555	30,837	3,057,195
1904.....	871	2,283,840	2,284,711	37,776	416,250	1,906,237
1905.....	318	3,375,611	3,375,929	17,278	295,023	3,098,184
1906.....	15	3,977,872	3,977,887	4,943	328,036	3,654,794
1907.....	925	3,632,729	3,633,654	3,752	338,906	3,298,500
1908.....	71	1,920,944	1,921,015	1,719	196,510	1,726,224
1909.....	.....	3,023,845	3,023,845	1,542	299,540	2,725,847
1910.....	230	3,635,801	3,636,031	7,861	353,180	3,290,712
1911.....	234	2,822,556	2,822,790	3,414	420,874	2,405,330
1912.....	.....	3,327,915	3,327,915	3,780	446,473	2,885,222

PRODUCTION OF IRON AND STEEL WIRE RODS.

The total production of iron and steel wire rods in 1912 amounted to 2,653,553 gross tons, against 2,450,453 tons in 1911, an increase of 203,100 tons, or over 8.2 per cent. In 1912 the steel wire rods rolled amounted to 2,652,264 tons and the iron rods to 1,289 tons, as compared with 2,449,843 tons of steel and 610 tons of iron rods rolled in 1911. Small quantities of steel copper-clad wire rods are included in the totals for recent years. The maximum production of wire rods was reached in 1912. The year of next largest production was 1911. The production since 1909 was as follows in gross tons of 2,240 pounds.

States—Gross tons.	1909.	1910.	1911.	1912.
Mass., R. I., N. Y., and N. J.	280,101	246,669	244,300	258,680
Penna., Ky., Ga., Ala., and Ohio....	1,388,237	1,412,352	1,585,973	1,806,720
Indiana, Illinois, and Colorado	667,347	582,809	620,180	588,153
Total.....	2,335,685	2,241,830	2,450,453	2,653,553

All the States named in the table rolled steel wire rods in 1912. Iron wire rods were rolled by Rhode Island, New Jersey, and Pennsylvania. The rank of the producing States was as follows: Pennsylvania, Ohio, Illinois, Indiana, Massachusetts, New Jersey, Colorado, New York, Alabama, Kentucky, Georgia, and Rhode Island.

Iron or steel wire rods were rolled in 1912 by 36 works in 12 States, as follows: Massachusetts, 1; Rhode Island, 2; New York, 3; New Jersey, 3; Pennsylvania, 12; Kentucky, 1; Georgia, 1; Alabama, 1; Ohio, 6; Indiana, 2; Illinois, 3; and Colorado, 1. In 1911 there were 35 works in 12 States which rolled iron or steel wire rods. In 1912 Pennsylvania rolled over 44.6 per cent. of the total production, against over 41.4 per cent. in 1911. At the close of 1912 one wire-rod mill was partly built in Alabama. The following table gives the production of iron and steel wire rods in the last twenty-five years in gross tons.

Years.	Tons.	Years.	Tons.	Years.	Tons.	Years.	Tons.
1888.....	279,769	1895.....	791,130	1902.....	1,574,293	1909.....	2,335,685
1889.....	363,851	1896.....	623,986	1903.....	1,503,455	1910.....	2,241,830
1890.....	457,099	1897.....	970,736	1904.....	1,699,028	1911.....	2,450,453
1891.....	536,607	1898.....	1,071,683	1905.....	1,808,688	1912....	2,653,553
1892.....	627,829	1899.....	1,036,398	1906.....	1,871,614	.....	.....
1893.....	537,272	1900.....	846,291	1907.....	2,017,583	.....	.....
1894.....	673,402	1901.....	1,365,934	1908.....	1,816,949	.....	.....

From 1888 to 1898 the output of wire rods increased 791,914 tons, or over 283 per cent.; from 1898 to 1908 the increase amounted to 745,266 tons, or over 69.5 per cent.; and from 1908 to 1912 it amounted to 836,604 tons, or over 46 per cent.

The following table gives the approximate annual consumption of iron and steel wire rods from 1900 to 1912 in gross tons.

Years. Gross tons.	Production of wire rods.			Add imports.	Deduct exports.	Approximate consumption.
	Iron.	Steel.	Total.			
1900.....	1,929	844,362	846,291	21,092	10,652	856,731
1901.....	475	1,365,459	1,365,934	16,804	8,165	1,374,573
1902.....	206	1,574,087	1,574,293	21,382	24,613	1,571,062
1903.....	30	1,503,425	1,503,455	20,836	22,360	1,501,931
1904.....	1,166	1,697,862	1,699,028	15,313	20,073	1,694,268
1905.....	1,281	1,807,407	1,808,688	17,616	6,514	1,819,790
1906.....	1,201	1,870,413	1,871,614	17,799	5,895	1,883,518
1907.....	1,550	2,016,033	2,017,583	17,076	10,697	2,023,962
1908.....	509	1,816,440	1,816,949	11,209	7,412	1,820,746
1909.....	.....	2,335,685	2,335,685	10,544	20,142	2,326,087
1910.....	627	2,241,203	2,241,830	20,374	22,869	2,239,335
1911.....	610	2,449,843	2,450,453	15,483	22,641	2,443,295
1912.....	1,289	2,652,264	2,653,553	15,069	64,978	2,603,644

Of the exports of iron and steel wire rods in 1912, 63,963 tons were sent to Canada, as compared with 22,583 tons in 1911; 509 tons were sent to England, as compared with 52 tons in 1911; and 506 tons to Australia and Tasmania, Belgium, Mexico, China, and other countries, as compared with 6 tons in 1911.

PRODUCTION OF IRON AND STEEL STRUCTURAL SHAPES.

The production of beams, beam girders, zee bars, tees, channels, angles, and other forms of heavy and light iron and steel structural shapes in 1912 is separately given below. Prior to 1912 the output of heavy structural shapes was not separated from the output of light structural shapes. In the statistics for 1910 and 1911 the production of small angles, small channels, and other similar light structural forms for use in the manufacture of bedsteads, safes, fences, etc., was not included in the total output of structural shapes, but for 1909 and some prior years the output of light shapes of this character was included.

The figures given for heavy structural shapes for 1912 include all beams, tees, zee bars, angles, channels, etc., having one leg or web of 3 inches and over which were rolled for structural or fabricating purposes, while the figures given for light structural shapes include only such light shapes and small angles, etc., as

were rolled for use in the manufacture of bedsteads, agricultural implements, fences, safes, vaults, or for other fabricating purposes having a section smaller than is provided for in the heavy structural classification. The production of iron and steel plates, girders made from plates, merchant bars, bars for reinforced concrete work, sheet piling, etc., all of which are provided for elsewhere, is not included.

The total production of heavy and light structural shapes in 1912 amounted to 2,846,487 gross tons, of which 2,470,415 tons were heavy and 376,072 tons were light structural shapes. All the heavy shapes were rolled from steel, while of the light shapes 5,517 tons were rolled from iron and 370,555 tons were rolled from steel. The classification adopted for 1912 differs materially from that used in 1911 and prior years.

In the following table the production of heavy and light structural shapes by States is separately given for 1912.

States—Gross tons.	Heavy shapes.	Light shapes.	Total.
New York, New Jersey, and Penna.....	1,968,967	204,650	2,173,617
Alabama and Ohio.....	6,818	66,323	73,141
Indiana, Illinois, Wis., Col., and Cal.....	494,630	105,099	599,729
Total.....	2,470,415	376,072	2,846,487

The production of structural shapes since 1909 by States was as follows. See the explanatory statement above in relation to the change in classification in collecting the statistics for 1912.

States—Gross tons.	1909.	1910.	1911.	1912.
New York and New Jersey	177,483	1,853,407	1,565,457	{ 122,773
Pennsylvania.....	1,642,074			{ 2,050,844
Alabama and Ohio.....	60,213	40,433	30,773	73,141
Ind., Ill., Wis., Col., and Cal.	395,792	373,050	316,137	599,729
Total.....	2,275,562	2,266,890	1,912,367	2,846,487

In 1912 there were 40 works in 10 States which rolled heavy or light structural shapes, as follows: New York, 2; New Jersey, 2; Pennsylvania, 22; Alabama, 1; Ohio, 4; Indiana, 3; Illinois, 3; Wisconsin, 1; Colorado, 1; and California, 1. Pennsylvania made over 72 per cent. of the total production in 1912. The next largest producers in the order of their prominence were Illinois, Indiana, New York, Wisconsin, Ohio, Alabama, California, New Jersey, and Colorado. The following table gives the production from 1892 to 1912 in gross tons of 2,240 pounds.

Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.
1892.....	453,957	1899.....	850,376	1906.....	2,118,772
1893.....	387,307	1900.....	815,161	1907.....	1,940,352
1894.....	360,305	1901.....	1,013,150	1908.....	1,083,181
1895.....	517,920	1902.....	1,300,326	1909.....	2,275,562
1896.....	495,571	1903.....	1,095,813	1910.....	2,266,890
1897.....	583,790	1904.....	949,146	1911.....	1,912,367
1898.....	702,197	1905.....	1,660,519	1912.....	2,846,487

The following table gives the approximate annual consumption of iron and steel structural shapes in this country from 1900 to 1912 in gross tons. Iron structural shapes were not separated from steel structural shapes for 1900, 1901, 1902, or 1903.

Years. Gross tons.	Production of structural shapes.			Add imports.	Deduct exports.	Approximate con- sumption.
	Iron.	Steel.	Total.			
1900.....	815,161		815,161	*.....	67,714	747,447
1901.....	1,013,150		1,013,150	*.....	54,005	959,145
1902.....	1,300,326		1,300,326	*.....	53,859	1,246,467
1903.....	1,095,813		1,095,813	8,865	30,641	1,074,037
1904.....	8,019	941,127	949,146	7,203	55,514	900,835
1905.....	11,630	1,648,889	1,660,519	16,147	84,234	1,592,432
1906.....	4,719	2,114,053	2,118,772	28,573	112,555	2,034,790
1907.....	3,973	1,936,379	1,940,352	2,294	138,442	1,804,204
1908.....	2,423	1,080,758	1,083,181	3,623	116,881	969,923
1909.....	44,814	2,230,748	2,275,562	6,146	90,830	2,190,878
1910.....	426	2,266,464	2,266,890	14,897	146,721	2,135,066
1911.....	811	1,911,556	1,912,367	5,343	223,493	1,694,217
1912.....	5,517	2,840,970	2,846,487	3,120	288,164	2,561,443

* Imports of structural shapes were included with ingots, billets, etc., prior to 1903.

† Do not include some small forms of rolled iron and steel which were included as structural shapes in 1909 and previous years.

The following table gives our exports of iron and steel structural shapes by countries from 1908 to 1912 in calendar years.

Countries—Gross tons.	1908.	1909.	1910.	1911.	1912.
Canada	39,253	42,715	74,855	103,054	169,952
Panama	2,083	11,792	7,787	28,881	41,536
Mexico	11,953	8,317	21,723	19,665	3,257
Cuba	10,417	5,849	10,557	16,052	14,587
South America.....	16,068	6,014	12,681	13,073	13,537
Japan	16,559	5,848	4,007	19,536	17,191
British Oceanica.....	5,479	3,155	5,695	7,135	8,422
Philippine Islands....	7,142	3,271	2,179	4,305	1,283
Other countries.....	7,927	3,869	7,237	11,792	18,399
Total	116,881	90,830	146,721	223,493	288,164

PRODUCTION OF PLATES AND SHEETS.

The production of iron and steel plates and sheets in 1912, excluding nail plate and skelp, amounted to 5,875,080 tons, against 4,488,049 tons in 1911, an increase of 1,387,031 tons, or over 30.9 per cent. The maximum production was reached in 1912. The year of next largest production was 1910. The production of nail plate and skelp is given on pages 121 and 125-26. The following table gives the production by States of plates and sheets from 1908 to 1912. Tie plates are included for 1909, 1910, and 1911 but not for 1912. Gross tons of 2,240 pounds are used.

States—Gross tons.	1908.	1909.	1910.	1911.	1912.
New Eng., N. Y., & N. J..	58,567	119,642	141,999	106,298	108,477
Pennsylvania.....	1,531,066	2,384,185	2,808,883	2,405,247	3,166,872
Del., Md., and Virginia..	25,000	29,038	23,863	22,060	19,488
West Virginia.....	159,714	211,012	225,649	246,893	317,718
Kentucky and Alabama	45,473	70,639	69,610	67,930	65,598
Ohio.....	603,213	938,185	1,052,414	1,168,879	1,493,825
Ind., Ill., Wis., Mo., Wyo- ming, and California...	226,660	481,645	633,066	470,742	703,102
Total	2,649,693	4,234,346	4,955,484	4,488,049	5,875,080

In 1912 there were 131 works in 14 States which rolled plates or sheets, against 139 works in 15 States in 1911, 150 works in 17 States in 1910, 141 works in 17 States in 1909, and 117 works in 15 States in 1908. In the following table the production by States in 1912 of iron and steel plates of No. 12 gauge and thicker is separated from the production of iron and steel sheets of No. 13 gauge and thinner. Gross tons are used.

States—Gross tons.	Plates.	Sheets.	Total.
Mass., New York, and New Jersey.....	63,776	44,701	108,477
Pennsylvania.....	2,005,293	1,161,579	3,166,872
Del., Md., West Virginia, Ky., and Ala..	30,877	371,927	402,804
Ohio.....	543,446	950,379	1,493,825
Indiana.....	149,691	228,940	378,631
Illinois, Wisconsin, and Missouri.....	242,117	82,354	324,471
Total for 1912.....	3,035,200	2,839,880	5,875,080
Total for 1911.....	2,334,341	2,153,708	4,488,049

The total production of iron and steel plates in 1912 was 3,035,200 tons, as compared with 2,334,341 tons in 1911, an increase of 700,859 tons, or over 30 per cent. The total pro-

duction of iron and steel sheets in 1912 amounted to 2,839,880 tons, as compared with 2,153,708 tons in 1911, an increase of 686,172 tons, or over 31.8 per cent.

The States which rolled iron or steel plates in 1912 in the order of their prominence were Pennsylvania, Ohio, Illinois, Indiana, New York, Alabama, West Virginia, Wisconsin, Kentucky, New Jersey, and Massachusetts, and the States which rolled sheets in 1912 in the order of their prominence were Pennsylvania, Ohio, West Virginia, Indiana, Illinois, Kentucky, New York, Massachusetts, Delaware, Maryland, and Missouri.

Of the total production of iron and steel plates in 1912, Pennsylvania rolled 2,005,293 tons, or over 66 per cent., against 1,476,614 tons, or over 63.2 per cent., in 1911, and of the total production of iron and steel sheets in 1912, Pennsylvania rolled 1,161,579 tons, or over 40.9 per cent., against 928,633 tons, or over 43.1 per cent., in 1911. In 1912 Ohio rolled 543,446 tons, or over 17.9 per cent., of the total production of plates, against 465,099 tons, or over 19.9 per cent., in 1911, and 950,379 tons, or over 33.4 per cent., of the total production of sheets, against 703,780 tons, or 32.6 per cent., in 1911. No other State rolled 8 per cent. of the total production of plates in 1912 or 11 per cent. of the total production of sheets.

In 1912 there were 39 works which rolled plates but did not roll sheets, 55 works which rolled sheets but did not roll plates, and 37 works which rolled both plates and sheets. At the close of 1912 three works to roll sheets or black plates were being built—1 in Pennsylvania and 2 in Ohio.

The following table gives separately the production of iron and steel plates and sheets since 1905. Similar statistics for 1904 and immediately preceding years were not collected. Black plates, or sheets, for tinning are included, but nail plate and skelp are excluded. Gross tons of 2,240 pounds are used.

Years. Gross tons.	Plates—No. 12 and thicker.			Sheets—No. 13 and thinner.			Grand total.
	Iron.	Steel.	Total.	Iron.	Steel.	Total.	
1905....	10,022	2,031,184	2,041,206	62,134	1,428,890	1,491,024	3,532,230
1906....	23,333	2,508,219	2,531,552	51,040	1,599,564	1,650,604	4,182,156
1907....	30,277	2,629,783	2,660,060	43,761	1,545,011	1,588,772	4,248,832
1908....	31,679	1,239,342	1,271,021	22,354	1,356,318	1,378,672	2,649,693
1909....	32,332	2,346,766	2,379,098	43,870	1,811,378	1,855,248	4,234,346
1910....	37,763	2,769,965	2,807,728	53,355	2,094,401	2,147,756	4,955,484
1911....	46,147	2,288,194	2,334,341	43,280	2,110,428	2,153,708	4,488,049
1912....	33,349	3,001,851	3,035,200	41,695	2,798,185	2,839,880	5,875,080

The following table gives separately the production of plates, sheets, and black plates, or sheets, for tinning since 1905.

Years—Gross tons.	Plates.	Sheets, not including black plates for tinning.	Black plates, or sheets, for tinning.	Total. Gross tons.
1905.....	2,041,206	983,437	507,587	3,532,230
1906.....	2,531,552	1,074,525	576,079	4,182,156
1907.....	2,660,060	1,084,700	504,072	4,248,832
1908.....	1,271,021	864,901	513,771	2,649,693
1909.....	2,379,098	1,248,766	606,482	4,234,346
1910.....	2,807,728	1,435,619	712,137	4,955,484
1911.....	2,334,341	1,358,110	795,598	4,488,049
1912.....	3,035,200	1,857,683	982,197	5,875,080

The following table gives the approximate annual consumption of iron and steel plates and sheets in this country from 1900 to 1912 in gross tons, imports for each year having been added and exports deducted. Iron plates and sheets were not separated from steel plates and sheets for 1900, 1901, 1902, and 1903.

Years. Gross tons.	Production of plates and sheets.			Add imports.	Deduct exports.	Approximate consumption.
	Iron.	Steel.	Total.			
1900.....	1,794,528		1,794,528	5,143	54,865	1,744,806
1901.....	2,254,425		2,254,425	5,621	30,832	2,229,214
1902.....	2,665,409		2,665,409	7,156	18,300	2,654,265
1903.....	2,599,665		2,599,665	11,557	18,094	2,593,128
1904.....	67,713	2,353,685	2,421,398	4,165	55,204	2,370,359
1905.....	72,156	3,460,074	3,532,230	2,336	75,097	3,459,469
1906.....	74,373	4,107,783	4,182,156	3,231	110,700	4,074,687
1907.....	74,038	4,174,794	4,248,832	3,748	122,696	4,129,884
1908.....	54,033	2,595,660	2,649,693	2,629	104,993	2,547,329
1909.....	76,202	4,158,144	4,234,346	4,720	180,047	4,059,019
1910.....	91,118	4,864,366	4,955,484	6,152	274,521	4,687,115
1911.....	89,427	4,398,622	4,488,049	2,453	372,373	4,118,129
1912.....	75,044	5,800,036	5,875,080	3,300	546,521	5,331,859

In the period covered by the table the maximum production of steel plates and sheets was reached in 1912, the maximum production of iron plates and sheets in 1910, and the maximum production of both iron and steel plates and sheets in 1912.

In 1912 over 9.3 per cent. of the plates and sheets made in that year was exported, as compared with over 8.2 per cent. in 1911. Exports reached their maximum in 1912—546,521 tons.

The following table, compiled from statistics obtained from the Bureau of Foreign and Domestic Commerce of the Department of

Commerce, gives the exports by countries of plates and sheets in 1911 and 1912, iron plates and sheets being separated from steel plates and sheets. Gross tons of 2,240 pounds are used throughout.

Countries—Gross tons.	1911—Exports of plates and sheets.			1912—Exports of plates and sheets.		
	Iron.	Steel.	Total.	Iron.	Steel.	Total.
Canada	27,170	167,135	194,305	50,805	241,856	292,661
Panama	834	5,465	6,299	1,504	2,677	4,181
Mexico	7,734	3,987	11,721	11,370	2,996	14,366
Cuba	6,782	3,691	10,473	6,924	4,570	11,494
Argentina	25,580	187	25,767	25,486	843	26,329
Brazil	1,440	1,063	2,503	5,131	144	5,275
Chile	3,660	21,400	25,060	4,479	12,774	17,253
Uruguay	1,839	.....	1,839	3,464	54	3,518
British India	8,561	72	8,633	13,753	2,957	16,710
Japan	14,740	12,490	27,230	19,266	31,749	51,015
Australia and Tasmania..	7,022	10,632	17,654	9,961	14,421	24,382
Philippine Islands	10,453	964	11,417	9,021	1,209	10,230
Scotland .....	.....	4,149	4,149	.....	13,154	13,154
All other countries	19,134	6,189	25,323	32,555	23,398	55,953
Total	134,949	237,424	372,373	193,719	352,802	546,521

The exports of iron and steel plates and sheets from the United States in calendar years to leading foreign countries are given in pounds in the following table from 1908 to 1912.

Countries. Pounds.	1908. Pounds.	1909. Pounds.	1910. Pounds.	1911. Pounds.	1912. Pounds.
United King..	9,916,253	17,748,568	10,336,091	10,114,211	39,252,950
Canada	108,694,044	223,705,297	370,563,051	435,243,867	655,559,702
Panama	12,827,074	7,952,163	7,207,469	14,110,509	9,365,118
Mexico	16,676,888	31,265,890	34,447,203	26,253,798	32,181,130
Cuba	8,819,455	16,237,922	22,554,689	23,460,492	25,745,864
Brazil	241,454	1,481,800	3,445,921	5,607,694	11,816,043
Argentina	18,832,992	25,181,981	42,566,022	57,717,927	58,976,566
Chile	1,298,625	6,136,506	16,789,703	56,133,495	38,647,253
Uruguay	288,144	905,959	370,024	4,118,208	7,880,711
British India	5,458,052	8,517,515	4,718,902	19,337,184	37,429,777
Japan	10,505,570	10,629,372	16,630,685	60,995,259	114,274,697
Australia and Tasmania... }	9,355,919	17,986,919	30,323,718	39,545,905	54,615,810
Philippine Islands	6,765,310	11,473,930	20,804,370	25,572,936	22,915,201
Other coun- tries	25,504,520	24,082,820	34,168,662	55,902,901	115,546,846
Total	235,184,300	403,306,642	614,926,510	834,114,386	1,224,207,668

The total production of iron and steel plates and sheets, not including nail plate or skelp, from 1887 to 1912 is given below.

Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.
1887.....	603,355	1896.....	965,776	1905.....	3,532,230
1888.....	609,827	1897.....	1,207,286	1906.....	4,182,156
1889.....	716,496	1898.....	1,448,301	1907.....	4,248,832
1890.....	809,981	1899.....	1,903,505	1908.....	2,649,693
1891.....	678,927	1900.....	1,794,528	1909.....	4,234,346
1892.....	751,460	1901.....	2,254,425	1910.....	4,955,484
1893.....	674,345	1902.....	2,665,409	1911.....	4,488,049
1894.....	682,900	1903.....	2,599,665	1912.....	5,875,080
1895.....	991,459	1904.....	2,421,398	.....	.....

PRODUCTION OF BLACK PLATES FOR TINNING.

The production of black plates, or sheets, for tinning in 1912 amounted to 982,197 gross tons, against 795,598 tons in 1911, an increase of 186,599 tons, or over 23.4 per cent. The output of a few plants has been estimated. The production in 1912 was much the largest in our history. The year of next largest production was 1911. The following table gives the production from 1907 to 1912 in gross tons of 2,240 pounds.

States—Gross tons.	1907.	1908.	1909.	1910.	1911.	1912.
Pennsylvania.....	253,807	278,163	308,982	427,530	483,576	563,738
Md. and West Va....	95,939	92,860	115,866	132,483	154,900	207,158
Ohio, Ind., and Ill...	154,326	142,748	181,634	152,124	157,122	211,301
Total.....	504,072	513,771	606,482	712,137	795,598	982,197

Of the total production in 1912, Pennsylvania made nearly 57.4 per cent., against over 60.7 per cent. in 1911, over 60 per cent. in 1910, over 50.9 per cent. in 1909, over 54.1 per cent. in 1908, and over 50.3 per cent. in 1907. West Virginia, Ohio, Indiana, Illinois, and Maryland also made black plates, or sheets, for tinning in 1912 in the order named. The same States made black plates, or sheets, for tinning in 1907, 1908, 1909, 1910, and 1911. Of the total production in 1912, about 5,378 tons were rolled from iron and about 976,819 tons were rolled from steel, while in 1911 about 3,515 tons were rolled from iron and about 792,083 tons from steel. The States which made iron black plates in 1912 were Pennsylvania and Ohio. All the States named in the table made steel black plates in that year.

In 1912 there were 34 active black plate works, as compared with 31 in 1911, 35 in 1910, 31 in 1909, 28 in 1908, and

31 in 1907. In 1912 there were 3 idle works, as compared with 4 in 1911, 4 in 1910, 9 in 1909, 13 in 1908, and 10 in 1907. Two plants for the manufacture of black plates, or sheets, for tinning were being built in Ohio at the close of 1912.

The production of black plates, or sheets, for tinning from 1904 to 1912 is given below, iron black plates being separated from steel black plates. Similar statistics for 1903 and earlier years are not available. Gross tons of 2,240 pounds are used.

Years.	Iron.	Steel.	Total.	Years.	Iron.	Steel.	Total.
1904.	2,981	469,588	472,569	1909.....	4,261	602,221	606,482
1905.....	3,152	504,435	507,587	1910.....	2,893	709,244	712,137
1906.....	5,666	570,413	576,079	1911.....	3,515	792,083	795,598
1907.....	3,161	500,911	504,072	1912.....	5,378	976,819	982,197
1908.....	2,954	510,817	513,771	.....	.....	.....	.....

The following table gives the production of black plates, or sheets, for tinning from 1894 to 1912. Prior to 1894 the statistics of black plate production were not separately classified. Gross tons of 2,240 pounds are used throughout.

Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.
1894.....	52,359	1901.....	398,026	1908.....	513,771
1895.....	129,615	1902.....	365,743	1909.....	606,482
1896.....	185,387	1903.....	490,652	1910.....	712,137
1897.....	271,886	1904.....	472,569	1911.....	795,598
1898.....	345,254	1905.....	507,587	1912.....	982,197
1899.....	375,000	1906.....	576,079	.....	.....
1900.....	315,000	1907.....	504,072	.....	.....

PRODUCTION OF TINPLATES AND TERNE PLATES.

From reports received from the large producers and from estimates we have made for a few other makers we find that the production of tinplates and terne plates in 1912 amounted to about 2,157,055,000 pounds, or 962,971 gross tons, as compared with about 1,756,070,000 pounds, or 783,960 tons, in 1911, an increase of 400,985,000 pounds, or 179,011 tons. Of the total in 1912, 1,965,659,000 pounds, or 877,526 tons, were tinplates, as compared with 1,597,629,000 pounds, or 713,227 tons, in 1911, an increase of 368,030,000 pounds, or 164,299 tons, and 191,396,000 pounds, or 85,445 tons, were terne plates, as compared with 158,441,000 pounds, or 70,733 tons, in 1911, an increase of 32,955,000 pounds, or 14,712 tons. The combined production of tinplates and terne plates in 1912 was much larger than in any

other year. The following table gives the production by States of tinplates and terne plates in pounds in the calendar year 1912.

States—Pounds.	Tinplates.	Terne plates.	Total.
Pennsylvania	1,179,468,000	81,872,000	1,261,340,000
West Virginia	347,544,000	86,030,000	433,574,000
Ohio, Indiana, Illinois, and Michigan.	438,647,000	23,494,000	462,141,000
Total for 1912.....	1,965,659,000	191,396,000	2,157,055,000
Total for 1911.....	1,597,629,000	158,441,000	1,756,070,000

All the tinplates produced in 1912 were made of steel, but of the 191,396,000 pounds of terne plates about 11,259,000 pounds were made of iron and about 180,137,000 pounds were made of steel, as compared with about 7,720,000 pounds of iron and about 150,721,000 pounds of steel terne plates in 1911. In 1911 and 1912 the iron terne plates were made in Pennsylvania and Ohio. Small quantities of pure lead coated and aluminum coated sheets produced in the two years are not included.

Of the total production of tinplates in 1912, Pennsylvania made over 60 per cent., against over 63.1 per cent. in 1911, and of the total production of terne plates in 1912, it made over 42.7 per cent., against over 44.6 per cent. in 1911. Combining tinplates and terne plates Pennsylvania made over 58.4 per cent. of the total in 1912, against over 61.4 per cent. in 1911.

In 1912 there were 20 plants in 6 States which made tinplates but not terne plates, 5 plants in 2 States which made terne plates but not tinplates, and 12 plants in 3 States which made both tinplates and terne plates. The number of active plants in 1912 was 37, against 34 in 1911, and the number of idle plants was 5, against 7 in 1911. At the close of 1912 three plants were being built. The following table compares the production of tinplates and terne plates by States in 1912 with 1911.

States—Tinplates and terne plates.	1911—Pounds.	1912—Pounds.	Increase.
Pennsylvania.....	1,078,962,000	1,261,340,000	182,378,000
New York and West Virginia....	326,025,000	433,574,000	107,549,000
Ohio, Indiana, Ill., and Michigan	351,083,000	462,141,000	111,058,000
Total.....	1,756,070,000	2,157,055,000	400,985,000

In the following table the production of iron terne plates is separated from the production of steel terne plates from 1908 to

1912. Similar statistics are not available for prior years. No iron tinplates were reported in the five years covered by the table.

Years. Pounds.	Terne plates—Pounds.			Steel tinplates. (Iron tinplates not reported.)	Grand total. Pounds.
	Iron.	Steel.	Total.		
1908.....	6,560,500	147,618,500	154,179,000	1,048,896,000	1,203,075,000
1909.....	8,054,900	182,875,100	190,930,000	1,179,858,000	1,370,788,000
1910.....	5,765,000	162,419,000	168,184,000	1,450,821,000	1,619,005,000
1911.....	7,720,000	150,721,000	158,441,000	1,597,629,000	1,756,070,000
1912.....	11,259,000	180,137,000	191,396,000	1,965,659,000	2,157,055,000

The following table gives the production of both tinplates and terne plates in the United States from the beginning of the industry in 1891 to the end of 1912. From July 1, 1891, to June 30, 1897, the statistics were collected by Colonel Ira Ayer for the Treasury Department, and from July 1, 1897, to December 31, 1911, they were compiled from reliable sources of information but chiefly from the records of the American Iron and Steel Association. For 1912 the figures were compiled by the Bureau of Statistics of the American Iron and Steel Institute.

Years—Pounds.	Tinplates.	Terne plates.	Total pounds.
1891 (second 6 months).....	368,400	1,868,343	2,236,743
1892 (calendar year).....	13,921,296	28,197,896	42,119,192
1893.....	64,536,209	59,070,498	123,606,707
1894.....	102,223,407	64,120,002	166,343,409
1895.....	165,927,907	88,683,488	254,611,395
1896.....	270,151,785	89,058,013	359,209,798
1897 (first 6 months).....	203,028,258	49,545,643	252,573,901
1897 (second 6 months).....			322,205,619
1898 (calendar year).....			732,289,600
1899.....			808,360,000
1900 (census year ending May 31)	707,718,239	141,285,783	*850,004,495
1901 (calendar year).....			894,411,840
1902.....			806,400,000
1903.....			1,075,200,000
1904 (census year ending Dec. 31)	867,526,985	158,857,866	*1,032,940,706
1905 (calendar year).....			1,105,440,000
1906.....	1,100,373,000	193,367,000	1,293,740,000
1907.....	996,650,000	156,447,000	1,153,097,000
1908.....	1,048,896,000	154,179,000	1,203,075,000
1909.....	1,179,858,000	190,930,000	1,370,788,000
1910.....	1,450,821,000	168,184,000	1,619,005,000
1911.....	1,597,629,000	158,441,000	1,756,070,000
1912.....	1,965,659,000	191,396,000	2,157,055,000

* Revised. Include 1,000,473 pounds in 1900 and 6,555,855 pounds in 1904 of "other sheet iron and sheet steel, tin or terne plated."

The following table gives the total production of tinplates and terne plates from 1891 to 1912 in gross tons of 2,240 pounds.

Calendar years.	Gross tons.	Calendar years.	Gross tons.
1891 (last six months)...	999	1902	360,000
1892.....	18,803	1903	480,000
1893.....	55,182	1904 (cen. yr. end. Dec. 31)	*461,134
1894.....	74,260	1905	493,500
1895.....	113,666	1906	577,562
1896.....	160,362	1907	514,775
1897.....	256,598	1908	537,087
1898.....	326,915	1909	611,959
1899.....	360,875	1910	722,770
1900 (cen. yr. end. May 31)	*379,466	1911	783,960
1901	399,291	1912	962,971

* Revised. See note on page 118.

The following table gives our approximate annual consumption of tinplates and terne plates from 1900 to 1912, imports for each year having been added and exports deducted. For 1900 the production is for the census year ended May 31, 1900, and for 1904 it is for the census year ended December 31, 1904.

Calendar years. Gross tons.	Production.	Add imports.	Deduct exports.	Approximate consumption.
1900.....	*379,466	60,386	273	439,579
1901.....	399,291	77,395	439	476,247
1902.....	360,000	60,115	1,566	418,549
1903.....	480,000	47,360	292	527,068
1904.....	*461,134	70,652	7,898	523,888
1905.....	493,500	65,740	7,941	551,299
1906.....	577,562	56,983	12,082	622,463
1907.....	514,775	57,773	10,203	562,345
1908.....	537,087	58,490	11,878	583,699
1909.....	611,959	62,593	9,327	665,225
1910.....	722,770	66,640	12,445	776,965
1911.....	783,960	14,099	61,381	736,678
1912.....	962,971	2,052	81,694	883,329

* Revised. See note on page 118.

In 1911 our production of tinplates and terne plates first exceeded our consumption, the difference amounting to 47,282 tons. In 1912 the production exceeded consumption by 79,642 tons.

We are indebted to the *Statistical Abstract*, issued by the Bureau of Foreign and Domestic Commerce of the Department of Commerce, for the following table showing the quantities and values of tinplates and terne plates imported into the United States in the fiscal years ended June 30 from 1889 to 1912.

Fiscal years.	United Kingdom.		All other countries.		Total.	
	Pounds.	Values.	Pounds.	Values.	Pounds.	Values.
1889.....	734,211,853	\$21,174,529	1,568,135	\$48,124	735,779,988	\$21,222,653
1890.....	678,933,940	20,891,062	1,126,985	37,088	680,060,925	20,928,150
1891.....	1,033,531,124	35,645,076	2,957,950	101,844	1,036,489,074	35,746,920
1892.....	421,838,482	12,304,233	337,720	11,329	422,176,202	12,315,562
1893.....	628,095,497	17,554,310	330,405	11,330	628,425,902	17,565,640
1894.....	453,880,341	11,961,524	280,485	7,994	454,160,826	11,969,518
1895.....	507,075,599	12,119,083	963,339	24,997	508,038,938	12,144,080
1896.....	383,882,250	8,915,083	1,256,733	35,573	385,138,983	8,950,656
1897.....	229,208,495	5,320,238	865,188	24,400	230,073,683	5,344,638
1898.....	170,872,133	3,786,626	790,212	22,522	171,662,345	3,809,148
1899.....	107,831,639	2,592,106	653,187	21,458	108,484,826	2,613,564
1900.....	147,321,985	4,772,629	641,819	27,167	147,963,804	4,799,796
1901.....	116,829,478	3,733,480	1,050,834	36,582	117,880,312	3,770,062
1902.....	197,232,677	5,995,515	1,763,409	70,109	198,996,086	6,065,624
1903.....	109,605,243	3,195,624	308,050	14,291	109,913,293	3,209,915
1904.....	126,502,829	3,459,124	406,531	14,330	126,909,360	3,473,454
1905.....	160,827,056	4,550,335	239,764	8,540	161,066,820	4,558,875
1906.....	120,627,726	3,402,987	192,006	9,256	120,819,732	3,412,243
1907.....	142,273,310	4,637,211	256,096	14,121	142,529,406	4,651,332
1908.....	140,502,522	4,279,862	237,450	12,091	140,739,972	4,291,953
1909.....	116,860,827	3,202,311	451,347	23,040	117,312,174	3,225,351
1910.....	153,704,447	4,315,459	862,152	39,670	154,566,599	4,355,129
1911.....	94,759,014	2,993,670	560,716	28,782	95,319,730	3,022,452
1912.....	5,954,894	249,626	658,359	37,321	6,613,253	286,947

In the period covered by the table the maximum imports of tinplates and terne plates was reached in 1891, when 1,036,489,074 pounds, valued at \$35,746,920, were imported. The minimum imports were in 1912—6,613,253 pounds.

In late years virtually all the tinplates imported have been for use by oil and canning interests, and, when manufactured into cans, etc., have been re-exported, thus obtaining the benefit of the drawback of 99 per cent. of the duty paid. In the fiscal year 1912 the re-exports of tinplates under the drawback provision amounted to 32,227,748 pounds, in 1911 to 122,812,589 pounds, in 1910 to 141,732,141 pounds, in 1909 to 116,829,347 pounds, and in 1908 to 158,911,418 pounds.

In the calendar year 1912 our domestic exports of tinplates and terne plates amounted to 81,694 gross tons, valued at \$6,315,763, against 61,381 tons in 1911, valued at \$4,776,256. Exports reached their maximum in 1912, when over 8.4 per cent. of the total output was sent to foreign countries. The following table gives our exports of tinplates and terne plates in pounds in calendar years since 1908. The re-exports mentioned above are not included.

Countries—Pounds.	1908.	1909.	1910.	1911.	1912.
Canada	23,639,903	17,551,473	24,946,514	64,190,650	105,492,978
England	1,800	230	1,269	.....	668,310
Mexico.....	894,563	849,782	694,529	4,117,235	5,311,750
Cuba	423,894	775,423	401,438	3,190,173	4,563,785
Argentina.....	.....	.....	86,011	5,753,920	9,987,329
Brazil.....	1,811	72,365	132,173	2,775,208	5,986,914
Chile.....	33,140	14,103	129,241	2,537,966	3,252,254
China.....	311,888	501,194	.....	19,705,610	13,166,327
British India.....	16,500	.....	8,994	15,531,702	8,737,493
Hongkong.....	122,500	351,432	.....	7,896,380	7,144,481
Japan	767,900	3,140	.....	6,948,568	6,549,668
Other countries...	393,915	774,226	1,476,911	4,846,829	12,133,630
Total	26,607,814	20,893,368	27,877,080	137,494,241	182,994,919

PRODUCTION OF NAIL PLATE.

The production of iron and steel plate for the manufacture of cut nails and cut spikes in 1912 amounted to 45,331 tons, against 48,522 tons in 1911, a decrease of 3,191 tons, or over 6.5 per cent. Of the total production in 1912, about 36,658 tons were steel and about 8,673 tons were iron, against about 38,571 tons of steel and about 9,951 tons of iron in 1911.

The following table gives by States the production of nail and spike plate in the last six years in gross tons. In 1912, 11 plants in 5 States rolled iron or steel nail or spike plate, as compared with 12 plants in 6 States in 1911.

States—Gross tons.	1907.	1908.	1909.	1910.	1911.	1912.
Pennsylvania.....	32,004	26,148	32,341	24,479	26,176	22,033
Mass., West Va., and Ky..	13,179	14,406	25,405	14,945	20,293	19,848
Ohio, Ill., and California..	6,844	5,193	6,000	5,870	2,053	3,450
Total	52,027	45,747	63,746	45,294	48,522	45,331

The total production of iron and steel nail plate from 1887 to 1912 is given in the following table in gross tons.

Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.
1887.....	308,432	1894.....	108,262	1901.....	68,850	1908.....	45,747
1888.....	289,891	1895.....	95,085	1902.....	72,936	1909.....	63,746
1889.....	259,409	1896.....	72,137	1903.....	64,102	1910.....	45,294
1890.....	251,828	1897.....	94,054	1904.....	61,601	1911.....	48,522
1891.....	223,312	1898.....	70,188	1905.....	64,542	1912.....	45,331
1892.....	201,242	1899.....	85,015	1906.....	54,211	.....	.....
1893.....	136,113	1900.....	70,245	1907.....	52,027	.....	.....

PRODUCTION OF IRON AND STEEL MERCHANT BARS.

The production of iron and steel merchant bars in 1912 amounted to 3,697,114 tons, against 3,047,362 tons in 1911, an increase of 649,752 tons, or over 21.3 per cent. Of the total in 1912 about 944,790 tons were iron, against about 835,625 tons in 1911, a gain of 109,165 tons, and about 2,752,324 tons were steel, against about 2,211,737 tons in 1911, a gain of 540,587 tons. In the following table the production of iron and steel merchant bars in 1912 is given separately by States. Horseshoe bars, bolt and nut rods, concrete bars, etc., are not included.

States—Gross tons.	Iron.	Steel.	Total.
Maine, Massachusetts, and Connecticut.....	24,252	11,246	35,498
New York.....	26,980	156,777	183,757
New Jersey.....	23,220	33,523	56,743
Pennsylvania.....	368,008	1,510,380	1,878,388
Virginia, Ky., Tenn., N. C., Ga., and Texas....	39,661	4,887	44,548
Alabama.....	2,523	30,481	33,004
Ohio.....	88,785	305,789	394,574
Indiana.....	202,828	277,682	480,510
Illinois.....	61,488	319,380	380,868
Michigan, Wisconsin, and Missouri.....	67,025	84,496	151,521
Kansas, Colorado, Washington, and California	40,020	17,683	57,703
Total for 1912.....	944,790	2,752,324	3,697,114
Total for 1911.....	835,625	2,211,737	3,047,362
Total for 1910.....	1,074,163	2,711,568	3,785,731
Total for 1909.....	952,230	2,311,301	3,263,531
Total for 1908.....	685,233	1,301,405	1,986,638
Total for 1907.....	1,440,356	2,530,632	3,970,988
Total for 1906.....	1,481,348	2,510,852	3,992,200
Total for 1905.....	1,322,439	2,271,162	3,593,601

In 1912 there were 146 plants in 23 States which rolled iron or steel merchant bars, as compared with 138 plants in 24 States in 1911. In 1912 iron merchant bars were rolled by 80 works in 22 States and steel merchant bars by 96 works in 17 States, while in 1911 iron merchant bars were rolled by 78 works in 23 States and steel merchant bars by 90 works in 20 States. With the exception of Wisconsin all the States named in the table rolled iron merchant bars. The States which rolled iron merchant bars but did not roll steel merchant bars were Maine, Virginia, Kentucky, North Carolina, Kansas, and Washington. Merchant bars were rolled in 1912 by every State which produced finished hot rolled products except Rhode Island, Delaware, Maryland, and West Virginia.

Pennsylvania made over 50.8 per cent. of the total production of merchant bars in 1912, against nearly 50.2 per cent. in 1911; Indiana made nearly 13 per cent., against over 10.9 per cent. in 1911; Ohio made over 10.6 per cent., against over 9.8 per cent. in 1911; and Illinois made over 10.3 per cent., against nearly 12.1 per cent. in 1911. These four States made over 84.7 per cent. of the total output in 1912, against over 83 per cent. in 1911.

Of the total production of iron merchant bars in 1912, Pennsylvania made over 38.9 per cent., against over 37 per cent. in 1911; Indiana, the next largest producer, made over 21.4 per cent., against over 21 per cent. in 1911; and Ohio, the third largest maker, made over 9.3 per cent., against over 11.6 per cent. in 1911. Illinois, Missouri, New York, California, Tennessee, New Jersey, Michigan, Washington, Maine, Massachusetts, Connecticut, Kentucky, Colorado, Texas, Virginia, Alabama, North Carolina, Georgia, and Kansas also rolled iron merchant bars in 1912.

Of the total production of steel merchant bars, Pennsylvania made over 54.8 per cent. in 1912, against over 55.1 per cent. in 1911; Illinois made over 11.6 per cent., against over 14.6 per cent. in 1911; Ohio made over 11.1 per cent., against over 9.2 per cent. in 1911; and Indiana made over 10 per cent., against over 7.1 per cent. in 1911. The other makers in 1912 in the order of their prominence were New York, Wisconsin, New Jersey, Alabama, Colorado, Michigan, Connecticut, Massachusetts, Missouri, Texas, Tennessee, California, and Georgia.

The production of iron and steel merchant bars is given by States in the following table from 1907 to 1912 in gross tons.

States—Gross tons.	1907.	1908.	1909.	1910.	1911.	1912.
Me., Mass., & Conn.	55,964	28,944	34,533	44,882	31,983	35,498
New York	154,284	82,966	67,396	97,478	110,682	183,757
New Jersey	73,643	34,596	51,359	46,986	46,197	56,743
Pennsylvania.....	2,051,103	911,721	1,646,834	1,994,092	1,528,771	1,878,388
Del., Md., and Va.	42,239	21,002	22,426	10,546	16,764	3,674
W. Va., Ky., Tenn., N. C., Ga., & Tex. }	56,482	30,624	55,221	52,259	48,881	40,874
Alabama.....	61,552	12,727	17,626	31,389	28,591	33,004
Ohio.....	483,531	276,312	441,145	407,012	300,655	394,574
Indiana.....	258,565	152,862	199,580	291,728	334,155	480,510
Illinois.....	347,798	236,111	411,575	483,257	368,465	380,868
Mich., Wis., & Mo..	311,313	138,760	247,787	252,468	162,719	151,521
Kan., Col., Wash., Wyo., Ore., & Cal. }	74,514	60,013	68,049	73,634	69,499	57,703
Total.....	3,970,988	1,986,638	3,263,531	3,785,731	3,047,362	3,697,114

PRODUCTION OF BARS FOR REINFORCED CONCRETE WORK.

The production of iron and steel bars for reinforced concrete work in 1912 amounted to 274,332 tons, against 258,741 tons in 1911, an increase of 15,591 tons, or over 6 per cent. Of the total in 1912 about 2,500 tons were iron, against about 2,388 tons in 1911, and about 271,832 tons were steel, against about 256,353 tons in 1911. The following table gives the production by States in 1912, iron bars being separated from steel bars.

States—Gross tons.	Iron.	Steel.	Total.
Maine, New York, and New Jersey.....	.....	69,755	69,755
Pennsylvania.....	.....	73,639	73,639
Georgia, Alabama, and Texas.....	.....	13,005	13,005
Ohio.....	.....	8,728	8,728
Indiana.....	.....	24,902	24,902
Illinois.....	.....	33,803	33,803
Michigan, Wisconsin, and Missouri.....	.....	18,907	18,907
Colorado, Washington, and California.....	2,500	29,093	31,593
Total for 1912.....	2,500	271,832	274,332
Total for 1911.....	2,388	256,353	258,741
Total for 1910.....	4,645	236,464	241,109
Total for 1909.....	.....	159,352	159,352

In 1912 there were 36 plants in 16 States which rolled iron or steel bars for reinforced concrete work, as compared with 33 plants in 16 States in 1911. Pennsylvania made over 26.8 per cent. of the total production in 1912, against over 29.1 per cent. in 1911, and New York made over 24 per cent., against over 21.9 per cent. in 1911. The next largest makers in 1912 were Illinois, Indiana, California, Wisconsin, Ohio, Alabama, Colorado, Washington, Georgia, Texas, New Jersey, Maine, Michigan, and Missouri. The following table gives the output by States from 1909 to 1912. Statistics are not available prior to 1909.

States—Gross tons.	1909.	1910.	1911.	1912.
Maine, New York, and New Jersey.....	36,516	67,642	59,395	69,755
Pennsylvania.....	29,887	71,081	75,525	73,639
Georgia, Alabama, and Texas.....	1,500	3,260	8,181	13,005
Ohio.....	71,032	53,788	55,008	8,728
Indiana.....	5,564	21,119	16,140	24,902
Illinois.....	11,385	13,985	26,941	33,803
Michigan, Wisconsin, and Missouri.....	.....	2,000	2,958	18,907
Colorado, Washington, and California.....	3,468	8,234	14,593	31,593
Total.....	159,352	241,109	258,741	274,332

PRODUCTION OF IRON AND STEEL SKELP.

The production of iron and steel skelp in 1912 amounted to 2,446,816 tons, against 1,980,673 tons in 1911, an increase of 466,143 tons, or over 23.5 per cent. Of the total in 1912 about 327,012 tons were iron, against about 322,397 tons in 1911, an increase of 4,615 tons, and about 2,119,804 tons were steel, against about 1,658,276 tons in 1911, an increase of 461,528 tons.

In the following table the production of iron skelp in 1912 is separated by States from the production of steel skelp.

States—Gross tons.	Iron.	Steel.	Total.
Ohio	63,987	1,037,715	1,101,702
Pennsylvania	238,441	813,932	1,052,373
New York and West Virginia.....	24,584	246,290	270,874
Wisconsin.....	.....	21,867	21,867
Total for 1912.....	327,012	2,119,804	2,446,816
Total for 1911.....	322,397	1,658,276	1,980,673
Total for 1910.....	350,578	1,477,616	1,828,194
Total for 1909.....	370,151	1,663,230	2,033,381
Total for 1908.....	297,049	853,534	1,150,583
Total for 1907.....	444,536	1,358,091	1,802,627
Total for 1906.....	391,517	1,137,068	1,528,585
Total for 1905.....	452,797	983,198	1,435,995

In 1912 there were 43 plants in 5 States which rolled iron or steel skelp as follows: New York, 2; Pennsylvania, 26; West Virginia, 4; Ohio, 10; and Wisconsin, 1. In 1911 there were also 43 works in 5 States which rolled iron or steel skelp. In 1912 iron skelp was rolled by 21 works in 4 States, as compared with 23 works in 4 States in 1911, and steel skelp was rolled by 29 works in 5 States, as compared with 26 works in 5 States in 1911. A number of works rolled both iron and steel skelp.

Ohio made over 45 per cent. of the total production of skelp in 1912, as compared with over 45.2 per cent. in 1911, and Pennsylvania made over 43 per cent., as compared with over 43.3 per cent. in 1911. These two States made over 88 per cent. of the total output in 1912, as compared with over 88.5 per cent. in 1911. No other State made over 10.1 per cent. in 1911 or 1912.

Of the total production of iron skelp in 1912, Ohio made over 19.5 per cent., as compared with over 22 per cent. in 1911, and Pennsylvania made over 72.9 per cent., as compared with over 70.8 per cent. in 1911. The next largest makers of iron skelp in 1912 were New York and West Virginia.

Of the total production of steel skelp in 1912, Ohio made over 48.9 per cent., against over 49.7 per cent. in 1911, and Pennsylvania made over 38.3 per cent., against over 38 per cent. in 1911. The other makers of steel skelp in 1912 were West Virginia, Wisconsin, and New York. The following table gives the production of skelp by States from 1907 to 1912 in gross tons.

States.	1907.	1908.	1909.	1910.	1911.	1912.
Ohio.....	634,945	390,554	787,311	753,471	895,358	1,101,702
Pennsylvania.....	836,283	668,602	1,015,931	892,254	859,266	1,052,373
N. Y. and W. Va.	265,554	90,955	230,139	182,469	220,034	270,874
Ind., Ill., Wis..	65,845	472	.....	.....	6,015	21,867
Total.....	1,802,627	1,150,583	2,033,381	1,828,194	1,980,673	2,446,816

PRODUCTION OF MISCELLANEOUS ROLLED PRODUCTS.

The production of spike rods, bolt rods, horseshoe bars, long angle splice bars, long tie-plate bars, hoops, bands, cotton-ties, strips, rolled sheet piling, railroad ties, rolled axles, shafting, steel wheels, scroll iron or steel, and other miscellaneous forms of finished rolled iron and steel is given in the following table, iron products being separated from steel products. Rolled forging blooms and rolled forging billets are included, but forged armor plate, hammered axles, and other forgings are not included. For 1912 blooms, billets, sheet bars, tinplate bars, and other semi-finished products rolled for export, as reported to us by the manufacturers, are included, but for 1911 and all prior years they are not included. Gross tons are used throughout.

Miscellaneous rolled products—Gross tons.	Iron.	Steel.	Total.
Hoops.....	.....	270,007	270,007
Bands and cotton-ties .....	.....	587,395	587,395
Long angle splice bars, fish-plate bars, tie-plate bars, etc.....	51,657	520,115	571,772
Rolled sheet piling.....	.....	22,276	22,276
Railroad ties .....	.....	41,396	41,396
Spike and chain rods, bolt and nut rods, horseshoe bars, strips, etc.....	220,797	966,311	1,187,108
Rolled forging blooms and billets.....	303	462,173	462,476
Blooms, billets, sheet bars, etc., for export.	.....	347,783	347,783
Total for 1912.....	272,757	3,217,456	3,490,213
Total for 1911.....	199,172	1,831,042	2,030,214
Total for 1910.....	207,003	2,413,713	2,620,716
Total for 1909.....	250,110	2,005,132	2,255,242
Total for 1908.....	183,649	990,738	1,174,387

In 1912 the production of the miscellaneous rolled iron and steel products above named amounted to 3,490,213 tons, as compared with 2,030,214 tons in 1911, an increase of 1,459,999 tons, or over 71.9 per cent. Of the production in 1912, about 272,757 tons were iron and about 3,217,456 tons were steel, as compared with about 199,172 tons of iron and about 1,831,042 tons of steel in 1911.

In 1912 there were 15 plants in 6 States which rolled iron or steel hoops, 15 plants in 7 States which rolled iron or steel bands or cotton-ties, 33 plants in 10 States which rolled forging blooms or forging billets, 28 plants in 10 States which rolled long angle splice bars, fish-plate bars, tie-plate bars, and other bars for rail joint shapes, 2 plants in 2 States which rolled sheet piling, 3 plants in 2 States which rolled railroad ties, and 83 plants in 17 States which rolled spike and chain rods, bolt and nut rods, horseshoe bars, strips, shovel blanks, shafting, finger bars, steel wheels, blanks for seamless tubes, shovel bars, rolled axles, tires, staybolt iron and steel, scroll iron and steel, socket iron and steel, and other miscellaneous forms. The number of plants which rolled billets, blooms, sheet bars, tinplate bars, etc., for export in 1912 was 14, located in 6 States.

The production of the miscellaneous rolled iron and steel products above enumerated during the last five years is given in the following table in gross tons of 2,240 pounds.

Articles—Gross tons.	1908.	1909.	1910.	1911.	1912.
Hoops.....	170,860	250,179	262,214	225,074	270,007
Bands and cotton-ties...	238,441	395,333	424,979	342,810	587,395
Long angle splice bars, fish-plate bars, tie- plate bars, etc.....	*.....	*.....	*.....	*.....	571,772
Rolled sheet piling.....			26,598	22,827	22,276
Railroad ties.....			49,048	39,197	41,396
Spike and chain rods, bolt and nut rods, horseshoe bars, strips, shafting, tires, etc....	643,765	1,267,957	1,397,944	1,169,191	1,187,108
Rolled forging blooms and forging billets...	121,321	341,773	459,933	231,115	462,476
Blooms, billets, sheet bars, tinplate bars, etc., for export.....	*.....	*.....	*.....	*.....	347,783
Total.....	1,174,387	2,255,242	2,620,716	2,030,214	3,490,213

* Statistics not collected from the manufacturers prior to 1912.

PRODUCTION BY STATES OF ALL KINDS OF FINISHED ROLLED FORMS OF IRON AND STEEL.

The production of all kinds of finished rolled forms of iron and steel in 1912, including rolled forging blooms and forging billets, and semi-finished rolled products which were rolled for export in that year, amounted to 24,656,841 gross tons, against 19,039,171 tons in 1911, an increase of 5,617,670 tons, or over 29.5 per cent. The maximum production was reached in 1912. Of the total production in 1912, about 23,019,259 tons, or almost 93.4 per cent., were rolled from steel, and about 1,637,582 tons, or over 6.6 per cent., from iron, as compared with about 17,578,556 tons, or over 92.3 per cent., rolled from steel, and about 1,460,615 tons, or almost 7.7 per cent., rolled from iron in 1911. The following table gives by States the total rolled iron and steel production in 1912 as compared with the production in 1911, iron being separated from steel for 1912.

States—Finished rolled iron and steel.	1912—Gross tons.			Total in 1911.
	Iron.	Steel.	Total.	
Maine and Massachusetts.....	18,026	175,375	193,401	157,448
Rhode Island and Connecticut.	15,043	66,367	81,410	73,788
New York.....	84,523	949,548	1,034,071	768,763
New Jersey.....	36,960	138,183	175,143	154,563
Pennsylvania.....	735,008	11,519,032	12,254,040	9,426,827
Delaware and Virginia.....	18,299	14,589	32,888	30,487
Maryland.....	.....	284,617	284,617	264,222
West Virginia.....	3,584	587,749	591,333	472,177
Ky., Tenn., N. C., Ga., and Tex.	44,146	148,591	192,737	187,149
Alabama.....	2,523	529,724	532,247	356,609
Ohio.....	224,822	4,105,665	4,330,487	3,382,063
Indiana.....	222,613	1,651,293	1,873,906	1,156,411
Illinois.....	99,979	2,153,685	2,253,664	1,939,350
Michigan and Wisconsin.....	11,194	235,797	246,991	148,285
Missouri.....	68,582	14,301	82,883	68,961
Kansas, Colorado, and Wash....	17,283	421,339	438,622	407,314
Oregon and California.....	34,997	23,404	58,401	44,754
Total.....	1,637,582	23,019,259	24,656,841	19,039,171

By the phrase rolled iron and steel we include all iron and steel rolled into finished forms, as follows: (1) all sizes of iron and steel rails; (2) plate and sheet iron and steel; (3) iron and steel plates for cut nails and cut spikes; (4) wire rods; (5) iron and steel structural shapes; (6) merchant bars; (7) bars for reinforced concrete work; (8) skelp; and (9) long angle splice bars, tie-plate bars, fish-plate bars, sheet piling, railroad ties, cot-

ton-ties, bands, hoops, bolt and nut rods, rolled axles, and other rolled products. Forged armor plate, hammered axles, and other forgings are not included, nor such intermediate rolled forms as muck bars, slabs, blooms, billets, tinplate and sheet bars, etc., unless these intermediate rolled forms were for export, in which event they have been included for 1912 but not for prior years. Rolled forging blooms and billets are included for 1911 and 1912.

Pennsylvania made about 49.7 per cent. of the total rolled production in 1912, against about 49.5 per cent. in 1911; Ohio made about 17.6 per cent. in 1912, against over 17.7 per cent. in 1911; Illinois made about 9.1 per cent. in 1912, against about 10.2 per cent. in 1911; and Indiana made about 7.6 per cent. in 1912, against about 6.1 per cent. in 1911. These 4 States made over 84 per cent. of the total rolled production in 1912, as compared with over 83.5 per cent. in 1911. No other State made 5 per cent. of the total rolled production in 1911 or 1912.

PRODUCTION OF ALL KINDS OF FINISHED ROLLED IRON AND STEEL IN PENNSYLVANIA AND OHIO BY DISTRICTS.

The total production of iron and steel rails, plates, sheets, wire rods, structural shapes, nail plate, merchant bars, and all other finished rolled products in Pennsylvania and Ohio by districts from 1908 to 1912 is given below. Rolled forging blooms and forging billets are included for all the years mentioned and for 1912 blooms, billets, sheet bars, etc., rolled for export are also included.

Districts—Gross tons.	1908.	1909.	1910.	1911.	1912.
Philadelphia Co.....	52,896	83,272	111,884	82,331	97,292
Lehigh Valley.....	264,400	449,873	442,723	512,085	584,919
Schuylkill Valley...	425,521	717,712	790,887	666,293	797,599
Eastern Penna.....	195,225	351,453	404,209	333,761	423,444
Upper Susq. Valley.	101,387	131,091	154,777	159,623	180,795
Lower Susq. Valley.	369,560	544,451	616,063	576,871	588,137
Juniata Valley.....	21,857	59,881	68,510	54,460	77,277
Allegheny County..	2,859,230	5,140,858	5,677,537	4,504,152	6,015,105
Shenango Valley....	252,724	494,713	618,312	648,201	1,171,866
Western Penna.....	1,073,379	1,711,994	1,889,629	1,889,050	2,317,606
Total for Penna.	5,616,179	9,685,298	10,774,531	9,426,827	12,254,040
Mahoning Valley...	654,366	1,146,001	1,287,328	1,287,177	1,766,962
Lake Counties.....	769,562	1,162,870	1,101,489	1,119,336	1,321,395
Hanging Rock	229,509	402,689	491,448	489,168	646,181
Interior Counties....					
Ohio River Counties	277,443	463,348	347,958	486,382	595,949
Total for Ohio....	1,930,880	3,174,908	3,228,223	3,382,063	4,330,487

Comparing 1912 with 1908, the increase in Pennsylvania in the production of all kinds of rolled iron and steel amounted to 6,637,861 tons, or over 118.1 per cent., while in Ohio the increase amounted to 2,399,607 tons, or over 124.2 per cent.

COMPARATIVE PRODUCTION BY STATES OF ALL KINDS OF FINISHED ROLLED IRON AND STEEL.

The total production of finished rolled iron and steel in 1911 and 1912 by States is given below, iron products being separated from steel products. Rolled forging blooms and rolled forging billets are included for both years. For 1912 billets, blooms, sheet bars, tinplate bars, etc., rolled for export are also included.

States.	1911—Gross tons.			1912—Gross tons.		
	Iron.	Steel.	Total.	Iron.	Steel.	Total.
Me. and Mass...	13,179	144,269	157,448	18,026	175,375	193,401
R. I. and Conn.	14,092	59,696	73,788	15,043	66,367	81,410
New York.....	72,319	696,444	768,763	84,523	949,548	1,034,071
New Jersey.....	29,127	125,436	154,563	36,960	138,183	175,143
Pennsylvania...	648,883	8,777,944	9,426,827	735,008	11,519,032	12,254,040
Del. and Va.....	15,907	14,580	30,487	18,299	14,589	32,888
Maryland.....	13,000	251,222	264,222	.....	284,617	284,617
West Virginia..	5,086	467,091	472,177	3,584	587,749	591,333
Ky., Tenn., N. C., Ga., Tex. }	50,470	136,679	187,149	44,146	148,591	192,737
Alabama.....	3,550	353,059	356,609	2,523	529,724	532,247
Ohio.....	212,044	3,170,019	3,382,063	224,822	4,105,665	4,330,487
Indiana.....	185,076	971,335	1,156,411	222,613	1,651,293	1,873,906
Illinois.....	88,953	1,850,397	1,939,350	99,979	2,153,685	2,253,664
Mich. and Wis.	5,000	143,285	148,285	11,194	235,797	246,991
Missouri.....	55,884	13,077	68,961	68,582	14,301	82,883
Kan., Col., and Washington. }	10,894	396,420	407,314	17,283	421,339	438,622
Ore. and Cal...	37,151	7,603	44,754	34,997	23,404	58,401
Total.....	1,460,615	17,578,556	19,039,171	1,637,582	23,019,259	24,656,841

The increase in the production of rolled iron in 1912 over 1911 was 176,967 tons, and in rolled steel it was 5,440,703 tons.

In 1912 there were 373 plants in 27 States which rolled iron or steel, as compared with 368 plants in the same number of States in 1911. Two States—North Carolina and Kansas—rolled iron products only in 1912, and 3 States—Delaware, Maryland, and Wisconsin—rolled steel products only in that year. With the exception of Oregon, whose only rolling mill was idle in 1912, all the other States named in the table rolled both iron and steel products in that year.

COMPARATIVE PRODUCTION OF FINISHED ROLLED IRON AND
FINISHED ROLLED STEEL IN 1912.

The following table gives the production of all leading articles of finished rolled steel in 1912, as compared with the production of leading articles of finished rolled iron in the same year. Rolled forging blooms and billets and semi-finished products rolled for export are included for 1912. In early years rolled iron was separated from rolled steel, but in 1891 this separation was discontinued and was not resumed until 1904.

Articles—Gross tons.	1912—Gross tons.		
	Iron.	Steel.	Total.
Rails.....	.....	3,327,915	3,327,915
Plates and sheets.....	75,044	5,800,036	5,875,080
Nail and spike plate.....	8,673	36,658	45,331
Wire rods.....	1,289	2,652,264	2,653,553
Structural shapes.....	5,517	2,840,970	2,846,487
Merchant bars.....	944,790	2,752,324	3,697,114
Bars for reinforced concrete work.....	2,500	271,832	274,332
Skelp, flue, etc.....	327,012	2,119,804	2,446,816
Long angle splice bars, tie-plate bars, etc.	51,657	520,115	571,772
Hoops.....	.....	270,007	270,007
Bands and cotton-ties.....	.....	587,395	587,395
Rolled sheet piling.....	.....	22,276	22,276
Railroad ties.....	.....	41,396	41,396
All other finished rolled products.....	220,797	966,311	1,187,108
Rolled forging blooms and forging billets..	303	462,173	462,476
Blooms, billets, sheet bars, etc., for export...	.....	347,783	347,783
Total for 1912.....	1,637,582	23,019,259	24,656,841
Total for 1911.....	1,460,615	17,578,556	19,039,171
Total for 1910.....	1,740,156	19,881,123	21,621,279
Total for 1909.....	1,709,431	17,935,259	19,644,690
Total for 1908.....	1,238,449	10,589,744	11,828,193
Total for 1907.....	2,200,086	17,664,736	19,864,822
Total for 1906.....	2,186,557	17,401,911	19,588,468
Total for 1905.....	2,059,990	14,780,025	16,840,015
Total for 1904.....	1,760,084	10,253,297	12,013,381

PRODUCTION BY STATES OF ALL KINDS OF FINISHED ROLLED
IRON AND STEEL FROM 1908 TO 1912.

The following table gives the production by States of all kinds of finished rolled iron and steel from 1908 to 1912. Rolled forging blooms and rolled forging billets are included for the five years, but blooms, billets, and other semi-finished products rolled for export are included for 1912 only. Gross tons of 2,240 pounds are used throughout.

States.	1908.	1909.	1910.	1911.	1912.
Me. and Mass.....	102,412	169,855	171,782	157,448	193,401
R. I. and Conn....	85,678	120,922	121,065	73,788	81,410
New York.....	541,358	851,465	1,013,768	768,763	1,034,071
New Jersey.....	147,347	188,256	165,057	154,563	175,143
Pennsylvania.....	5,616,179	9,685,298	10,774,531	9,426,827	12,254,040
Delaware and Va.	34,399	38,392	36,806	30,487	32,888
Maryland.....	211,517	324,173	307,837	264,222	284,617
West Virginia....	253,956	455,949	405,925	472,177	591,333
Ky. and N. Car....	121,123	155,006	173,653	115,370	115,264
Tenn., Ga., Tex.	50,019	60,986	61,497	71,779	77,473
Alabama.....	273,652	257,972	426,471	356,609	532,247
Ohio.....	1,930,880	3,174,908	3,228,223	3,382,063	4,330,487
Indiana.....	421,239	965,621	1,310,645	1,156,411	1,873,906
Illinois.....	1,496,050	2,378,500	2,547,662	1,939,350	2,253,664
Michigan.....	32,433	56,735	62,398	26,914	28,737
Wisconsin.....	99,381	264,369	242,777	121,371	218,254
Missouri.....	41,973	79,691	84,320	68,961	82,883
Kan., Col., Wash.	327,571	364,495	437,685	407,314	438,622
Wy., Ore., & Cal.	41,026	52,097	49,177	44,754	58,401
Total.....	11,828,193	19,644,690	21,621,279	19,039,171	24,656,841

COMPLETED ROLLING MILLS AND STEEL WORKS.

The number of completed rolling mills and steel works at the close of 1912 was 661, located in 33 States, the District of Columbia, and the Canal Zone, Panama, of which 565 were active during the year and 96 were idle. At the close of 1911 the number of completed works was 647, located in 33 States and the District of Columbia, of which 543 were active and 104 were idle. The gain in 1912 over 1911 in the number of completed plants was 14.

The number of works which were equipped with hot trains of rolls at the close of 1912 was 445, of which 373 were active during the year and 72 were idle. At the close of 1911 the number of plants which were equipped with hot trains of rolls was 448, of which 368 were active and 80 were idle.

The number of steel plants which were not equipped with hot trains of rolls at the close of 1912 was 216, of which 192 were active during the year and 24 were idle. At the close of 1911 the number of steel plants not equipped with hot trains of rolls was 199, of which 175 were active and 24 were idle.

The following table gives by States the number of rolling mills and steel works which were active or idle in the calendar year 1912, separating plants which were equipped with hot trains of rolls from plants which were not so equipped.

States and Districts.	Rolling mills equipped with hot trains.			Steel works not equipped with hot trains.			Total rolling mills and steel works.		
	Active.	Idle.	Total.	Active.	Idle.	Total.	Active.	Idle.	Total.
Maine.....	1	0	1	0	0	0	1	0	1
Massachusetts.....	5	0	5	8	1	9	13	1	14
Rhode Island.....	4	0	4	0	0	0	4	0	4
Connecticut.....	4	2	6	2	1	3	6	3	9
New York.....	18	3	21	11	2	13	29	5	34
New Jersey.....	14	1	15	8	1	9	22	2	24
Pennsylvania.....	169	31	200	45	8	53	214	39	253
Delaware.....	1	3	4	5	0	5	6	3	9
Maryland.....	3	1	4	0	1	1	3	2	5
District of Col...	0	0	0	2	0	2	2	0	2
Virginia.....	2	3	5	1	0	1	3	3	6
West Virginia.....	16	3	19	2	1	3	18	4	22
Kentucky.....	6	2	8	0	0	0	6	2	8
Tennessee.....	1	0	1	1	1	2	2	1	3
North Carolina...	1	0	1	0	0	0	1	0	1
Georgia.....	2	0	2	0	0	0	2	0	2
Alabama.....	6	2	8	1	1	2	7	3	10
Louisiana.....	0	0	0	2	0	2	2	0	2
Texas.....	1	1	2	2	0	2	3	1	4
Ohio.....	62	6	68	23	0	23	85	6	91
Indiana.....	15	5	20	8	1	9	23	6	29
Illinois.....	24	2	26	13	2	15	37	4	41
Michigan.....	4	0	4	16	3	19	20	3	23
Wisconsin.....	3	2	5	16	0	16	19	2	21
Minnesota.....	0	0	0	4	0	4	4	0	4
Missouri.....	3	1	4	3	1	4	6	2	8
Iowa.....	0	0	0	5	0	5	5	0	5
Oklahoma.....	0	0	0	1	0	1	1	0	1
Kansas.....	1	1	2	1	0	1	2	1	3
Colorado.....	1	1	2	0	0	0	1	1	2
Utah.....	0	0	0	1	0	1	1	0	1
Washington.....	1	1	2	2	0	2	3	1	4
Oregon.....	0	1	1	2	0	2	2	1	3
California.....	5	0	5	6	0	6	11	0	11
Canal Zone, Pan.	0	0	0	1	0	1	1	0	1
Total in 1912..	373	72	445	192	24	216	565	96	661
Total in 1911..	368	80	448	175	24	199	543	104	647
Total in 1910..	396	58	454	156	27	183	552	85	637
Total in 1909..	385	60	445	138	28	166	523	88	611
Total in 1908..	369	78	447	122	34	156	491	112	603

There was a decrease in 1912 as compared with 1911 of 3 in the number of works equipped with hot trains of rolls but an increase of 17 in the number of plants not so equipped. As shown above there were no plants in 1912 in Louisiana, Min-

nesota, Iowa, Oklahoma, Utah, the District of Columbia, or the Canal Zone, which were equipped for the manufacture of hot rolled products. With the single exception of North Carolina, however, every State or District named in the table had plants which were equipped for the manufacture of steel ingots or castings.

NEW ROLLING MILLS AND STEEL WORKS.

In 1912 there were 29 rolling mills and steel plants added to the list of completed works, located in 12 States and the Canal Zone, Panama, of which 8 were equipped with hot trains of rolls and 21 were not, as follows: Rhode Island, 2; New York, 2; New Jersey, 1; Pennsylvania, 5; Texas, 2; Ohio, 2; Indiana, 1; Illinois, 5; Michigan, 4; Iowa, 1; Kansas, 2; Washington, 1; and the Canal Zone, Panama, 1. In 1911 the number of new rolling mills and steel works built was 31.

BUILDING ROLLING MILLS AND STEEL WORKS.

At the close of 1912 there were 11 rolling mills and steel works in course of erection, of which 7 were being equipped with hot trains of rolls and 4 were not being so equipped, as follows: Pennsylvania, 2; Maryland, 1; Alabama, 1; Ohio, 3; Michigan, 1; Minnesota, 1; and Washington, 2. In addition at the close of 1912 there were 5 plants which were partly erected but upon which work had been temporarily suspended. On December 31, 1911, 17 rolling mills and steel works were being built, of which 7 were being equipped with hot trains of rolls and 10 were not.

ABANDONED ROLLING MILLS AND STEEL WORKS.

During 1912 there were 19 rolling mills and steel works abandoned or dismantled, located in 10 States, of which 12 were equipped with hot trains of rolls and 7 were not so equipped, as follows: New York, 3; New Jersey, 1; Pennsylvania, 6; Delaware, 2; Maryland, 1; West Virginia, 1; Alabama, 1; Ohio, 2; Illinois, 1; and Michigan, 1. In 1911 there were 23 rolling mills and steel works abandoned or dismantled, of which 12 were equipped with hot trains of rolls and 11 were not so equipped.

COMPARATIVE PRODUCTION OF IRON AND STEEL BY LEADING PRODUCTS IN 1911 AND 1912.

The following table compares the production in 1912 of all kinds of pig iron, steel ingots and castings, finished rolled forms of iron and steel, tinplates and terne plates, finished angle splice bars, wire nails, cut nails, charcoal blooms, etc., with the pro-

duction of similar articles in 1911. Gross tons of 2,240 pounds are used except where otherwise stated.

Products.	1911.	1912.	Increase or decrease.	Per cent.
Pig iron.				
Bessemer and low-phos.....	9,409,303	11,664,015	2,254,712	23.9
Basic.....	8,520,020	11,417,886	2,897,866	34.0
Foundry and ferro-silicon.....	4,468,940	5,073,873	604,933	13.5
Malleable Bessemer.....	612,533	825,643	213,110	34.7
Forge.....	408,841	469,183	60,342	14.7
Spiegeleisen.....	110,236	96,346	* 13,890	* 12.6
Ferro-manganese.....	74,482	125,378	50,896	68.3
White, mottled, ferro-tit., etc.	45,192	54,613	9,421	20.8
Total pig iron...Gross tons.	23,649,547	29,726,937	6,077,390	25.6
Steel ingots and castings.				
Open-hearth.....	15,598,650	20,780,723	5,182,073	33.2
Bessemer.....	7,947,854	10,327,901	2,380,047	29.9
Crucible.....	97,653	121,517	23,864	24.4
Electric and all other steel.	31,949	21,162	* 10,787	* 33.7
Total steel.....Gross tons.	23,676,106	31,251,303	7,575,197	31.9
Rolled iron and steel.				
Rails.....	2,822,790	3,327,915	505,125	17.8
Plates and sheets.....	4,488,049	5,875,080	1,387,031	30.9
Nail and spike plate.....	48,522	45,331	* 3,191	* 6.5
Wire rods.....	2,450,453	2,653,553	203,100	8.2
Structural shapes.....	1,912,367	2,846,487	934,120	48.8
Merchant bars.....	3,047,362	3,697,114	649,752	21.3
Bars for concrete work.....	258,741	274,332	15,591	6.0
Skelp, flue, etc.....	1,980,673	2,446,816	466,143	23.5
Long angle splice bars, etc..	†.....	571,772	..	.....
Hoops.....	225,074	270,007	44,933	19.9
Bands and cotton-ties.....	342,810	587,395	244,585	71.3
Rolled sheet piling.....	22,827	22,276	* 551	* 2.4
Railroad ties.....	39,197	41,396	2,199	5.6
All other finished rolled....	1,169,191	1,187,108	17,917	1.5
Rolled forg. blms. & billets..	231,115	462,476	231,361	100.1
Blooms, billets, etc., for exp't	†.....	347,783	.....	.....
Total.....Gross tons.	19,039,171	24,656,841	5,617,670	29.5
Miscellaneous products.				
Tin and terne plates..Pounds.	1,756,070,000	2,157,055,000	400,985,000	22.8
Fin. ang. splice bars, etc.g. t.	†.....	502,771	.....	.....
Cut nails—kegs.....	967,636	978,415	10,779	1.1
Wire nails—kegs.....	13,437,778	14,659,700	1,221,922	9.0
Ham. char. blms...Gross tons.	64,616	65,807	1,191	1.8
Forged iron and steel “	218,236	392,520	174,284	79.8

* Decrease. † Statistics not collected in 1911.

TOTAL PRODUCTION OF ALL KINDS OF FINISHED ROLLED FORMS.

The total production of leading forms of finished rolled iron and steel since 1887 is given below in gross tons. Rolled forging blooms and forging billets are included from 1905. Semi-finished products rolled for export are included for 1912 only. Prior to 1892 structural shapes were included with bars, skelp, etc.

Years.	Iron and steel rails. Gross tons.	Plates and sheets, except nail plate.	Wire rods. Gross tons.	Structural shapes, not including plates.	Nail plate. Gross tons.	Bars, skelp, and all other forms.	Total. Gross tons.
1887...	2,139,640	603,355	.....	.....	308,432	2,184,279	5,235,706
1888...	1,403,700	609,827	279,769	.....	289,891	2,034,162	4,617,349
1889...	1,522,204	716,496	363,851	.....	259,409	2,374,968	5,236,928
1890...	1,885,307	809,981	457,099	.....	251,828	2,618,660	6,022,875
1891...	1,307,176	678,927	536,607	.....	223,312	2,644,941	5,390,963
1892...	1,551,844	751,460	627,829	453,957	201,242	2,579,482	6,165,814
1893...	1,136,458	674,345	537,272	387,307	136,113	2,104,190	4,975,685
1894...	1,021,772	682,900	673,402	360,305	108,262	1,795,570	4,642,211
1895...	1,306,135	991,459	791,130	517,920	95,085	2,487,845	6,189,574
1896...	1,122,010	965,776	623,986	495,571	72,137	2,236,361	5,515,841
1897...	1,647,892	1,207,286	970,736	583,790	94,054	2,497,970	7,001,728
1898...	1,981,241	1,448,301	1,071,683	702,197	70,188	3,239,760	8,513,370
1899...	2,272,700	1,903,505	1,036,398	850,376	85,015	4,146,425	10,294,419
1900...	2,385,682	1,794,528	846,291	815,161	70,245	3,575,536	9,487,443
1901...	2,874,639	2,254,425	1,365,934	1,013,150	68,850	4,772,329	12,349,327
1902...	2,947,933	2,665,409	1,574,293	1,300,326	72,936	5,383,219	13,944,116
1903...	2,992,477	2,599,665	1,503,455	1,095,813	64,102	4,952,185	13,207,697
1904...	2,284,711	2,421,398	1,699,028	949,146	61,601	4,597,497	12,013,381
1905...	3,375,929	3,532,230	1,808,688	1,660,519	64,542	6,398,107	16,840,015
1906...	3,977,887	4,182,156	1,871,614	2,118,772	54,211	7,383,828	19,588,468
1907...	3,633,654	4,248,832	2,017,583	1,940,352	52,027	7,972,374	19,864,822
1908...	1,921,015	2,649,693	1,816,949	1,083,181	45,747	4,311,608	11,828,193
1909...	3,023,845	4,234,346	2,335,685	2,275,562	63,746	7,711,506	19,644,690
1910...	3,636,031	4,955,484	2,241,830	2,266,890	45,294	8,475,750	21,621,279
1911...	2,822,790	4,488,049	2,450,453	1,912,367	48,522	7,316,990	19,039,171
1912...	3,327,915	5,875,080	2,653,553	2,846,487	45,331	9,908,475	24,656,841

PRODUCTION OF FORGED IRON AND STEEL.

The production of forged iron and steel axles, anchors, shafting, armor plate, gun carriages, etc., by rolling mills and steel works from 1906 to 1912 was as follows in gross tons.

Years.	Production—Gross tons.			Years.	Production—Gross tons.		
	Iron.	Steel.	Total.		Iron.	Steel.	Total.
1906	19,148	333,488	352,636	1910...	20,410	299,452	319,862
1907	23,772	357,033	380,805	1911...	4,034	214,202	218,236
1908	13,646	117,497	131,143	1912...	9,155	383,365	392,520
1909	25,523	223,741	249,264	.....	.....	.....	.....

PRODUCTION OF IRON AND STEEL IN ALLEGHENY COUNTY.

The following table gives the number of blast furnaces and completed rolling mills and steel works and the production of pig iron, steel ingots and castings, and all finished rolled iron and steel in Allegheny county, Pa., in 1910, 1911, and 1912.

Details—Gross tons.	1910.	1911.	1912.
Furnaces built and building.....No.	47	47	47
Production of pig iron.....	5,330,982	5,116,442	6,107,226
Rolling mills and steel works.....No.	65	66	65
Production of Bessemer steel.....	2,003,141	1,442,286	1,977,970
Production of open-hearth steel.....	5,099,464	4,980,426	5,777,672
Production of all other steel.....	43,106	28,661	30,813
Total production of steel.....	7,145,711	6,451,373	7,786,455
Production of all kinds of rails.....	534,511	427,140	380,255
Production of structural shapes.....	950,848	717,819	1,062,735
Production of plates and sheets.....	1,341,343	1,113,794	1,426,310
Production of merchant bars.....	1,229,768	812,026	1,231,859
Production of skelp.....	579,573	606,497	772,201
Production of other rolled products.....	1,041,494	826,876	* 1,141,745
Production of all rolled products.....	5,677,537	4,504,152	* 6,015,105

* Include blooms, billets, sheet bars, tinplate bars, etc., rolled for export.

In 1912 Allegheny county made over 48.6 per cent. of the total production of pig iron in Pennsylvania and over 20.5 per cent. of the country's total production; over 49.8 per cent. of the total production of steel ingots and castings in Pennsylvania and over 24.9 per cent. of the country's total production; over 42.7 per cent. of the rail production in Pennsylvania and over 11.4 per cent. of the country's total production; over 51.8 per cent. of the production of structural shapes in Pennsylvania and over 37.3 per cent. of the country's total production; over 45 per cent. of the production of plates and sheets in Pennsylvania and over 24.2 per cent. of the total production; over 65.5 per cent. of the production of merchant bars in Pennsylvania and over 33.3 per cent. of the country's total production; over 73.3 per cent. of the production of skelp in Pennsylvania and over 31.5 per cent. of the country's total production; and over 49 per cent. of all kinds of finished rolled iron and steel in Pennsylvania and over 24.3 per cent. of the country's total production.

PRODUCTION OF HAMMERED CHARCOAL IRON BLOOMS, BILLETS, SLABS, AND BARS.

The production of hammered iron blooms, billets, slabs, and bars in charcoal bloomeries from pig iron or from pig iron and scrap, for the consumption of the makers or for sale, amounted

in 1912 to 65,807 gross tons, against 64,616 tons in 1911, 75,974 tons in 1910, 56,365 tons in 1909, 55,973 tons in 1908, 84,623 tons in 1907, and 94,999 tons in 1906. The figures for 1910 include about 2,000 tons of hammered billets and blooms and those for 1909 about 1,666 tons made with charcoal and coal mixed, while the figures for 1907 include 4,513 tons made with natural gas alone and natural gas and charcoal. The hammered charcoal iron blooms, billets, slabs, bars, etc., produced in 1912 were made in Massachusetts, Pennsylvania, Maryland, Kentucky, and Ohio. The number of active plants in 1912 was 12, against 13 plants in 1911 and 16 plants in 1910. In 1912 there were 8 idle bloomaries, against 10 in 1911 and 6 in 1910.

The following table gives the production by States of hammered blooms, billets, etc., by charcoal bloomaries from 1906 to 1912. Pennsylvania made nearly 74.9 per cent. of the total in 1912, against over 81.9 per cent. in 1911 and over 76.3 per cent. in 1910.

States—Gross tons.	1906.	1907.	1908.	1909.	1910.	1911.	1912.
Pennsylvania	83,076	71,099	46,144	44,146	58,001	52,932	49,289
Mass., Del., Md., Ky., Ohio	11,923	13,524	9,829	12,219	17,973	11,684	16,518
Total	94,999	84,623	55,973	56,365	75,974	64,616	65,807

The following table gives the production of hammered charcoal blooms, billets, etc., from 1906 to 1912. Blooms and billets for sale are separated from those made for the use of the makers.

Years—Gross tons.	For sale.	Consumption of makers.	Total.
1906.....	17,833	77,166	94,999
1907.....	17,554	67,069	84,623
1908.....	8,103	47,870	55,973
1909.....	9,593	46,772	56,365
1910.....	14,016	61,958	75,974
1911.....	2,271	62,345	64,616
1912.....	250	65,557	65,807

PRODUCTION OF FINISHED ANGLE SPLICE BARS, TIE PLATES, FISH PLATES, AND OTHER RAIL JOINTS.

As shown below the production of finished iron and steel angle splice bars, tie plates, fish plates, and other rail joints and fastenings in 1912 by rolling mills and steel works, not including spikes, bolts, nuts, and similar fastenings, amounted to 502,771 gross tons, of which 44,865 tons were iron and 457,906 tons were steel. Similar statistics for prior years are not available.

Articles—Gross tons.	Iron.	Steel.	Total.
Angle splice bars.....	3,557	177,604	181,161
Tie plates.....	39,039	197,502	236,541
Fish plates.....	2,266	11,098	13,364
Other rail joints.....	3	71,702	71,705
Total.....	44,865	457,906	502,771

The following table gives by States the production of finished rail joints and fastenings in 1912. The number of active works was 26, located as follows: New York, 2; Pennsylvania, 11; Virginia, 1; Alabama, 1; Ohio, 2; Indiana, 3; Illinois, 3; and Wisconsin, Colorado, and California, 1 each. Gross tons are used.

States—Gross tons.	Iron.	Steel.	Total.
New York, Pennsylvania, and Virginia.....	2,266	281,287	283,553
Alabama, Ohio, and Indiana.....	9,500	60,004	69,504
Illinois, Wisconsin, Colorado, and California.....	33,099	116,615	149,714
Total.....	44,865	457,906	502,771

There were 15 works in 8 States which made iron or steel angle splice bars in 1912; 15 works in 8 States which made tie plates; 5 works in 4 States which made fish plates; and 7 works in 4 States which made other rail joints or fastenings.

PRODUCTION OF CUT NAILS.

The production of nails and spikes cut from plates in 1912 amounted to 978,415 kegs of 100 pounds each, against 967,636 kegs in 1911, an increase of 10,779 kegs.

The following table gives the production by States in 1911 and 1912, iron cut nails being separated from steel cut nails for 1912. Machine-made horseshoe nails, cut tacks, wire nails, or railroad or other forged iron or steel spikes are not included.

States—Kegs of 100 pounds.	1912.			1911.
	Iron.	Steel.	Total.	Total.
Pennsylvania.....	179,869	330,935	510,804	559,550
Massachusetts, West Virginia, and Ohio.....	.....	280,689	280,689	286,816
Kentucky, Indiana, Illinois, & Wisconsin.....	27,152	159,770	186,922	121,270
Total.....	207,021	771,394	978,415	967,636

In 1912 a little over 78.8 per cent. of the total production was cut from steel plate and almost 21.2 per cent. from iron plate,

while in 1911 almost 79.2 per cent. was cut from steel plate and a little over 20.8 per cent. from iron plate.

Seventeen works in 8 States made cut nails in 1912, as follows: Massachusetts, 3; Pennsylvania, 6; West Virginia, 2; Kentucky, 1; Ohio, 1; Indiana, 1; Illinois, 2; and Wisconsin, 1. In 1911 there were 13 works in 6 States which made cut nails, as compared with the same number of works in the same number of States in 1910 and 1909, and 14 works in 7 States in 1908. Eight works were idle in 1912, as compared with 7 in 1911.

Pennsylvania was the leading producer of cut nails in 1912, as it has been for many years, its output amounting to 510,804 kegs of 100 pounds, or over 52.2 per cent. of the total, followed by West Virginia, Kentucky, Illinois, Massachusetts, Indiana, Ohio, and Wisconsin in the order named.

The following table gives the production by States of iron and steel cut nails and cut spikes from 1908 to 1912 in kegs of 100 pounds. California last made cut nails in 1908.

States—Kegs.	1908.	1909.	1910.	1911.	1912.
Pennsylvania	525,169	666,792	537,118	559,550	510,804
W. Va., Mass., and Ohio.....	285,554	364,947	275,352	286,816	280,689
Ky., Ind., Ill., Wis., and Cal.	145,459	175,858	192,763	121,270	186,922
Total	956,182	1,207,597	1,005,233	967,636	978,415

The following table gives the annual production and approximate consumption of iron and steel cut nails in the United States from 1887 to 1912 in kegs of 100 pounds. The exports of cut nails are given for each year, but similar statistics for imports are not available. The annual imports, however, were very small.

Years. Kegs.	Produc- tion.	Exports.	Consump- tion.	Years. Kegs.	Produc- tion.	Exports.	Consump- tion.
1887	6,908,870	122,787	6,786,083	1900.....	1,573,494	250,053	1,323,441
1888	6,493,591	121,606	6,371,985	1901.....	1,542,240	208,359	1,333,881
1889	5,810,758	117,967	5,692,791	1902.....	1,633,762	161,228	1,472,534
1890	5,640,946	134,374	5,506,572	1903.....	1,435,893	199,126	1,236,767
1891	5,002,176	103,836	4,898,340	1904.....	1,283,362	207,720	1,075,642
1892	4,507,819	152,686	4,355,133	1905.....	1,357,549	176,741	1,180,808
1893	3,048,933	131,910	2,917,023	1906.....	1,189,239	169,519	1,019,720
1894	2,425,060	183,229	2,241,831	1907.....	1,109,138	155,212	953,926
1895	2,129,894	176,394	1,953,500	1908.....	956,182	157,319	798,863
1896	1,615,870	237,088	1,378,782	1909.....	1,207,597	222,565	985,032
1897	2,106,799	337,732	1,769,067	1910.....	1,005,233	182,087	823,146
1898	1,572,221	352,473	1,219,748	1911.....	967,636	255,854	711,782
1899	1,904,340	223,425	1,680,915	1912.....	978,415	208,568	769,847

In the above period the maximum exports of cut nails was reached in 1898, when 352,473 kegs were sent abroad.

In 1912 there were sent to Chile, 66,785 kegs of cut nails, against 80,480 kegs in 1911; to Canada, 61,344 kegs, against 53,763 kegs in 1911; to Cuba, 22,054 kegs, against 40,031 kegs in 1911; to Mexico, 18,731 kegs, against 30,049 kegs in 1911; to Brazil, 11,107 kegs, against 112 kegs in 1911; to New Zealand, 5,131 kegs, against 1,105 kegs in 1911; to Australia and Tasmania, 4,372 kegs, against 4,962 kegs in 1911; to Panama, 3,222 kegs, against 17,431 kegs in 1911; to Santo Domingo, 3,120 kegs, against 4,025 kegs in 1911; to Colombia, 2,947 kegs, against 1,246 kegs in 1911; and to a number of other countries, 9,755 kegs, against 22,650 kegs in 1911.

PRODUCTION OF WIRE NAILS.

The production of wire nails in 1912 amounted to 14,659,700 kegs of 100 pounds, as compared with 13,437,778 kegs in 1911, an increase of 1,221,922 kegs, or nearly 9.1 per cent. Steel wire nails only were made in both years. The following table gives the output by States from 1909 to 1912 in kegs of 100 pounds.

States—Kegs of 100 pounds.	1909.	1910.	1911.	1912.
Mass., R. I., and Connecticut.....	195,298	175,730	107,740	112,870
New York, New Jersey, and Pa.	6,113,353	5,457,099	6,485,729	7,389,861
Ky., Ga., Alabama, and Ohio.....	3,470,001	3,503,433	3,628,584	3,853,667
Indiana and Illinois.....	3,449,106	2,906,274	2,637,000	2,670,166
Wis., Colorado, and California...	688,295	662,366	578,725	633,136
Total.....	13,916,053	12,704,902	13,437,778	14,659,700

In 1912 wire nails were made by 50 works in 14 States, as follows: Massachusetts, 3; Rhode Island, 1; New York, 2; Connecticut, 1; New Jersey, 1; Pennsylvania, 14; Kentucky, 1; Georgia, 1; Alabama, 1; Ohio, 8; Indiana, 5; Illinois, 8; Wisconsin, 3; and Colorado, 1. In 1911 wire nails were made by 47 works in 14 States. Six wire-nail plants were idle in 1911 and 1912. At the close of 1912 one wire-nail plant was partly built.

The leading producer of wire nails in 1912 was Pennsylvania, which made 7,201,411 kegs, or over 49 per cent. of the total, followed by Ohio, Illinois, Indiana, Colorado, Alabama, Georgia, Kentucky, New York, Massachusetts, Wisconsin, New Jersey, Rhode Island, and Connecticut in the order named.

In the following table the annual production, exports, and approximate consumption of wire nails are given from 1887 to 1912.

Years. Kegs.	Produce- tion.	Exports.	Consump- tion.	Years. Kegs.	Produce- tion.	Exports.	Consump- tion.
1887	1,250,000	8,867	1,241,133	1900.....	7,233,979	613,858	6,620,121
1888	1,500,000	13,414	1,486,586	1901.....	9,803,822	420,506	9,383,316
1889	2,435,000	19,172	2,415,828	1902.....	10,982,246	595,391	10,386,855
1890	3,135,911	18,395	3,117,516	1903.....	9,631,661	704,546	8,927,115
1891	4,114,385	18,986	4,095,399	1904.....	11,926,661	734,554	11,192,107
1892	4,719,524	21,387	4,698,137	1905.....	10,854,892	799,734	10,055,158
1893	5,095,945	27,451	5,068,494	1906.....	11,486,647	1,035,705	10,450,942
1894	5,681,801	38,920	5,642,881	1907.....	11,731,044	945,035	10,786,009
1895	5,841,403	53,012	5,788,391	1908.....	10,662,972	593,819	10,069,153
1896	4,719,860	95,638	4,624,222	1909.....	13,916,053	686,687	13,229,366
1897	8,997,245	129,767	8,867,478	1910.....	12,704,902	960,295	11,744,607
1898	7,418,475	307,190	7,111,285	1911.....	13,437,778	1,200,957	12,236,821
1899	7,618,130	750,781	6,867,349	1912.....	14,659,700	1,530,353	13,129,347

In 1912 there were sent to Japan 535,211 kegs of wire nails, against 553,776 kegs in 1911; to England, 166,484 kegs, against 73,871 kegs in 1911; to China, 146,029 kegs, against 143,338 kegs in 1911; to British India, 118,723 kegs, against 58,353 kegs in 1911; to Dutch East Indies, 89,955 kegs, against 35,662 kegs in 1911; to New Zealand, 65,985 kegs, against 41,933 kegs in 1911; to the Philippine Islands, 56,762 kegs, against 33,142 kegs in 1911; to Cuba, 45,995 kegs, against 38,365 kegs in 1911; to Canada, 44,533 kegs, against 10,158 kegs in 1911; to Panama, 25,460 kegs, against 9,757 kegs in 1911; and to a number of other countries, 235,216 kegs, against 202,602 kegs in 1911.

APPROXIMATE CONSUMPTION OF CUT AND WIRE NAILS.

Years. Kegs of 100 pounds.	Cut and wire nails.			Years. Kegs of 100 pounds.	Cut and wire nails.		
	Produce- tion.	Exports.	Consump- tion.		Produce- tion.	Exports.	Consump- tion.
1886.....	8,760,973	105,350	8,655,623	1900.....	8,807,473	863,911	7,943,562
1887.....	8,158,870	131,654	8,027,216	1901.....	11,346,062	628,865	10,717,197
1888.....	7,993,591	135,020	7,858,571	1902.....	12,616,008	756,619	11,859,389
1889.....	8,245,758	137,139	8,108,619	1903.....	11,067,554	903,672	10,163,882
1890.....	8,776,857	152,769	8,624,088	1904.....	13,210,023	942,274	12,267,749
1891.....	9,116,561	122,822	8,993,739	1905.....	12,212,441	976,475	11,235,966
1892.....	9,227,343	174,073	9,053,270	1906.....	12,675,886	1,205,224	11,470,662
1893.....	8,144,878	159,361	7,985,517	1907.....	12,840,182	1,100,247	11,739,935
1894.....	8,106,861	222,149	7,884,712	1908.....	11,619,154	751,138	10,868,016
1895.....	7,971,297	229,406	7,741,891	1909.....	15,123,650	909,252	14,214,398
1896.....	6,335,730	332,726	6,003,004	1910.....	13,710,135	1,142,382	12,567,753
1897.....	11,104,044	467,499	10,636,545	1911.....	14,405,414	1,456,811	12,948,603
1898.....	8,990,696	659,663	8,331,033	1912.....	15,638,115	1,738,921	13,899,194
1899.....	9,522,470	974,206	8,548,264	.....	.....	.....	.....

Our exports of cut and wire nails reached their maximum in 1912, when 1,738,921 kegs of 100 pounds, or over 11.1 per cent. of the total production, were sent to foreign countries.

COMPARATIVE PRODUCTION OF CUT AND WIRE NAILS.

The following table gives the production in kegs of iron and steel cut and wire nails and spikes from 1886 to 1912.

Years—Kegs of 100 pounds.	Cut nails. Kegs.	Wire nails. Kegs.	Total. Kegs.	Cut nails over wire.	Wire nails over cut.
1886.....	8,160,973	600,000	8,760,973	7,560,973	.....
1887.....	6,908,870	1,250,000	8,158,870	5,658,870	.....
1888.....	6,493,591	1,500,000	7,993,591	4,993,591	.....
1889.....	5,810,758	2,435,000	8,245,758	3,375,758	.....
1890.....	5,640,946	3,135,911	8,776,857	2,505,035	.....
1891.....	5,002,176	4,114,385	9,116,561	887,791	.....
1892.....	4,507,819	4,719,524	9,227,343	.....	211,705
1893.....	3,048,933	5,095,945	8,144,878	.....	2,047,012
1894.....	2,425,060	5,681,801	8,106,861	.....	3,256,741
1895.....	2,129,894	5,841,403	7,971,297	.....	3,711,509
1896.....	1,615,870	4,719,860	6,335,730	.....	3,103,990
1897.....	2,106,799	8,997,245	11,104,044	.....	6,890,446
1898.....	1,572,221	7,418,475	8,990,696	.....	5,846,254
1899.....	1,904,340	7,618,130	9,522,470	.....	5,713,790
1900.....	1,573,494	7,233,979	8,807,473	.....	5,660,485
1901.....	1,542,240	9,803,822	11,346,062	.....	8,261,582
1902.....	1,633,762	10,982,246	12,616,008	.....	9,348,484
1903.....	1,435,893	9,631,661	11,067,554	.....	8,195,768
1904.....	1,283,362	11,926,661	13,210,023	.....	10,643,299
1905.....	1,357,549	10,854,892	12,212,441	.....	9,497,343
1906.....	1,189,239	11,486,647	12,675,886	.....	10,297,408
1907.....	1,109,138	11,731,044	12,840,182	.....	10,621,906
1908.....	956,182	10,662,972	11,619,154	.....	9,706,790
1909.....	1,207,597	13,916,053	15,123,650	.....	12,708,456
1910.....	1,005,233	12,704,902	13,710,135	.....	11,699,669
1911.....	967,636	13,437,778	14,405,414	.....	12,470,142
1912.....	978,415	14,659,700	15,638,115	.....	13,681,285

The output of wire nails first exceeded the output of cut nails in 1892. Since that year the production of wire nails has annually exceeded the production of cut nails.

The maximum production of cut nails was reached in 1886, when 8,160,973 kegs were made, and the maximum production of wire nails in 1912, when 14,659,700 kegs were made. The combined production of cut and wire nails in 1912 amounted to 15,638,115 kegs, as compared with 14,405,414 kegs in 1911, an increase of 1,232,701 kegs. The maximum cut and wire nail production was reached in 1912, when 15,638,115 kegs were made.

IRON AND STEEL SHIPBUILDING.

We have received from the Commissioner of Navigation the following table, which shows the number and gross tonnage of iron and steel vessels launched and officially numbered in the United States during the calendar year 1912. The tonnage of vessels built for the United States Navy is not included.

Ports. Calendar year 1912.	Sailing.		Steam.		Barges.		Total.	
	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.
Boston, Mass.....	2	7,739	...	.....	2	7,739
New York, N. Y.....	16	6,230	1	952	17	7,182
Philadelphia, Pa.....	3	2,040	7	17,676	8	4,803	18	24,519
Wilmington, Del.....	10	11,167	...	.....	10	11,167
Baltimore, Md.....	7	26,702	...	.....	7	26,702
Newport News, Va....	6	16,966	...	.....	6	16,966
Vicksburg, Miss.....	2	19	...	.....	2	19
Memphis, Tenn.....	2	770	...	.....	2	770
Louisville, Ky.....	4	121	...	.....	4	121
St. Louis, Mo.....	1	82	...	.....	1	82
Dubuque, Iowa.....	1	195	...	.....	1	195
Evansville, Ind.....	4	93	...	.....	4	93
Pittsburgh, Pa.....	4	1,456	4	1,456
Buffalo, N. Y.....	2	72	4	1,292	6	1,364
Cleveland, Ohio.....	2	4,456	13	22,370	1	762	16	27,588
Toledo, Ohio.....	3	4,967	...	.....	3	4,967
Detroit, Mich.....	7	26,523	...	.....	7	26,523
Grand Haven, Mich.	3	172	...	.....	3	172
Chicago, Ill.....	1	3,996	...	.....	1	3,996
Milwaukee, Wis.....	1	688	1	261	2	949
Los Angeles, Cal.....	2	4,691	...	.....	2	4,691
P'rt Townsend, Wash.	11	3,254	...	.....	11	3,254
Total.....	5	6,496	105	154,493	19	9,526	129	170,515

With the exception of 1 composite vessel of 72 tons capacity all the vessels enumerated above were built of steel. Three yachts of 697 tons are included in the steam vessels. Of the 129 vessels and barges launched in 1912 two sailing vessels, 30 steam vessels, and 6 barges were built at ports on the Great Lakes, their total tonnage amounting to 65,559 tons, against 42 vessels and 79,100 tons in 1911. In 1911 the total number of iron and steel vessels built in the United States was 124 and the total tonnage was 163,805 tons, showing an increase in 1912 of 5 vessels and 6,710 tons.

In the first six months of 1913, ending on June 30, the number of iron and steel vessels built was 75, with a total tonnage of 168,630 tons. The number of steel steam vessels built

was 61, with a tonnage of 156,103 tons; steel sailing vessels, 4, with a tonnage of 5,834 tons, including one composite vessel of 60 tons; and steel barges, 10, with a tonnage of 6,693 tons.

STATISTICS OF IMMIGRATION FROM 1907 TO 1912.

The following table gives the number of immigrants who have arrived in the United States in the calendar years 1907 to 1912. Citizens of Canada and Newfoundland coming direct from British North America and citizens of Mexico coming direct from Mexico are included in the table since July 1, 1907. From March 3, 1903, until June 30, 1907, a tax of \$2 per head was collected on all immigrants, with the exception of citizens of Mexico, Canada, Cuba, and Newfoundland. By an act of Congress this tax was increased to \$4 after June 30, 1907. Aliens who have resided for one year or more in one of the four countries named are exempted from the head tax. There was an increase of 243,815 in immigration in 1912 as compared with 1911. Immigrants from Russian Poland are included with Russia, Austrian Poland with Austria-Hungary, and German Poland with Germany.

Countries.	1907.	1908.	1909.	1910.	1911.	1912.
United Kingdom.....	122,002	62,808	86,458	106,497	93,253	83,351
Germany.....	39,948	22,524	29,967	33,391	28,785	30,071
France.....	10,766	6,210	7,328	7,909	8,625	8,762
Austria-Hungary.....	352,983	66,074	232,355	243,511	140,106	230,931
Russia and Finland....	254,527	71,791	161,142	199,968	138,642	209,731
Sweden and Norway...	40,688	16,490	35,040	43,405	28,122	21,765
Denmark.....	7,076	3,530	5,631	7,613	6,941	6,008
Netherlands.....	8,135	3,820	5,573	8,285	7,755	6,541
Italy.....	277,827	56,096	221,964	224,603	159,613	209,276
Switzerland.....	4,169	2,367	3,249	3,829	3,240	3,722
Belgium.....	6,703	2,508	4,206	6,407	4,481	4,748
Bulg., Serv., and Mont.	18,918	893	2,322	6,000	2,880	4,844
Greece.....	39,173	5,701	21,263	30,329	19,601	31,623
Turkey in Europe.....	24,290	2,049	17,152	17,860	9,909	21,667
China.....	1,117	1,733	2,136	1,664	1,772	1,766
Japan.....	28,286	8,160	2,389	3,691	5,016	8,140
Turkey in Asia.....	12,383	4,731	13,844	12,550	9,628	20,908
British North America.	32,214	39,978	56,279	58,740	54,410	64,906
Mexico.....	3,821	9,241	19,642	19,475	22,728	16,278
West Indies.....	15,298	10,444	11,814	11,594	14,079	12,486
All other countries.....	33,842	13,171	17,351	24,564	22,959	28,836
Total.....	1,334,166	410,319	957,105	1,071,885	782,545	1,026,360

For the above information we are indebted to the Commissioner-General of Immigration.

SUMMARY OF STATISTICS FOR 1911 AND 1912.

Subjects—Calendar years.	1911.	1912.
Production of Iron Ore, gross tons.....	43,876,552	55,150,147
Imports of Iron Ore, gross tons.....	1,811,732	2,104,576
Production of Bituminous Coal, net tons.....	405,907,059	450,104,982
Production of Pennsylvania Anthracite, net tons.....	90,464,067	84,361,598
Production of all kinds of Coal, net tons.....	496,371,126	534,466,580
Shipments of Pennsylvania Anthracite, gross tons...	69,954,299	63,610,578
Imports of Coal, gross tons.....	1,241,285	1,610,020
Exports of Domestic Coal, gross tons.....	17,432,753	18,148,767
Shipments of Connellsville Coke, net tons.....	16,334,174	20,000,873
Production of Coke, net tons.....	35,551,489	43,983,599
Production of Pig Iron, gross tons.....	23,649,547	29,726,937
Production of Spiegeleisen and Ferro-manganese, included in Pig Iron, gross tons.....	184,718	221,724
Production of Bessemer Steel, gross tons.....	7,947,854	10,327,901
Production of Open Hearth Steel, gross tons.....	15,598,650	20,780,723
Production of Crucible Steel, gross tons.....	97,653	121,517
Production of Electric and other Steel, gross tons....	31,949	21,162
Production of all kinds of Steel, gross tons.....	23,676,106	31,251,303
Production of Open Hearth Steel Castings, gross tons.	571,191	870,848
Production of all kinds of Steel Castings, gross tons.	646,627	966,621
Production of Bessemer Steel Rails, gross tons.....	1,053,420	1,099,926
Production of Open Hearth Steel Rails, gross tons...	1,676,923	2,105,144
Production of all kinds of Rails, gross tons.....	2,822,790	3,327,915
Production of Structural Shapes, gross tons.....	1,912,367	2,846,487
Production of Iron and Steel Wire Rods, gross tons.	2,450,453	2,653,553
Production of Plates and Sheets, except Nail Plate and Skelp, gross tons.....	4,488,049	5,875,080
Production of Nail Plate, gross tons.....	48,522	45,331
Production of Merchant Bars, gross tons*.....	3,047,362	3,697,114
Production of Bars for Concrete Work, gross tons...	258,741	274,332
Production of Skelp, etc., gross tons.....	1,980,673	2,446,816
Production of all other Rolled Forms, gross tons....	2,030,214	3,490,213
Production of all Rolled Iron and Steel, gross tons.	19,039,171	24,656,841
Production of Iron and Steel Cut Nails and Cut Spikes, kegs of 100 pounds.....	967,636	978,415
Production of Steel Wire Nails, kegs of 100 pounds.	13,437,778	14,659,700
Production of Tinplates and Terne Plates, gross tons.	783,960	962,971
Production of Charcoal Blooms, Slabs, Bars, etc., for Sale or for Consumption of Makers, gross tons...	64,616	65,807
Imports of Iron and Steel and manufactures thereof	\$28,995,600	\$29,328,709
Exports of Iron and Steel and manufactures thereof	\$241,308,887	\$289,128,420
Miles of New Steam Railroad built.....	3,293	2,997
Tonnage of Iron and Steel Vessels built, cal. year...	163,805	170,515
Immigrants landed in the year ended December 31.	782,545	1,026,360

PRODUCTION OF ALL KINDS OF PIG IRON IN 1908, 1909,
1910, 1911, AND 1912, BY STATES.

The following statistics, giving the total production of pig iron in the United States for 1908, 1909, 1910, and 1911, have been collected by the American Iron and Steel Association, and for 1912 by the Bureau of Statistics of the American Iron and Steel Institute. Production in previous years will be found in the Annual Reports of the Association.

TOTAL PRODUCTION OF PIG IRON FROM 1908 TO 1912.

States. Calendar years.	Production—Gross tons of 2,240 pounds.				
	1908.	1909.	1910.	1911.	1912.
Massachusetts.....	13,794	18,388	16,582	9,649	17,366
Connecticut.....					
New York.....	1,019,495	1,733,675	1,938,407	1,562,756	1,939,231
New Jersey.....	225,372	294,474	264,781	40,663	36,876
Pennsylvania.....	6,987,191	10,918,824	11,272,323	9,807,073	12,552,131
Maryland.....	183,502	286,856	326,214	255,816	219,546
Virginia.....	320,458	391,134	444,976	293,642	256,167
Georgia.....	24,345	26,072	14,725	1,200	.....
Texas.....					
Alabama.....	1,397,014	1,763,617	1,939,147	1,712,211	1,862,681
West Virginia.....	65,551	228,282	174,661	291,472	274,360
Kentucky.....	45,096	86,371	100,509	95,202	68,760
Tennessee.....	290,826	333,845	397,569	324,648	338,238
Ohio.....	2,861,325	5,551,545	5,752,112	5,310,506	6,802,493
Illinois.....	1,691,944	2,467,156	2,675,646	2,108,002	2,887,359
Indiana.....	348,096	964,289	1,250,103	1,163,932	1,770,628
Michigan.....					
Wisconsin.....	148,938	348,177	307,200	276,807	303,370
Minnesota.....					
Missouri.....	313,071	382,766	428,612	395,968	397,731
Colorado.....					
Washington.....					
California.....					
Total.....	15,936,018	25,795,471	27,303,567	23,649,547	29,726,937

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PRODUCTION OF ANTHRACITE AND MIXED ANTHRACITE AND BITUMINOUS PIG IRON FROM 1908 TO 1912.

States. Calendar years.	Production—Gross tons of 2,240 pounds.				
	1908.	1909.	1910.	1911.	1912.
New Jersey.....	355,009	698,431	649,082	229,575	247,179
Pennsylvania.....					
Total.....	355,009	698,431	649,082	229,575	247,179

PRODUCTION OF ALL KINDS OF PIG IRON IN 1908, 1909,
1910, 1911, AND 1912, BY STATES.—CONTINUED.

PRODUCTION OF BITUMINOUS COAL AND COKE PIG IRON
FROM 1908 TO 1912.

States. Calendar years.	Production—Gross tons of 2,240 pounds.				
	1908.	1909.	1910.	1911.	1912.
New York	1,018,795	1,731,434	1,938,357	1,562,756	1,939,231
New Jersey	192,352	256,846	262,669	40,663	36,876
Pennsylvania	6,662,723	10,255,330	10,621,081	9,573,985	12,301,120
Maryland	183,502	284,356	325,614	255,186	218,603
Virginia, Ga., and Tex.	326,465	404,725	452,342	292,147	253,921
Alabama	1,373,199	1,729,976	1,903,443	1,679,654	1,828,648
West Virginia	65,551	228,282	174,661	291,472	274,360
Kentucky	43,172	84,016	98,951	93,574	68,580
Tennessee	288,316	330,909	394,078	320,942	335,552
Ohio	2,858,925	5,551,545	5,751,052	5,308,604	6,800,568
Illinois	1,691,944	2,467,156	2,675,646	2,108,002	2,887,359
Ind., Mich., and Wis.	315,985	971,837	1,193,796	1,166,237	1,765,941
Minn., Mo., Colorado, and Washington.....	310,934	424,625	466,288	448,074	421,974
Total	*15,331,863	*24,721,037	*26,257,978	*23,141,296	*29,132,733

* Include ferro-alloys made with coke and electricity, coal and natural gas, etc.

PRODUCTION OF CHARCOAL PIG IRON FROM 1908 TO 1912.

States. Calendar years.	Production—Gross tons of 2,240 pounds.				
	1908.	1909.	1910.	1911.	1912.
Massachusetts	*14,494	*20,629	*16,632	9,649	17,366
Connecticut					
New York	2,479	2,691	4,272	3,513	3,832
Pennsylvania	3,298	5,588	1,555	3,325	3,189
Maryland and Va.	23,815	33,641	35,704	32,557	34,033
Alabama	19,474	14,684	11,453	5,334	2,866
Georgia					
Kentucky	2,400	.....	1,060	1,902	1,925
Tennessee					
Ohio	143,492	231,733	260,805	160,884	231,169
Michigan	*39,694	*67,037	*65,026	*61,512	*52,645
Wisconsin, Missouri, and California					
Total	*249,146	*376,003	*396,507	*278,676	*347,025

* Include a small quantity of pig iron made in California in 1908, 1909, 1910, 1911, and 1912 with charcoal and electricity; also a small quantity of ferro-silicon made in New York with the same kind of fuel in 1908, 1909, and 1910.

PRODUCTION OF PIG IRON IN THE UNITED STATES BY FUELS FROM 1854 TO 1912.

In the following table pig iron made with mixed anthracite and coke as fuel is included in the anthracite column, pig iron made with both raw coal and coke as fuel is included in the bituminous column, and pig iron made with mixed charcoal and coke as fuel is included in the charcoal column.

Years—Gross tons.	Anthracite.	Charcoal.	Bituminous.	Total.
1854	303,067	305,623	48,647	657,337
1855*	340,952	303,502	55,705	700,159
1856	395,637	330,777	62,101	788,515
1857	348,558	294,929	69,153	712,640
1858	322,705	254,744	52,099	629,548
1859	421,201	253,608	75,751	750,560
1860	463,581	248,510	109,132	821,223
1861	365,383	174,355	113,426	653,164
1862	419,924	166,661	116,685	703,270
1863	515,748	189,290	141,037	846,075
1864	610,730	215,940	187,612	1,014,282
1865	428,177	234,234	169,359	831,770
1866	669,078	296,946	239,639	1,205,663
1867	713,070	307,447	284,506	1,305,023
1868	797,322	330,357	303,571	1,431,250
1869†	867,098	350,134	494,055	1,711,287
1870	830,357	325,893	508,929	1,665,179
1871	854,114	343,750	508,929	1,706,793
1872	1,223,047	446,953	878,713	2,548,713
1873	1,172,102	515,732	873,129	2,560,963
1874	1,073,343	514,783	813,136	2,401,262
1875‡	810,755	366,956	846,022	2,023,733
1876	709,445	275,579	883,937	1,868,961
1877	834,640	283,789	948,165	2,066,594
1878	975,777	261,963	1,063,475	2,301,215
1879	1,136,629	320,422	1,284,802	2,741,853
1880	1,613,974	479,963	1,741,254	3,835,191
1881	1,548,627	570,391	2,025,236	4,144,254
1882	1,823,338	623,130	2,176,855	4,623,323
1883	1,683,568	510,469	2,401,473	4,595,510
1884	1,416,476	409,301	2,272,091	4,097,868
1885	1,298,562	357,004	2,388,960	4,044,526
1886	1,874,640	410,319	3,398,370	5,683,329
1887	2,087,847	516,234	3,813,067	6,417,148
1888	1,719,401	534,633	4,235,704	6,489,738
1889	1,714,602	575,268	5,313,772	7,603,642
1890	2,186,411	628,145	6,388,147	9,202,703
1891	1,866,108	576,964	5,836,798	8,279,870
1892	1,797,113	537,621	6,822,266	9,157,000
1893	1,347,529	386,789	5,390,184	7,124,502
1894	914,742	222,422	5,520,224	6,657,388

* Anthracite passes charcoal. † Bituminous passes char. ‡ Bituminous passes anth.

Years—Gross tons.	Anthracite.	Charcoal.	Bituminous.	Total.
1895	1,270,899.	225,341	7,950,068	9,446,308
1896	1,146,412	310,244	7,166,471	8,623,127
1897	932,777	255,211	8,464,692	9,652,680
1898	1,203,273	296,750	10,273,911	11,773,934
1899	1,599,552	284,766	11,736,385	13,620,703
1900	1,677,048	384,482	11,727,712	13,789,242
1901	1,712,527	383,441	13,782,386	15,878,354
1902	1,115,247	390,169	16,315,891	17,821,307
1903	1,911,347	505,684	15,592,221	18,009,252
1904	1,228,140	337,529	14,931,364	16,497,033
1905	1,674,515	352,928	20,964,937	22,992,380
1906	1,560,686	433,007	23,313,498	25,307,191
1907	1,371,554	437,397	23,972,410	25,781,361
1908	355,009	249,146	15,331,863	15,936,018
1909	698,431	376,003	24,721,037	25,795,471
1910	649,082	396,507	26,257,978	27,303,567
1911	229,575	278,676	23,141,296	23,649,547
1912	247,179	347,025	29,132,733	29,726,937

PRODUCTION OF PIG IRON IN THE UNITED STATES FOR OVER 100 YEARS.

The production of all kinds of pig iron in the United States for over one hundred years is shown in the following table. This table has been compiled from the records of the American Iron and Steel Association, census reports, and from other authoritative sources. Gross tons are used.

Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.
1810...	53,908	1858...	629,548	1877...	2,066,594	1896...	8,623,127
1820...	20,000	1859...	750,560	1878...	2,301,215	1897...	9,652,680
1828...	130,000	1860...	821,223	1879...	2,741,853	1898...	11,773,934
1829...	142,000	1861...	653,164	1880...	3,835,191	1899...	13,620,703
1830...	165,000	1862...	703,270	1881...	4,144,254	1900...	13,789,242
1831...	191,000	1863...	846,075	1882...	4,623,323	1901...	15,878,354
1832...	200,000	1864...	1,014,282	1883...	4,595,510	1902...	17,821,307
1840...	286,903	1865...	831,770	1884...	4,097,868	1903...	18,009,252
1842...	215,000	1866...	1,205,663	1885...	4,044,526	1904...	16,497,033
1846...	765,000	1867...	1,305,023	1886...	5,683,329	1905...	22,992,380
1847...	800,000	1868...	1,431,250	1887...	6,417,148	1906...	25,307,191
1848...	800,000	1869...	1,711,287	1888...	6,489,738	1907...	25,781,361
1849...	650,000	1870...	1,665,179	1889...	7,603,642	1908...	15,936,018
1850...	563,755	1871...	1,706,793	1890...	9,202,703	1909...	25,795,471
1852...	500,000	1872...	2,548,713	1891...	8,279,870	1910...	27,303,567
1854...	657,337	1873...	2,560,963	1892...	9,157,000	1911...	23,649,547
1855...	700,159	1874...	2,401,262	1893...	7,124,502	1912...	29,726,937
1856...	788,515	1875...	2,023,733	1894...	6,657,388	.....	.....
1857...	712,640	1876...	1,868,961	1895...	9,446,308	.....	.....

PERCENTAGE OF PRODUCTION OF THE UNITED STATES
STEEL CORPORATION IN 1910.

Iron ore shipments from Lake Superior and iron ore production in 1910; also coke production in the same year.	By U. S. Steel Corporation.		By inde- pendent companies.		Total ship- ments and production.		Percentage U. S. Steel Corporation.	
	Production U. S. Steel.	Production all others.	Production all others.	Total production.	Percentage U. S. Steel.			
Shipments of iron ore from the Lake Superior region in 1910.....	22,185,972	21,256,425	43,442,397	51.1				
Total production of iron ore in 1910.....	25,245,816	31,769,090	*57,014,906	44.3				
Production of coke in 1910.....	13,649,578	28,059,232	41,708,810	32.7				
Gross tons.....								
Iron and steel actually produced in the calendar year 1910.								
Gross tons.								
Spiegeleisen and ferro-manganese.....	173,636	50,795	224,431	77.4				
Bessemer, basic, low-phosphorus, foundry, forge, ferro-silicon, etc.....	11,657,762	15,421,374	27,079,136	43.1				
Total pig iron, including spiegeleisen, ferro-manganese, ferro-silicon, etc.....	11,831,398	15,472,169	27,303,567	43.3				
Bessemer, open-hearth, crucible, electric, and all other steel ingots and castings...	14,179,369	11,915,550	26,094,919	54.3				
Bessemer steel rails.....	1,134,381	750,061	1,884,442	60.2				
Open-hearth steel rails.....	1,004,565	746,794	1,751,359	57.4				
Structural shapes.....	1,163,300	1,103,590	2,266,890	51.3				
Plates and sheets, including black plates for tinning.....	2,380,106	2,575,378	4,955,484	48.0				
Wire rods.....	1,508,294	733,536	2,241,830	67.3				
Merchant bars, skelp, nail plate, iron rails, and other finished rolled products..	3,203,279	5,317,995	8,521,274	37.6				
Total finished rolled, including rolled forging blooms and rolled forging billets.	10,393,925	11,227,354	21,621,279	48.1				
Wire nails.....	7,041,692	5,663,210	12,704,902	55.4				
Tinplates andterne plates.....	440,694	282,076	722,770	61.0				
Gross tons.....								

* Figures revised by the United States Geological Survey.

PERCENTAGE OF PRODUCTION OF THE UNITED STATES
STEEL CORPORATION IN 1911.

Iron ore shipments from Lake Superior and iron ore production in 1911: also coke production in the same year.		By U. S. Steel Corporation.	By independent companies.	Total shipments and production.	Percentage U. S. Steel Corporation.
Shipments of iron ore from the Lake Superior region in 1911.....		17,806,257	14,986,873	32,793,130	54.3
Total production of iron ore in 1911.....		19,933,631	23,942,921	43,876,552	45.4
Production of coke in 1911.....		12,120,212	23,431,277	35,551,489	34.1
Iron and steel actually produced in the calendar year 1911.		Production U. S. Steel.	Production all others.	Total production.	Percentage U. S. Steel.
Spiegeleisen and ferro-manganese.....		140,917	43,801	184,718	76.3
Bessemer, basic, low-phosphorus, foundry, forge, ferro-silicon, etc.....		10,603,980	12,860,849	23,464,829	45.2
Total pig iron, including spiegeleisen, ferro-manganese, ferro-silicon, etc.....		10,744,897	12,904,650	23,649,547	45.4
Bessemer, open-hearth, crucible, electric, and all other steel ingots and castings...		12,753,370	10,922,736	23,676,106	53.9
Steel rails, including Bessemer, open-hearth, electric, rerolled, renewed, etc....		1,583,942	1,238,614	2,822,556	56.1
Structural shapes.....		898,466	1,013,901	1,912,367	47.0
Plates and sheets, including black plates for tinning.....		2,052,115	2,435,934	4,488,049	45.7
Wire rods.....		1,586,594	863,859	2,450,453	64.7
Other finished rolled products, including nail plate, iron rails, merchant bars, etc.		2,582,707	4,783,039	7,365,746	35.1
Total finished rolled, including rolled forging blooms and rolled forging billets.		8,703,824	10,335,347	19,039,171	45.7
Wire nails.....		6,900,916	6,536,862	13,437,778	51.4
Tinplates andterne plates.....		476,036	307,924	783,960	60.7

* Figures revised by the United States Geological Survey.

PERCENTAGE OF PRODUCTION OF THE UNITED STATES
STEEL CORPORATION IN 1912.

Iron ore shipments from Lake Superior and iron ore production in 1912; also coke production in the same year.	By U. S. Steel Corporation.	By inde- pendent companies.	Total ship- ments and production.	Percentage U. S. Steel Corporation.
Shipments of iron ore from the Lake Superior region in 1912.....gross tons.	24,331,837	23,889,709	48,221,546	50.46
Total production of iron ore in 1912.....gross tons.	26,428,449	28,721,698	55,150,147	47.92
Production of coke in 1912.....net tons.	16,719,387	27,264,212	43,983,599	38.01
Iron and steel actually produced in the calendar year 1912. Gross tons.	Production U. S. Steel.	Production all others.	Total production.	Percentage U. S. Steel.
Spiegeleisen and ferro-manganese.....	179,207	42,517	221,724	80.82
Bessemer, basic, low-phosphorus, foundry, forge, ferro-silicon, etc.....	14,006,967	15,488,256	29,505,213	47.47
Total pig iron, including spiegeleisen, ferro-manganese, ferro-silicon, etc.....	14,186,164	15,540,773	29,726,937	47.72
Bessemer, open-hearth, crucible, electric, and all other steel ingots and castings....	16,901,223	14,350,080	31,251,303	54.08
Steel rails, including Bessemer, open-hearth, electric, rerolled, renewed, etc.....	1,872,772	1,455,143	3,327,915	56.27
Structural shapes.....	1,418,518	1,427,969	2,846,487	49.83
Plates and sheets, including black plates for tinning.....	2,959,056	2,916,024	5,875,080	50.37
Wire rods.....	1,676,916	976,637	2,653,553	63.20
Other finished rolled products, including nail plate, iron rails, merchant bars, rolled forging blooms and billets, semi-finished products rolled for export, etc....	4,037,530	5,916,276	9,953,806	40.56
Total of the rolled products enumerated above.....	11,964,792	12,692,049	24,656,841	48.52
Wire nails.....	7,227,502	7,432,198	14,659,700	49.30
Tinplates andterne plates.....	581,346	381,625	962,971	60.37

STATISTICS OF THE CANADIAN IRON TRADE FOR 1912.

THE Bureau of Statistics of the American Iron and Steel Institute has received direct from the manufacturers the statistics of the production of pig iron, steel ingots and castings, and finished rolled iron and steel in Canada in the calendar year 1912. For 1911 and previous years the figures given below were compiled by the American Iron and Steel Association.

PRODUCTION OF ALL KINDS OF PIG IRON.

The production of pig iron in Canada in 1912, including ferro-silicon, ferro-titanium, and ferro-phosphorus, amounted to 912,878 gross tons, against 824,368 tons in 1911, an increase of 88,510 tons, or over 10.7 per cent. The production in 1912 was much the largest in the history of the Dominion. Of the total 886,506 tons were made with coke and 26,372 tons with charcoal, coke and electricity, etc., against 799,716 tons made with coke and 24,652 tons with charcoal, coke and electricity, etc., in 1911.

The production of basic pig iron in Canada in 1912 amounted to 489,799 tons, against 413,303 tons in 1911; the production of Bessemer pig iron to 228,742 tons, against 186,274 tons in 1911; the production of foundry pig iron and ferro-silicon to 194,208 tons, against 190,324 tons in 1911; and the production of malleable Bessemer and white and mottled pig iron, direct castings, ferro-titanium, etc., to 129 tons, against 34,467 tons in 1911.

Of the 912,878 tons of pig iron made in 1912, 551,262 tons were delivered to mixers, open-hearth furnaces, etc., in a molten condition, 232,509 tons were sand cast, 129,003 tons were machine cast, and 104 tons were direct blast furnace castings.

In 1912 the Canadian furnaces consumed 1,877,341 tons of iron ore and 37,824 tons of mill cinder, pyrites cinder, scale, etc., in the manufacture of pig iron, as compared with 1,565,927 tons of iron ore and 41,427 tons of mill cinder, scale, scrap, etc., in 1911. In addition 666,214 tons of limestone were consumed for fluxing purposes in 1912, against 567,462 tons in 1911.

In 1912 there were also consumed for smelting purposes 1,275,349 net tons of coke and 1,886,748 bushels of charcoal.

The average consumption of coke per ton of bituminous pig iron made, including a small quantity of pig iron produced with coke and electricity, was 2,854.6 pounds, while the average consumption of charcoal per ton of pig iron made was 97.3 bushels.

The following table gives the production of all kinds of pig iron by Provinces from 1908 to 1912 in gross tons.

Provinces—Gross tons.	1908.	1909.	1910.	1911.	1912.
Nova Scotia and Quebec.....	354,596	348,217	357,207	409,151	467,637
Ontario	209,076	328,873	383,003	415,217	445,241
Total	563,672	677,090	740,210	824,368	912,878

In the following table the production of pig iron by grades in Canada is given from 1900 to 1912. For 1900 foundry pig iron is included with forge and other grades of pig iron.

Years—Gross tons.	Bessemer pig iron.	Basic pig iron.	Foundry, ferro-silicon, etc.	Forge, etc., including ferro-alloys.	Total. Gross tons.
1900	3,781	9,720	72,589		86,090
1901.....	29,577	22,665	184,795	7,939	244,976
1902.....	9,253	107,315	165,466	37,523	319,557
1903.....	600	126,892	113,717	24,209	265,418
1904.....	26,016	70,133	155,035	19,758	270,942
1905.....	149,203	172,102	139,528	7,170	468,003
1906.....	165,609	246,228	124,361	5,759	541,957
1907.....	154,910	341,257	78,901	6,078	581,146
1908.....	112,811	335,410	109,471	5,980	563,672
1909.....	169,545	357,965	108,608	40,972	677,090
1910.....	221,494	365,090	143,986	9,640	740,210
1911.....	186,274	413,303	190,324	34,467	824,368
1912.....	228,742	489,799	194,208	129	912,878

The following table gives the production of all kinds of pig iron by fuels from 1894 to 1912 in gross tons of 2,240 pounds.

Years.	Charcoal.	Coke.	Total.	Years.	Charcoal.	Coke.	Total.
1894....	9,411	35,380	44,791	1904....	19,271	251,671	270,942
1895....	6,481	31,348	37,829	1905....	35,133	432,870	468,003
1896....	5,907	54,123	60,030	1906....	16,241	525,716	541,957
1897....	8,386	45,410	53,796	1907....	9,121	572,025	581,146
1898....	6,371	62,384	68,755	1908....	7,001	556,671	563,672
1899....	17,796	76,281	94,077	1909....	16,234	660,856	677,090
1900....	15,741	70,349	86,090	1910....	16,036	724,174	740,210
1901....	16,083	228,893	244,976	1911....	24,652	799,716	824,368
1902....	16,845	302,712	319,557	1912....	26,372	886,506	912,878
1903....	17,513	247,905	265,418	.....	.....	.....	.....

Spiegeleisen, ferro-manganese, ferro-silicon, ferro-titanium, etc., are included. For late years small quantities of pig iron made with electricity are included with the charcoal output.

In the ten years from 1903 to 1912 there was but one year, 1908, when the production of pig iron in the Dominion did not show an increase over the output of the preceding year. In 1902 Canada began to develop its steel industry. Since that year both its pig iron and steel industries have grown steadily.

On December 31, 1912, Canada had 19 completed blast furnaces, of which 14 were in blast and 5 were idle. Of the total 15 usually use coke for fuel and 4 use charcoal. One charcoal and two coke furnaces were being built on December 31. In 1912 three plants made ferro-alloys in electric furnaces.

The annual capacity of the 19 completed blast furnaces on December 31, 1912, was 1,325,300 gross tons, and of the 3 building furnaces 252,250 tons, a total of 1,577,550 tons. Of this total 1,504,750 tons represented the capacity of the coke furnaces and 72,800 tons the capacity of the charcoal furnaces. The annual capacity of the completed furnaces on December 31, 1912, exceeded the production of pig iron in 1912 by 412,422 tons.

PRODUCTION OF STEEL INGOTS AND CASTINGS.

The production of all kinds of steel ingots and castings in Canada in 1912 was 853,031 gross tons, against 790,871 tons in 1911, an increase of 62,160 tons, or over 7.8 per cent. Included in the total for 1912 are about 1,294 tons of alloy-treated steel ingots and castings, against about 1,091 tons in 1911. Bessemer and open-hearth ingots and castings were made in both 1911 and 1912, the production of Bessemer steel amounting to 207,569 tons in 1912, against 189,797 tons in 1911, an increase of 17,772 tons, or over 9.3 per cent., and the production of open-hearth steel to 645,062 tons in 1912, against 601,074 tons in 1911, an increase of 43,988 tons, or over 7.3 per cent. Almost all the Bessemer steel made in the two years was in the form of ingots.

Of the total production of open-hearth steel in 1912, 617,061 gross tons were ingots and 28,001 tons were castings, against 581,222 tons of ingots and 19,852 tons of castings in 1911. In both years all the open-hearth ingots were made by the basic process, but the castings were made by both the acid and the basic processes. The total production of all kinds of steel castings in 1912 was 32,239 tons, against 22,312 tons in 1911, an increase of 9,927 tons. The production of steel ingots and castings from 1908 to 1912 is given below by Provinces.

Provinces—Gross tons.	1908.	1909.	1910.	1911.	1912.
Nova Scotia.....	326,311	354,140	371,196	398,781	416,313
Ontario.....	178,141	315,939	359,253	378,158	417,634
Quebec and British Columbia...	5,505	8,672	11,475	13,932	19,084
Total.....	509,957	678,751	741,924	790,871	853,031

The following table gives the production of all kinds of steel ingots and castings in Canada by processes from 1904 to 1912.

Years.	Bessemer.	Open-hearth.	Other kinds.	Total.
1904.....	42,738	106,046	.....	148,784
1905.....	164,488	238,681	280	403,449
1906.....	219,791	347,778	3,320	570,889
1907.....	202,268	440,936	3,550	646,754
1908.....	108,433	401,119	405	509,957
1909.....	182,304	496,142	305	678,751
1910.....	199,570	542,354	.....	741,924
1911.....	189,797	601,074	.....	790,871
1912.....	207,569	645,062	400	853,031

The following table gives the production of steel ingots and castings separately in Canada from 1904 to 1912 in gross tons.

Years.	Ingots.	Castings.	Total.	Years.	Ingots.	Castings.	Total.
1904.....	142,279	6,505	148,784	1909.....	664,789	13,962	678,751
1905.....	394,055	9,394	403,449	1910.....	723,002	18,922	741,924
1906.....	555,913	14,976	570,889	1911.....	768,559	22,312	790,871
1907.....	629,026	17,728	646,754	1912.....	820,792	32,239	853,031
1908.....	500,300	9,657	509,957	.....	.....	.....	.....

The following table gives the production of all kinds of steel ingots and castings in Canada from 1894 to 1912 in gross tons.

Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.
1894.....	25,685	1901.....	26,084	1908.....	509,957
1895.....	17,000	1902.....	182,037	1909.....	678,751
1896.....	16,000	1903.....	181,514	1910.....	741,924
1897.....	18,400	1904.....	148,784	1911.....	790,871
1898.....	21,540	1905.....	403,449	1912.....	853,031
1899.....	22,000	1906.....	570,889	.....	.....
1900.....	23,577	1907.....	646,754	.....	.....

PRODUCTION OF FINISHED ROLLED IRON AND STEEL.

The production of all kinds of finished rolled iron and steel in Canada in 1912 amounted to 861,224 tons, as compared with 781,924 tons in 1911, an increase of 79,300 tons, or over 10.1 per cent. The output in 1912 was the largest in the history of

the Dominion. Of the total production about 109,012 tons were iron and about 752,212 tons were steel, against about 86,383 tons of iron and about 695,541 tons of steel in 1911. The following table gives the production of finished rolled products in the last five years. The output of one plant is estimated.

Products—Gross tons.	1908.	1909.	1910.	1911.	1912.
Rails.....	268,692	344,830	366,465	360,547	423,885
Structural shapes and wire rods	41,520	74,136	80,993	76,617	64,082
Plates and sheets, nail plate, merchant bars, tie-plate bars, etc.	186,305	243,775	292,353	344,760	373,257
Total.....	496,517	662,741	739,811	781,924	861,224

In 1912 the output of steel rails amounted to 49.2 per cent. of the total finished rolled production, against 46.1 per cent. in 1911. The following table gives the production of all kinds of rails since 1895. Steel rails only were rolled in all years other than 1899.

Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.
1895.....	600	1900....	700	1905....	178,885	1910....	366,465
1896.....	600	1901....	891	1906....	312,877	1911....	360,547
1897.....	500	1902....	33,950	1907....	311,461	1912....	423,885
1898.....	600	1903....	1,243	1908....	268,692	.....	.....
1899.....	835	1904....	36,216	1909....	344,830	.....	.....

The production of all kinds of finished rolled iron and steel in Canada in the last five years is given below by Provinces.

Provinces—Gross tons.	1908.	1909.	1910.	1911.	1912.
Nova Scotia	261,073	286,121	310,460	336,520	337,466
Quebec.....	54,971	63,592	62,605	65,378	88,172
Ontario	174,158	306,469	356,645	367,768	418,346
New Bruns., Alberta, and Man..	6,315	6,559	10,101	12,258	17,240
Total.....	496,517	662,741	739,811	781,924	861,224

The following table gives the production of finished rolled iron and steel in Canada since 1895. Gross tons are used.

Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.
1895.....	66,402	1901.....	112,007	1907.....	600,179
1896.....	75,043	1902.....	161,485	1908.....	496,517
1897.....	77,021	1903.....	129,516	1909.....	662,741
1898.....	90,303	1904.....	180,038	1910.....	739,811
1899.....	110,642	1905.....	385,826	1911.....	781,924
1900.....	100,690	1906.....	571,742	1912.....	861,224

PRODUCTION OF FORGED IRON AND STEEL.

The total production of forged iron and steel by rolling mills and steel works in Canada in 1912 amounted to about 22,415 tons, of which about 867 tons were iron and about 21,548 tons were steel, as compared with about 18,832 tons in 1911, of which about 787 tons were iron and about 18,045 tons were steel.

PRODUCTION OF CUT AND WIRE NAILS.

In 1912 the rolling mills and steel works in Canada which operated cut-nail or wire-nail factories produced about 788,190 kegs of steel cut nails and steel wire nails of 100 pounds each, against about 652,861 kegs in 1911. Nails made by factories not connected with rolling mills are not included for either year.

PRODUCTION OF FINISHED ANGLE SPLICE BARS, ETC.

The production of finished angle splice bars, tie plates, fish plates, and other rail joints and fastenings in Canada by rolling mills and steel works in 1912, all steel, not including spikes, bolts, nuts, and similar fastenings, amounted to 52,157 gross tons. Similar statistics for 1911 and prior years were not collected.

ACTIVE AND IDLE ROLLING MILLS AND STEEL WORKS.

In 1912 there were 31 works in 7 Provinces which made steel ingots or castings or rolled iron or steel into finished forms, against 28 works in 7 Provinces in 1911, a gain of 3 works. Of the total in 1912 there were 21 works which rolled iron or steel into finished forms and 10 which made steel ingots or castings but not finished forms of rolled iron or steel, while in 1911 the number of works which rolled iron or steel into finished forms was 22 and the number of works which did not roll finished forms was 6. In 1912 there were 4 idle rolling mills and steel works—1 in Quebec and 3 in Ontario. In 1911 there were 3 idle plants—1 in Quebec and 2 in Ontario.

Of the 31 active rolling mills and steel works in 1912 six were located in Nova Scotia, 8 in Quebec, 13 in Ontario, and 1 each in Alberta, Manitoba, New Brunswick, and British Columbia.

NEW STEEL WORKS.

In 1912 four new steel plants were built in Canada, of which 2 are located in Ontario and 2 in Quebec. All 4 plants make steel castings but not hot-rolled iron or steel products.

BUILDING ROLLING MILL.

On December 31, 1912, one plant for the manufacture of iron and steel merchant bars was being built at Redcliff, Alberta.

MISCELLANEOUS CANADIAN STATISTICS.

For the following Canadian statistics for 1912 and recent years we are indebted to Mr. John McLeish, Chief of the Division of Mineral Resources and Statistics, Department of Mines, Ottawa.

Coal.—The production of coal in Canada in 1912 amounted to 12,957,883 gross tons, against 10,110,168 tons in 1911, 11,526,029 tons in 1910, and 9,376,317 tons in 1909. The imports of coal into Canada in 1912 amounted to 13,031,973 gross tons, against 12,999,011 tons in 1911, 9,462,484 tons in 1910, and 8,815,111 tons in 1909. The exports of coal from Canada in 1912 amounted to 1,899,226 gross tons, as compared with 1,339,856 tons in 1911, 2,122,365 tons in 1910, and 1,417,946 tons in 1909.

Coke.—The production of coke in Canada in 1912 amounted to 1,411,229 net tons, against 935,651 tons in 1911, 902,715 tons in 1910, and 862,011 tons in 1909. The imports of coke into Canada in 1912 amounted to 628,174 net tons, as compared with 751,389 tons in 1911, 737,088 tons in 1910, and 661,425 tons in 1909. The exports of coke from Canada in 1912 amounted to 57,744 net tons, against 9,852 tons in 1911, 57,971 tons in 1910, and 74,067 tons in 1909.

Iron Ore.—The shipments of iron ore from the mines in Canada in 1912 amounted to 192,753 gross tons, against 187,807 tons in 1911, 231,623 tons in 1910, and 239,324 tons in 1909. (Newfoundland is not a part of Canada.) In 1912 the imported iron ore consumed by Canadian blast furnaces amounted to 1,802,826 gross tons, against 1,453,900 tons consumed in 1911, 1,229,496 tons consumed in 1910, and 1,102,679 tons consumed in 1909. The imported iron ore was obtained chiefly from the United States and Newfoundland. The exports of iron ore from Canada in 1912 amounted to 105,472 gross tons, against 33,648 tons in 1911, 102,231 tons in 1910, and 19,604 tons in 1909.

Imports and Exports of Pig Iron, Ferro-manganese, etc.—In 1912 the imports of pig iron, ferro-manganese, etc., into Canada amounted to 261,152 gross tons, as compared with 201,529 tons in 1911, 234,606 tons in 1910, and 148,247 tons in 1909. Of the total in 1912, 17,687 tons were ferro-manganese, etc., as compared with 15,380 tons in 1911, 16,875 tons in 1910, and 15,802 tons in 1909. The total for 1912 also includes 103 tons of charcoal pig iron, as compared with none in 1911, 14,380 tons in 1910, and 369 tons in 1909. Canada exports very little pig iron. In 1912 the exports amounted to 6,229 gross tons, as compared with 5,241 tons in 1911, 8,717 tons in 1910, and 4,521 tons in 1909.

ANNUAL STATISTICAL REPORT

OF THE

American Iron and Steel
Institute

For 1913



BUREAU OF STATISTICS
AMERICAN IRON AND STEEL INSTITUTE
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1914

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LETTER OF TRANSMITTAL.

HON. ELBERT H. GARY, PRESIDENT,

American Iron and Steel Institute, New York City.

DEAR SIR: Herewith is submitted the Second Annual Statistical Report of the American Iron and Steel Institute, containing the statistics of the iron and steel and allied industries for the year 1913 and preceding years.

This Report and its immediate predecessor are the lineal successors of a series of forty issues covering the forty years preceding, which had been issued by the American Iron and Steel Association under the supervision of Mr. James M. Swank, Philadelphia. The material for this Report was collected by Mr. William G. Gray, assisted by Mr. John F. Hayes and the statistical staff of the Philadelphia office of the Institute.

Concerning this report Mr. Gray says:

The prompt publication of important statistical information in Special Statistical Bulletins was continued in 1914. Down to the close of that year, ten of these Bulletins had been issued, relating to the United States except as otherwise stated, as follows:—

No. 1—Production of pig iron in 1913; issued on February 14, 1914.

No. 2—Production of pig iron by grades in 1913, also the production of pig iron in Canada in 1913; issued on March 20.

No. 3—Production of rails in 1913; issued on March 20.

No. 4—Production of structural shapes, wire rods, and cut and wire nails in 1913; issued on May 15.

No. 5—Production of steel ingots and castings in 1913; issued on July 15.

No. 6—Production of plates and sheets, black plates for tinning, and tinplates and terne plates in 1913; issued on July 15.

No. 7—Production of pig iron in the first half of 1914; issued on August 12.

No. 8—Production of finished rolled iron and steel in 1913; issued on August 12.

No. 9—Production of steel ingots and castings and finished rolled iron and steel in Canada in 1913, also the production of pig iron in Canada in the first half of 1914; issued on August 25.

No. 10—Production in 1913 of wrought iron and steel pipe and boiler tubes, seamless drawn steel tubes, galvanized sheets, and cast-iron pipe; issued on December 31.

The new matter embodied in this Report comprises tables giving the production of plates and sheets by mode of manufacture; the production in 1913 in the United States of galvanized sheets and articles formed or stamped from black plates or sheets and galvanized after the completion of the forming or stamping process, wrought pipe and boiler tubes, hot-finished and cold-drawn seamless steel tubes, and cast-iron gas and water and soil and plumbers' pipe; the tonnage of iron and steel merchant vessels launched in the United States and the leading countries of the world; the tonnage of war vessels launched in recent years; a series of tables giving the number and annual capacity in ingots and castings of the Bessemer steel converters and open-hearth, crucible, electric, and miscellaneous steel furnaces in the United States on December 31, 1913.

I am greatly indebted for domestic statistical information to Hon. A. H. Baldwin, former Chief, and Hon. E. E. Pratt, present Chief, of the Bureau of Foreign and Domestic Commerce of the Department of Commerce; E. W. Parker, Ernest F. Burchard, and D. F. Hewett, of the United States Geological Survey; A. H. Armstrong, Chief of the Bureau of Anthracite Coal Statistics; E. T. Dixon, Auditor of the Cumberland and Pennsylvania Railroad Company; Lieut.-Col. Francis R. Shunk, of the United States Army, Corps of Engineers, stationed at Pittsburgh; E. H. Alden, Secretary of the Norfolk and Western Railway Company; and Colonel H. P. Snyder, editor of the *Connellsville Courier*; also to the editors of the *Railway Age Gazette*, *Electric Railway Journal*, *Iron Age*, *Hardware Age*, *Poor's Manual*, *Iron Trade Review*, *American Metal Market*, and the *Industrial World*; also to the Juragua Iron Company, the Spanish-American Iron Company, and the Ponupo Manganese Company; also to Walter W. Cook, Secretary of the Iron Merchants' Association, and Edward L. Hand & Co., of Philadelphia; also to the Commissioner of Navigation and the Interstate Commerce Commission, at Washington.

For Canadian statistics of coal, coke, and iron ore I am under special obligation to Hon. John McLeish, Chief of the Division of Mineral Resources and Statistics, Department of Mines, Ottawa. For average monthly and yearly prices of iron and steel in England I am indebted to the British Blue Book and to the *London Iron and Coal Trades Review*; also to Lloyd's Register of British and Foreign Shipping for statistics of merchant and war vessels launched in recent years.

The greatly improved arrangement of this Report by subjects and chapters and the very valuable table of contents, so arranged as to facilitate the finding of any desired piece of information in the Report, are the work of Mr. Howard H. Cook, Assistant Secretary of the Institute.

JAMES T. McCLEARY,
Secretary.

JAMES MOORE SWANK

At the regular monthly meeting of the Directors of the American Iron and Steel Institute, held on June 26, 1914, the following resolutions were unanimously adopted :

Whereas, It has pleased an All-Wise Providence to call from earth Mr. James Moore Swank, who for forty years was connected with the American iron and steel industry in an important capacity ;

Be it Resolved, That the Directors of the American Iron and Steel Institute have heard of Mr. Swank's death with profound sorrow and a deep sense of personal and professional loss ;

And Resolved Further, That the heartfelt sympathy of the Institute goes out to Mrs. Swank in her bereavement, and that we share with her a just pride in the long, honorable, and useful career of Mr. Swank.

SUMMARY OF IRON AND STEEL PRODUCTION.

Products.	1912.	1913.	Increase or decrease.	Per cent.
Pig iron.				
Bessemer and low-phos.....	11,664,015	11,590,113	*73,902	*0.6
Basic.....	11,417,886	†12,536,693	1,118,807	9.8
Foundry and ferro-silicon....	5,073,873	5,220,343	146,470	2.8
Malleable.....	825,643	993,736	168,093	20.3
Forge	469,183	324,407	*144,776	*30.8
Spiegeleisen.....	96,346	110,338	13,992	14.5
Ferro-manganese.....	125,378	119,495	*5,883	*4.6
White, mottled, ferro-tit., etc.	54,613	71,027	16,414	30.0
Total pig iron...Gross tons.	29,726,937	30,966,152	1,239,215	4.1
Steel ingots and castings.				
Open-hearth.....	20,780,723	21,599,931	819,208	3.9
Bessemer	10,327,901	9,545,706	*782,195	*7.5
Crucible.....	121,517	121,226	*291	*0.2
Electric and all other steel.	21,162	34,011	12,849	60.7
Total steel.....Gross tons.	31,251,303	31,300,874	49,571	0.1
Rolled iron and steel.				
Rails.....	3,327,915	3,502,780	174,865	5.2
Plates and sheets	5,875,080	5,751,037	*124,043	*2.1
Nail and spike plate.....	45,331	37,503	*7,828	*17.2
Wire rods.....	2,653,553	2,464,807	*188,746	*7.1
Structural shapes	2,846,487	3,004,972	158,485	5.5
Merchant bars.....	3,697,114	3,957,609	260,495	7.0
Bars for concrete work.....	274,332	319,670	45,338	16.5
Skelp, flue, etc.....	2,446,816	2,501,964	55,148	2.2
Long angle splice bars, etc..	571,772	686,390	114,618	20.0
Hoops.....	270,007	280,886	10,879	4.0
Bands and cotton-ties.....	587,395	499,660	*87,735	*14.9
Sheet piling.....	22,276	46,289	24,013	107.7
Railroad ties.....	41,396	44,244	2,848	6.8
All other finished rolled....	1,187,108	1,067,444	*119,664	*10.0
Rolled forging billets.....	462,476	537,210	74,734	16.1
Blooms, billets, etc., export..	347,783	88,778	*259,005	*74.4
Total.....Gross tons.	24,656,841	24,791,243	134,402	0.5
Miscellaneous products.				
Tin and terne plates..Pounds.	2,157,055,000	1,845,130,000	*311,925,000	*14.4
† Rail joints and fastenings...	527,771	627,478	99,707	18.8
Cut nails—kegs.....	978,415	842,038	*136,377	*13.9
Wire nails—kegs.....	14,659,700	13,559,727	*1,099,973	*7.5
† Hammered charcoal blooms.	65,807	59,393	*6,414	*9.7
† Forged iron and steel.....	392,520	407,983	15,463	3.9

* Decrease. † Includes a small quantity of charcoal basic pig iron. ‡ Gross tons.

SUMMARY OF MISCELLANEOUS STATISTICS.

Products.	1912.	1913.	Increase or decrease.	Per cent.
Iron ore shipments from L. Sup.	†48,221,546	†49,947,116	1,725,570	3.5
Production of iron ore.....	†55,150,147	†61,980,437	6,830,290	12.4
Imports of iron ore.....	†2,104,576	†2,594,770	490,194	23.2
Exports of iron ore.....	†1,195,742	†1,042,151	*153,591	*12.8
Shipments Penna. anth. coal...	†63,610,578	†66,069,628	5,459,050	8.5
Shipments Cumberland coal...	†6,369,375	†6,921,330	551,955	8.6
Production of bituminous coal.	††450,104,982	††478,523,203	28,418,221	6.3
Production of Penna. anth.....	††84,361,598	††91,524,922	7,163,324	8.4
Production all kinds of coal....	††534,466,580	††570,048,125	35,581,545	6.6
Imports of coal.....	†1,610,020	†1,414,778	*195,242	*12.1
Exports of domestic coal.....	†18,148,767	†22,141,143	3,992,376	21.9
Shipments Connellsville coke..	††20,000,873	††20,097,901	97,028	0.4
Shipments Pocahontas coke....	††1,284,954	††1,280,638	*4,316	*0.3
Production of coke.....	††43,983,599	††46,299,530	2,315,931	5.2
Imports iron and steel and mfrs.	\$29,328,709	\$33,602,195	\$4,273,486	14.5
Exports iron and steel and mfrs.	\$289,128,420	\$293,934,160	\$4,805,740	1.6
Miles new steam R. R. built.....	2,997	3,071	74	2.4
Tonnage steel vessels built.....	170,515	235,878	65,363	38.3

* Decrease.

† Gross tons.

†† Net tons.

PIG IRON.

TOTAL PRODUCTION OF PIG IRON, 1884-1913.

Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.
1884.....	4,097,868	1894.....	6,657,388	1904.....	16,497,033
1885.....	4,044,526	1895.....	9,446,308	1905.....	22,992,380
1886.....	5,683,329	1896.....	8,623,127	1906.....	25,307,191
1887.....	6,417,148	1897.....	9,652,680	1907.....	25,781,361
1888.....	6,489,738	1898.....	11,773,934	1908.....	15,936,018
1889.....	7,603,642	1899.....	13,620,703	1909.....	25,795,471
1890.....	9,202,703	1900.....	13,789,242	1910.....	27,303,567
1891.....	8,279,870	1901.....	15,878,354	1911.....	23,649,547
1892.....	9,157,000	1902.....	17,821,307	1912.....	29,726,937
1893.....	7,124,502	1903.....	18,009,252	1913.....	30,966,152

PRODUCTION OF PIG IRON BY STATES, 1909-1913.

States. Calendar years.	Production—Gross tons of 2,240 pounds.				
	1909.	1910.	1911.	1912.	1913.
Massachusetts.....	18,388	16,582	9,649	17,366	12,810
Connecticut.....					
New York.....	1,733,675	1,938,407	1,562,756	1,939,231	2,187,620
New Jersey.....	294,474	264,781	40,663	36,876	
Pennsylvania.....	10,918,824	11,272,323	9,807,073	12,552,131	12,954,936
Maryland.....	286,856	326,214	255,816	219,546	289,959
Virginia.....	391,134	444,976	293,642	256,167	341,815
Georgia.....	26,072	14,725	1,200	.....	.....
Texas.....					
Alabama.....	1,763,617	1,939,147	1,712,211	1,862,681	2,057,911
West Virginia.....	228,282	174,661	291,472	274,360	315,731
Kentucky.....	86,371	100,509	95,202	68,760	
Mississippi.....	.....	.....	.....	.....	280,541
Tennessee.....	333,845	397,569	324,648	338,238	
Ohio.....	5,551,545	5,752,112	5,310,506	6,802,493	7,129,525
Illinois.....	2,467,156	2,675,646	2,108,002	2,887,359	2,927,832
Indiana.....	964,289	1,250,103	1,163,932	1,770,628	1,775,883
Michigan.....					
Wisconsin.....	348,177	307,200	276,807	303,370	367,326
Minnesota.....					
Missouri.....	382,766	428,612	395,968	397,731	324,263
Colorado.....					
Washington.....	.....	.....	.....	.....	.....
California.....					
Total.....	25,795,471	27,303,567	23,649,547	29,726,937	30,966,152

PRODUCTION OF PIG IRON BY STATES, 1912-1913.

States—Gross tons.	Production.		Increase or decrease.	Per cent. of increase or decrease.
	1912.	1913.		
Pennsylvania.....	12,552,131	12,954,936	402,805	3.20
Ohio	6,802,493	7,129,525	327,032	4.80
Illinois.....	2,887,359	2,927,832	40,473	1.40
New York and N. Jersey..	1,976,107	2,187,620	211,513	10.70
Alabama	1,862,681	2,057,911	195,230	10.48
Indiana and Michigan..	1,770,628	1,775,883	5,255	0.29
Wisconsin and Minn.....	303,370	367,326	63,956	21.08
Virginia.....	256,167	341,815	85,648	33.43
Mo., Colorado, and Cal..	397,731	324,263	*73,468	*18.47
West Va., Ky., & Miss..	343,120	315,731	*27,389	*7.98
Maryland.....	219,546	289,959	70,413	32.07
Tennessee.....	338,238	280,541	*57,697	*17.05
Connecticut and Mass...	17,366	12,810	*4,556	*26.23
Total.....	29,726,937	30,966,152	1,239,215	4.16

* Decrease.

PRODUCTION OF PIG IRON BY STATES IN 1912 AND 1913
ACCORDING TO RANK.

States.	1912.			States.	1913.		
	Rank.	Gross tons.	Per cent.		Rank.	Gross tons.	Per cent.
Pennsylvania	1	12,552,131	42.23	Pennsylvania.	1	12,954,936	41.84
Ohio.....	2	6,802,493	22.88	Ohio.....	2	7,129,525	23.02
Illinois	3	2,887,359	9.71	Illinois.....	3	2,927,832	9.45
N. Y. & N. J.	4	1,976,107	6.65	N. Y. & N. J.	4	2,187,620	7.06
Alabama.....	5	1,862,681	6.27	Alabama.....	5	2,057,911	6.65
Ind. & Mich...	6	1,770,628	5.95	Ind. & Mich...	6	1,775,883	5.73
Mo., Col., Cal.	7	397,731	1.34	Wis. & Minn..	7	367,326	1.19
W. Va. & Ky.	8	343,120	1.15	Virginia.....	8	341,815	1.10
Tennessee.....	9	338,238	1.14	Mo., Col., Cal.	9	324,263	1.05
Wis. & Minn.	10	303,370	1.02	W.V. Ky. Miss	10	315,731	1.02
Virginia.....	11	256,167	.86	Maryland.....	11	289,959	.94
Maryland.....	12	219,546	.74	Tennessee.....	12	280,541	.91
Conn. & Mass.	13	17,366	.06	Conn. & Mass.	13	12,810	.04
Total.....	...	29,726,937	100.00	Total.....	...	30,966,152	100.00

Georgia, Texas, Oregon, and Washington were the only States having one or more blast furnaces that did not make pig iron in 1913. California, which does not have a blast furnace, produced a small tonnage of pig iron by electricity. Georgia last made pig iron in 1911, Washington in 1910, Texas in 1909, and Oregon in 1894.

For the first time in over 40 years, and probably for the first time in its history, Mississippi appears among the States as a producer of pig iron. Late in 1913 a small charcoal furnace was completed and blown in within its borders.

HALF-YEARLY PRODUCTION OF PIG IRON, 1896-1913.

Years, Gross tons.	First half.	Second half.	Total.	Increase.	Decrease.
1896.....	4,976,236	3,646,891	8,623,127	.....	1,329,345
1897.....	4,403,476	5,249,204	9,652,680	845,728	.....
1898.....	5,869,703	5,904,231	11,773,934	34,528	.....
1899.....	6,289,167	7,331,536	13,620,703	1,042,369	.....
1900.....	7,642,569	6,146,673	13,789,242	.....	1,495,896
1901.....	7,674,613	8,203,741	15,878,354	529,128	.....
1902.....	8,808,574	9,012,733	17,821,307	204,159	.....
1903.....	9,707,367	8,301,885	18,009,252	.....	1,405,482
1904.....	8,173,438	8,323,595	16,497,033	150,157	.....
1905.....	11,163,175	11,829,205	22,992,380	666,030	.....
1906.....	12,582,250	12,724,941	25,307,191	142,691	.....
1907.....	13,478,044	12,303,317	25,781,361	.....	1,174,727
1908.....	6,918,004	9,018,014	15,936,018	2,100,010	.....
1909.....	11,022,346	14,773,125	25,795,471	3,750,779	.....
1910.....	14,978,738	12,324,829	27,303,567	.....	2,653,909
1911.....	11,666,996	11,982,551	23,649,547	315,555	.....
1912.....	14,072,274	15,654,663	29,726,937	1,582,389	.....
1913.....	16,488,602	14,477,550	30,966,152	.....	2,011,052

As shown above, the production in 1913 was the largest in any calendar year in our history. Combining the output in the first six months of 1913 with the output in the last six months of 1912, however, a total is reached for the twelve consecutive months of 32,143,265 tons, or 1,177,113 tons more than in the calendar year 1913. As compared with the output in the last six months of 1909 and the first six months of 1910, the two consecutive half years of next largest production, when 29,751,863 tons were made, an increase is shown in the 1912-13 period over the 1909-10 period of 2,391,402 tons.

The production in the second half of 1913 shows a decrease of 2,011,052 tons, or almost 12.2 per cent., as compared with the production in the first half of that year. In Pennsylvania the decrease amounted to 815,180 tons, in Ohio to 191,421 tons, in Illinois to 378,202 tons, in Indiana and Michigan to 13,603 tons, in New York to 211,517 tons, and in Alabama to 98,435 tons.

HALF-YEARLY PRODUCTION OF PIG IRON BY STATES IN 1913.

States.	Blast furnaces.				Production—Gross tons. (Includes spiegeleisen, ferro-mang., ferro-silicon, ferro-phosphorus, etc.)		
	In blast June 30, 1913.	December 31, 1913.			First half of 1913.	Second half of 1913.	Total for 1913.
		In.	Out.	Total.			
Massachusetts.....	1	1	1	2	8,581	4,229	12,810
Connecticut.....	2	1	2	3			
New York.....	20	12	16	28	1,138,671	927,154	2,065,825
New Jersey.....	2	2	5	7	54,779	67,016	121,795
Pennsylvania.....	117	78	83	161	6,885,058	6,069,878	12,954,936
Maryland.....	3	1	4	5	152,002	137,957	289,959
Virginia.....	9	8	16	24	192,530	149,285	341,815
Georgia.....	0	0	4	4	.....	.....	.....
Texas.....	0	0	4	4			
Alabama.....	23	23	26	49	1,078,173	979,738	2,057,911
West Virginia.....	3	1	3	4	165,000	150,731	315,731
Mississippi.....	0	0	1	1			
Kentucky.....	2	1	7	8	189,019	91,522	280,541
Tennessee.....	8	4	14	18			
Ohio.....	62	40	35	75	3,660,473	3,469,052	7,129,525
Illinois.....	23	11	15	26	1,653,017	1,274,815	2,927,832
Indiana.....	10	5	5	10	894,743	881,140	1,775,883
Michigan.....	9	10	5	15			
Wisconsin.....	5	4	3	7	222,167	145,159	367,326
Minnesota.....	1	1	0	1			
Missouri.....	1	1	1	2	194,389	129,874	324,263
Colorado.....	3	1	5	6			
Oregon.....	0	0	1	1	.....	.....	.....
Washington.....	0	0	1	1			
California.....	0	0	0	0	.....	.....	.....
Total.....	304	205	257	462	16,488,602	14,477,550	30,966,152

PIG IRON MADE FOR SALE OR FOR CONSUMPTION OF MAKERS.

States—Gross tons.	Pig iron made for sale.	Pig iron made for consump- tion of makers.	Total. Gross tons.
Massachusetts and Connecticut.....	12,082	728	12,810
New York, New Jersey, and Maryland..	1,315,433	1,162,146	2,477,579
Pennsylvania.....	2,530,097	10,424,839	12,954,936
Virginia, Alabama, and West Virginia..	1,659,724	974,518	2,634,242
Kentucky, Mississippi, and Tennessee..	335,324	26,432	361,756
Ohio.....	2,303,805	4,825,720	7,129,525
Indiana and Illinois.....	568,265	3,703,695	4,271,960
Mich., Wis., Minn., Mo., Col., and Cal.	799,155	324,189	1,123,344
Total for 1913.....	9,523,885	21,442,267	30,966,152

Similar information was not collected by us for prior years.

Of the total almost 30.8 per cent. was made for sale and over 69.2 per cent. for the consumption of the makers.

PIG IRON MADE FOR SALE BY GRADES IN 1913.

States—Gross tons. Pig iron made for sale.	Bess. and low-phos. pig iron.	Basic pig iron.	Forge pig iron.	Foundry & ferro- silicon.	Mallea- ble pig iron.	All other.	Total. Gross tons.
Mass. and Conn....				12,082			12,082
New York & N. J....	68,113	232,668	18,308	748,081	239,449	8,814	1,315,433
Pennsylvania.....	663,399	552,999	132,538	1,026,848	100,797	53,516	2,530,097
Va., W. Va., & Ala..		155,662	63,960	1,421,104		18,998	1,659,724
Ky., Tenn., & Miss.	38,689		2,469	289,664		4,502	335,324
Ohio.....	363,048	809,488	21,086	785,772	311,869	12,542	2,303,805
Indiana & Illinois.	69,377	120,920		167,001	210,967		568,265
Mich., Wis., Minn., Mo., Col., & Cal..	1,054	37,542		634,400	126,159		799,155
Total	1,203,680	1,909,279	238,361	5,084,952	989,241	98,372	9,523,885

PRODUCTION OF PIG IRON BY GRADES.

PRODUCTION OF ALL KINDS OF PIG IRON BY GRADES, 1900-1913.

Years.	Bessemer and low- phosphorus	Basic pig iron.*	Forge pig iron.	Foundry and ferro- silicon.	Mallea- ble.	All other.	Total. Gross tons.
1900...	7,979,327	1,072,376	793,092	3,376,445	173,413	394,589	13,789,242
1901...	9,596,793	1,448,850	639,454	3,548,718	256,532	388,007	15,878,354
1902...	10,393,168	2,038,590	833,093	3,851,276	311,458	393,722	17,821,307
1903...	9,989,908	2,040,726	783,016	4,409,023	473,781	312,798	18,009,252
1904...	9,098,659	2,483,104	550,836	3,827,229	263,529	273,676	16,497,033
1905...	12,407,116	4,105,179	727,817	4,758,038	635,236	358,994	22,992,380
1906...	13,840,518	5,018,674	597,420	4,773,011	699,701	377,867	25,307,191
1907...	13,231,620	5,375,219	683,167	5,151,209	920,290	419,856	25,781,361
1908...	7,216,976	4,010,144	457,164	3,637,622	414,957	199,155	15,936,018
1909...	10,557,370	8,250,225	725,624	5,322,415	658,048	281,789	25,795,471
1910...	11,245,642	9,084,608	564,157	5,260,447	843,123	305,590	27,303,567
1911...	9,409,303	8,520,020	408,841	4,468,940	612,533	229,910	23,649,547
1912...	11,664,015	11,417,886	469,183	5,073,873	825,643	276,337	29,726,937
1913...	11,590,113	12,536,693	324,407	5,220,343	993,736	300,860	30,966,152

* Small quantities of basic iron made with charcoal as fuel are not included from 1900 to 1912. For 1913 a small tonnage of charcoal basic iron is included.

**PRODUCTION OF PIG IRON BY GRADES, 1912-1913, SHOWING
INCREASE OR DECREASE BY GRADES.**

Grades—Gross tons.	1912.	1913.	Increase.	Per cent.
Bessemer and low-phos.....	11,664,015	11,590,113	†73,902	†0.6
Basic.....	11,417,886	*12,536,693	1,118,807	9.8
Foundry and ferro-silicon..	5,073,873	5,220,343	146,470	2.8
Malleable.....	825,643	993,736	168,093	20.3
Forge pig iron.....	469,183	324,407	†144,776	†30.8
Spiegeleisen.....	96,346	110,338	13,992	14.5
Ferro-manganese.....	125,378	119,495	†5,883	†4.6
White and mottled, direct castings, ferro-alloys, etc. }	54,613	71,027	16,414	30.0
Total.....	29,726,937	30,966,152	1,239,215	4.1

* Includes a small quantity of basic pig iron made with charcoal. † Decrease.

The Bessemer figures include low-phosphorus pig iron, that is, iron running below 0.04 per cent. in phosphorus. Pig iron containing from 0.04 to 0.10 per cent. of phosphorus is classified as Bessemer. The figures for 1913 include a small quantity of basic pig iron made with charcoal as fuel. In 1912 and prior years charcoal pig iron of basic quality was not included in the basic production. Pig iron containing 7 per cent. of silicon and over is classified as ferro-silicon. We have classified nearly all the charcoal iron as foundry pig iron. Castings made direct from the furnace are included in the totals for white and mottled and miscellaneous grades of pig iron; also a small tonnage of ferro-titanium, ferro-vanadium, and ferro-alloys other than spiegeleisen and ferro-manganese.

Of the total production of pig iron in 1913 over 37.4 per cent. was Bessemer and low-phosphorus, as compared with over 39.2 per cent. in 1912; over 16.8 per cent. was foundry, ferro-silicon, and high-silicon, against over 17 per cent. in 1912; over 40.4 per cent. was basic, against over 38.4 per cent. in 1912; over 3.2 per cent. was malleable, against over 2.7 per cent. in 1912; over 1 per cent. was forge, against over 1.5 per cent. in 1912; and over 0.7 per cent. was spiegeleisen and ferro-manganese, against over 0.7 per cent. in 1912. White and mottled pig iron, miscellaneous ferro-alloys, castings made direct from the blast furnace, etc., amounted to over one-fifth of 1 per cent. in 1913, against less than one-fifth of 1 per cent. in 1912.

PRODUCTION OF PIG IRON BY STATES AND GRADES, 1911-1913.

States. Gross tons.	Bessemer and low-phosphorus.			Basic pig iron.		
	1911.	1912.	1913.	1911.	1912.	1913.
N. Y. and N. J.	449,841	621,891	565,760	321,765	386,457	564,352
Pennsylvania..	3,461,265	4,402,291	4,478,837	5,168,762	6,490,096	6,934,995
Maryland.....	255,186	218,603	289,959	.....	.....	.....
Va. and Ala....	3,050	.....	.....	445,892	671,478	831,188
W. Va., Ky., and Tenn....	367,436	316,817	293,845	.....	.....	.....
Ohio.....	3,283,970	4,174,226	4,184,102	1,111,741	1,557,955	1,775,225
Illinois.....	1,455,865	1,823,655	1,694,947	1,224,254	2,035,910	2,167,373
Indiana.....	.....	.....	.....
Mich., Wis., Mo., Col., and Cal....	132,690	106,532	82,663	247,606	275,990	263,560
Total.....	9,409,303	11,664,015	11,590,113	8,520,020	11,417,886	12,536,693

States. Gross tons.	Foundry, ferro-sil., high-sil., etc.			Forge pig iron.		
	1911.	1912.	1913.	1911.	1912.	1913.
Mass. and Conn.	9,649	17,366	12,810	.....	.....	.....
N. Y. and N. J.	642,416	794,332	790,937	35,163	.....	18,308
Pennsylvania....	771,303	1,180,096	1,038,900	198,956	234,558	175,965
Md., Va., W. Va.	247,557	229,796	293,599	22,524	21,421	26,560
Ky. and Miss....	50,722	50,361	43,931	.....	.....	.....
Tennessee.....	275,091	299,529	247,165	6,089	2,579	2,469
Georgia.....	1,200	.....	.....	.....	.....	.....
Alabama.....	1,240,808	1,075,564	1,184,302	38,715	115,303	45,767
Ohio.....	616,904	666,659	787,184	107,394	95,322	55,338
Indiana and Ill.	99,115	119,103	173,256	.....	.....	.....
Michigan.....	258,851	347,781	331,666	.....	.....	.....
Wisconsin.....	160,231	213,045	220,853	.....	.....	.....
Minnesota.....	71,850	44,232	71,869	.....	.....	.....
Mo. and Col....	23,243	36,009	23,871	.....	.....	.....
Total.....	4,468,940	5,073,873	5,220,343	408,841	469,183	324,407

States—Gross tons.	Malleable.			White and mottled, etc.		
	1911.	1912.	1913.	1911.	1912.	1913.
New York and N. J...	145,868	166,604	239,449	8,366	6,823	8,814
Pennsylvania.....	45,934	37,141	102,797	14,041	20,335	19,073
Va., W. Va., and Ky..	.....	550	360	5,297	3,189	3,599
Tenn. and Alabama...	.....	.....	.....	14,624	14,562	23,213
Ohio.....	189,245	301,346	311,869	1,252	6,985	15,807
Indiana and Illinois..	142,580	208,185	210,967	435	2,169	521
Michigan and Wis....	88,906	111,817	128,294	1,177	550	.....
Total.....	612,533	825,643	993,736	45,192	54,613	71,027

States. Gross tons.	Spiegeleisen.			Ferro-manganese.		
	1911.	1912.	1913.	1911.	1912.	1913.
Pennsylvania ...	72,330	66,591	90,408	74,482	121,023	113,961
Illinois.....	37,906	29,755	} 19,930	.....	4,355	5,534
Colorado.....	.....	.....		.....	.....	.....
Total.....	110,236	96,346	110,338	74,482	125,378	119,495

In 1913, Alabama made over 22.6 per cent. of the total output of foundry pig iron, while Pennsylvania made over 19.9 per cent. In 1912, Pennsylvania made over 23.2 per cent., while Alabama made over 21.1 per cent. In 1913, Pennsylvania made over 54.2 per cent. of the total output of forge pig iron, against over 49.9 per cent. in 1912.

Included in the 5,220,343 tons of foundry pig iron reported for 1913 are 105,715 tons of ferro-silicon, Bessemer ferro-silicon, and electrolytic ferro-silicon, made in New York, Pennsylvania, West Virginia, Kentucky, Tennessee, Ohio, and Illinois; in 1912, 104,017 tons were made, as compared with 71,211 tons in 1911.

PRODUCTION OF BASIC PIG IRON.

The production of basic pig iron in 1913 amounted to 12,536,693 tons, against 11,417,886 tons in 1912, an increase of 1,118,807 tons, or nearly 9.8 per cent. The output in 1913 was much the largest in our history; the year of next largest production was 1912. In 1913 for the first time the output of basic pig iron exceeded the combined output of Bessemer and low-phosphorus pig iron, basic leading by 946,580 tons.

In the second half of 1913 the production of basic pig iron amounted to 6,026,682 tons, as compared with 6,510,011 tons in the first half, a decrease of 483,329 tons.

PRODUCTION OF BASIC PIG IRON BY STATES, 1909-1913.

States—Gross tons.	1909.	1910.	1911.	1912.	1913.
New York and New Jersey...	466,919	414,228	321,765	386,457	564,352
Pennsylvania.....	5,256,245	5,247,065	5,168,762	6,490,096	6,934,995
Virginia and Alabama.....	402,903	697,377	445,892	671,478	831,188
Ohio.....	845,956	1,155,434	1,111,741	1,557,955	1,775,225
Indiana and Illinois.....	970,471	1,281,904	1,224,254	2,035,910	2,167,373
Mich., Mo., and Colorado.....	307,731	288,600	247,606	275,990	263,560
Total.....	8,250,225	9,084,608	8,520,020	11,417,886	12,536,693

In 1913, Pennsylvania made over 55.3 per cent. of the total production of basic pig iron, as compared with over 56.8 per cent. in 1912; Ohio over 14.1 per cent., as compared with over 13.6 per cent. in 1912; Indiana over 10.6 per cent., as compared with over 11.5 per cent. in 1912; Illinois over 6.6 per cent., as compared with over 6.2 per cent. in 1912; Alabama over 6.4 per cent., against over 5.8 per cent. in 1912; and New York over 3.8 per cent., against over 3.1 per cent. in 1912. No other State made over 1.9 per cent. in 1913 or over 2.3 per cent. in 1912.

PRODUCTION OF BESSEMER PIG IRON.

The production of Bessemer and low-phosphorus pig iron in 1913 amounted to 11,590,113 tons, against 11,664,015 tons in 1912, a decrease of 73,902 tons, or over 0.6 per cent. Small quantities of Bessemer and low-phosphorus pig iron made with charcoal and with charcoal and electricity as fuel are included. The production of Bessemer pig iron alone in 1913 amounted to 11,273,295 tons, against 11,381,656 tons in 1912, while the production of low-phosphorus pig iron alone in 1913 amounted to 316,818 tons, as compared with 282,359 tons in 1912. The maximum production of Bessemer pig iron alone was reached in 1906, when 13,611,749 tons were made, while the maximum production of low-phosphorus pig iron alone was reached in 1913.

In the second half of 1913 the production of Bessemer and low-phosphorus pig iron was 5,304,147 tons, as compared with 6,285,966 tons in the first half, a decrease of 981,819 tons.

PRODUCTION OF BESSEMER PIG IRON BY STATES, 1909-1913.

States—Gross tons.	1909.	1910.	1911.	1912.	1913.
Pennsylvania.....	3,851,606	4,393,905	3,461,265	4,402,291	4,478,837
Ohio	3,628,046	3,460,736	3,283,970	4,174,226	4,184,102
Illinois.....	1,804,402	1,826,407	1,455,865	1,823,655	1,694,947
New York.....	628,426	834,632	449,841	621,891	565,760
West Va., Tenn., & Ky.	293,837	267,577	367,436	316,817	293,845
Maryland and Virginia	284,356	326,614	258,236	218,603	289,959
Mich., Wis., Minn., Colorado, and Cal....	66,697	135,771	132,690	106,532	82,663
Total.....	10,557,370	11,245,642	9,409,303	11,664,015	11,590,113
Total Bessemer.....	10,344,755	10,986,565	9,126,843	11,381,656	11,273,295
Total low-phosphorus	212,615	259,077	282,460	282,359	316,818

Eleven States made either Bessemer or low-phosphorus pig iron in 1911, 1912, and 1913, against 14 States in 1910 and 12 States in 1909.

Pennsylvania made over 38.6 per cent. of the total production of Bessemer and low-phosphorus pig iron in 1913, against over 37.7 per cent. in 1912; Ohio over 36.1 per cent., against over 35.7 per cent. in 1912; Illinois over 14.6 per cent., against over 15.6 per cent. in 1912; and New York over 4.8 per cent., against over 5.3 per cent. in 1912. No other State made over 2.6 per cent. in 1913, or over 2.4 per cent. in 1912.

PRODUCTION OF SPIEGELEISEN AND FERRO-MANGANESE.

TOTAL PRODUCTION OF SPIEGELEISEN AND FERRO-MANGANESE, 1889-1913.

Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.
1889	76,628	1898.....	213,769	1907.....	339,348
1890.....	133,180	1899.....	219,768	1908.....	152,018
1891.....	127,766	1900.....	255,977	1909.....	225,040
1892.....	179,131	1901.....	291,461	1910.....	224,431
1893.....	81,118	1902.....	212,934	1911.....	184,718
1894.....	120,180	1903.....	192,661	1912.....	221,724
1895.....	171,724	1904.....	219,446	1913.....	229,833
1896.....	131,940	1905.....	289,983	.....	.....
1897.....	173,695	1906.....	300,500	.....	.....

CONSUMPTION OF SPIEGELEISEN AND FERRO-MANGANESE.

Calendar years. Gross tons.	Spiegeleisen—Gross tons.			Ferro-manganese—Gross tons.		
	Production.	Add imports.	Approximate consumption.	Production.	Add imports.	Approximate consumption.
1901	231,822	26,827	258,649	59,639	20,750	80,389
1902	168,408	62,813	231,221	44,526	50,388	94,914
1903	156,700	122,016	278,716	35,961	41,518	77,479
1904	162,370	4,623	166,993	57,076	21,814	78,890
1905	227,797	55,457	283,254	62,186	52,841	115,027
1906	244,980	103,267	348,247	55,520	84,359	139,879
1907	283,430	48,995	332,425	55,918	87,400	143,318
1908	111,376	4,579	115,955	40,642	44,624	85,266
1909	142,831	16,921	159,752	82,209	88,934	171,143
1910	153,055	25,383	178,438	71,376	114,278	185,654
1911	110,236	20,970	131,206	74,482	80,263	154,745
1912	96,346	1,015	97,361	125,378	99,137	224,515
1913	110,338	77	110,415	119,495	128,070	247,565

PRODUCTION OF PIG IRON BY FUELS.

Almost 98 per cent. of the pig iron produced in the United States in 1913 was made with bituminous fuel. A little over 1 per cent. was made with charcoal and a little less than 1 per cent. with anthracite coal alone and with anthracite coal and coke mixed.

In the following table pig iron made with mixed anthracite and coke as fuel is included in the anthracite column, pig iron made with both raw coal and coke as fuel is included in the bituminous column, and pig iron made with mixed charcoal and coke as fuel is included in the charcoal column :

PRODUCTION OF PIG IRON BY FUELS, 1854-1913.

Years—Gross tons.	Anthracite.	Charcoal.	Bituminous.	Total.
1854	303,067	305,623	48,647	657,337
1855*	340,952	303,502	55,705	700,159
1856	395,637	330,777	62,101	788,515
1857	348,558	294,929	69,153	712,640
1858	322,705	254,744	52,099	629,548
1859	421,201	253,608	75,751	750,560
1860	463,581	248,510	109,132	821,223
1861	365,383	174,355	113,426	653,164
1862	419,924	166,661	116,685	703,270
1863	515,748	189,290	141,037	846,075
1864	610,730	215,940	187,612	1,014,282
1865	428,177	234,234	169,359	831,770
1866	669,078	296,946	239,639	1,205,663
1867	713,070	307,447	284,506	1,305,023
1868	797,322	330,357	303,571	1,431,250
1869†	867,098	350,134	494,055	1,711,287
1870	830,357	325,893	508,929	1,665,179
1871	854,114	343,750	508,929	1,706,793
1872	1,223,047	446,953	878,713	2,548,713
1873	1,172,102	515,732	873,129	2,560,963
1874	1,073,343	514,783	813,136	2,401,262
1875‡	810,755	366,956	846,022	2,023,733
1876	709,445	275,579	883,937	1,868,961
1877	834,640	283,789	948,165	2,066,594
1878	975,777	261,963	1,063,475	2,301,215
1879	1,136,629	320,422	1,284,802	2,741,853

* Anthracite passes charcoal. † Bituminous passes char. ‡ Bituminous passes anth.

Years—Gross tons.	Anthracite.	Charcoal.	Bituminous.	Total.
1880	1,613,974	479,963	1,741,254	3,835,191
1881	1,548,627	570,391	2,025,236	4,144,254
1882	1,823,338	623,130	2,176,855	4,623,323
1883	1,683,568	510,469	2,401,473	4,595,510
1884	1,416,476	409,301	2,272,091	4,097,868
1885	1,298,562	357,004	2,388,960	4,044,526
1886	1,874,640	410,319	3,398,370	5,683,329
1887	2,087,847	516,234	3,813,067	6,417,148
1888	1,719,401	534,633	4,235,704	6,489,738
1889	1,714,602	575,268	5,313,772	7,603,642
1890	2,186,411	628,145	6,388,147	9,202,703
1891	1,866,108	576,964	5,836,798	8,279,870
1892	1,797,113	537,621	6,822,266	9,157,000
1893	1,347,529	386,789	5,390,184	7,124,502
1894	914,742	222,422	5,520,224	6,657,388
1895	1,270,899	225,341	7,950,068	9,446,308
1896	1,146,412	310,244	7,166,471	8,623,127
1897	932,777	255,211	8,464,692	9,652,680
1898	1,203,273	296,750	10,273,911	11,773,934
1899	1,599,552	284,766	11,736,385	13,620,703
1900	1,677,048	384,482	11,727,712	13,789,242
1901	1,712,527	383,441	13,782,386	15,878,354
1902	1,115,247	390,169	16,315,891	17,821,307
1903	1,911,347	505,684	15,592,221	18,009,252
1904	1,228,140	337,529	14,931,364	16,497,033
1905	1,674,515	352,928	20,964,937	22,992,380
1906	1,560,686	433,007	23,313,498	25,307,191
1907	1,371,554	437,397	23,972,410	25,781,361
1908	355,009	249,146	15,331,863	15,936,018
1909	698,431	376,003	24,721,037	25,795,471
1910	649,082	396,507	26,257,978	27,303,567
1911	229,575	278,676	23,141,296	23,649,547
1912	247,179	347,025	29,132,733	29,726,937
1913	300,041	339,981	30,326,130	30,966,152

PRODUCTION OF PIG IRON ACCORDING TO FUEL USED, 1909-1913.

Fuel used—Gross tons.	1909.	1910.	1911.	1912.	1913.
Bituminous, chiefly coke	24,721,037	26,257,978	23,141,296	29,132,733	30,326,130
Anthracite and coke.....	682,383	628,579	212,548	236,467	277,595
Anthracite alone.....	16,048	20,503	17,027	10,712	22,446
Charcoal.....	376,003	396,507	278,676	347,025	339,981
Total.....	25,795,471	27,303,567	23,649,547	29,726,937	30,966,152

The charcoal figures include small quantities of pig iron made with charcoal and electricity. The totals for each of the five years also include small tonnages of ferro-alloys made with electricity, coke and electricity, etc.

PRODUCTION OF BITUMINOUS PIG IRON BY STATES, 1909-1913.

States. Calendar years.	Production—Gross tons of 2,240 pounds.				
	1909.	1910.	1911.	1912.	1913.
New York	1,731,434	1,938,357	1,562,756	1,939,231	2,187,620
New Jersey	256,846	262,669	40,663	36,876	
Pennsylvania	10,255,330	10,621,081	9,573,985	12,301,120	12,650,216
Maryland.....	284,356	325,614	255,186	218,603	289,959
Virginia, Ga., and Tex.	404,725	452,342	292,147	253,921	338,575
Alabama.....	1,729,976	1,903,443	1,679,654	1,828,648	2,025,461
West Virginia.....	228,282	174,661	291,472	342,940	315,728
Kentucky.....	84,016	98,951	93,574		
Tennessee.....	330,909	394,078	320,942	335,552	278,206
Ohio.....	5,551,545	5,751,052	5,308,604	6,800,568	7,127,524
Illinois.....	2,467,156	2,675,646	2,108,002	2,887,359	2,927,832
Ind., Mich., and Wis.	971,837	1,193,796	1,166,237	1,765,941	1,807,660
Minn., Mo., Colorado, Wash., and Cal.....	424,625	466,288	448,074	421,974	377,349
Total.....	*24,721,037	*26,257,978	*23,141,296	*29,132,733	*30,326,130

*Includes ferro-alloys made with coke and electricity, coal and natural gas, etc.

PRODUCTION OF ANTHRACITE AND MIXED ANTHRACITE AND COKE PIG IRON BY STATES, 1909-1913.

States.	1909.	1910.	1911.	1912.	1913.
Penna. and New Jersey..	698,431	649,082	229,575	247,179	300,041
Total.....	698,431	649,082	229,575	247,179	300,041

PRODUCTION OF CHARCOAL PIG IRON BY STATES, 1909-1913.

States. Calendar years.	Production—Gross tons of 2,240 pounds.				
	1909.	1910.	1911.	1912.	1913.
Massachusetts.....	*20,629	*16,632	9,649	17,366	12,810
Connecticut.....					
New York.....					
Pennsylvania	2,691	4,272	3,513	3,832	4,679
Maryland and Va.....	5,588	1,555	3,325	3,189	3,240
Alabama	33,641	35,704	32,557	34,033	32,450
Ga., Ky., Tenn., & Miss.	14,684	11,453	5,334	2,866	2,338
Ohio		1,060	1,902	1,925	2,001
Michigan.....	231,733	260,805	160,884	231,169	224,079
Wisconsin, Missouri, and California.....	*67,037	*65,026	*61,512	*52,645	*58,384
Total.....	*376,003	*396,507	*278,676	*347,025	*339,981

* Includes a small quantity of pig iron and ferro-silicon made with charcoal and electricity.

Michigan, the leading producer, made over 65.9 per cent. of the total production of charcoal pig iron in 1913, against over 66.6 per cent. in 1912. Wisconsin was the next largest producer of charcoal iron in 1913, followed by Alabama, Missouri, and Connecticut. No pig iron was made in 1912 or 1913 with mixed charcoal and coke as fuel.

PRODUCTION OF COLD AND WARM BLAST CHARCOAL PIG IRON, 1909-1913.

Kinds of iron—Gross tons.	1909.	1910.	1911.	1912.	1913.
Cold blast.....	11,070	10,276	10,930	8,864	10,222
Warm blast, including pig iron made with charcoal and electricity.	364,933	386,231	267,746	338,161	329,759
Total.....	376,003	396,507	278,676	347,025	339,981

METHODS BY WHICH ALL PIG IRON WAS CAST OR DELIVERED.

States. Gross tons.	Molten condition.	Sand cast.	Machine cast.	Chill cast.	Direct cast- ings.	Total. Gross tons.
Mass. and Conn.	.....	12,810	.....	.....	.....	12,810
N. Y., N. J., Md.	1,020,997	889,962	410,383	155,007	1,230	2,477,579
Pennsylvania.....	7,993,989	1,569,650	2,928,931	455,157	7,209	12,954,936
Va., Ala., W. Va.	704,592	1,540,642	255,659	130,152	3,197	2,634,242
Ky. and Miss....	.....	81,215	.....	.....	.....	81,215
Tennessee.....	.....	277,209	.....	3,332	.....	280,541
Ohio	3,566,205	1,525,272	1,778,260	256,523	3,265	7,129,525
Indiana, Ill., Mich., & Cal..	3,452,925	406,727	1,148,938	.....	521	5,009,111
Wis., Minn., Mo., and Cal..	.....	386,193	.....	.....	.....	386,193
Total for 1913..	16,738,708	6,689,680	6,522,171	1,000,171	15,422	30,966,152
Total for 1912..	16,466,722	6,309,495	6,214,121	726,017	10,582	29,726,937

Similar details for 1911 and previous years were not collected. Nearly 54.1 per cent. of the pig iron made in 1913 was delivered to steel plants in a molten condition, over 21.6 per cent. was sand cast, and over 24.3 per cent. was machine cast, chill cast, or was in the form of direct castings.

Similar figures gathered by the United States Census give the following results: Delivered in molten condition to steel works, in 1904, 35.5 per cent.; in 1909, 47.6 per cent.; sand cast in 1904, 36.6 per cent.; in 1909, 29.8 per cent.

METHODS BY WHICH BASIC PIG IRON WAS CAST OR
DELIVERED IN 1913.

States—Basic pig iron. Gross tons.	Sand cast, machine cast, chill cast, etc.	Molten condition.	Total. Gross tons.
New York and New Jersey.....	119,305	445,047	564,352
Pennsylvania.....	1,814,341	5,120,654	6,934,995
Virginia and Alabama.....	236,896	594,292	831,188
Ohio.....	994,015	781,210	1,775,225
Ind., Ill., Mich., Mo., and Colorado.....	456,957	1,973,976	2,430,933
Total.....	3,621,514	8,915,179	12,536,693

METHODS BY WHICH BESSEMER AND LOW-PHOSPHORUS PIG
IRON WAS CAST OR DELIVERED IN 1913.

States—Bessemer and low-phosphorus pig iron. Gross tons.	Sand cast, machine cast, chill cast, etc.	Molten condition.	Total. Gross tons.
New York and Maryland.....	279,769	575,950	855,719
Pennsylvania.....	1,605,502	2,873,335	4,478,837
West Va., Kentucky, and Tennessee.....	183,545	110,300	293,845
Ohio.....	1,399,107	2,784,995	4,184,102
Illinois, Wis., Colorado, and California..	298,873	1,478,737	1,777,610
Total.....	3,766,796	7,823,317	11,590,113

METHODS BY WHICH FOUNDRY AND MALLEABLE PIG IRON
PRODUCED FOR SALE IN 1913 WERE CAST.

States—Foundry pig iron made for sale. Gross tons.	Sand cast.	Machine cast.	Chill cast.	Total. Gross tons.
Massachusetts and Connecticut..	12,082	.....	.....	12,082
New York.....	610,119	114,351	23,611	748,081
Pennsylvania.....	950,703	58,266	17,879	1,026,848
Virginia, West Va., and Ala.....	1,374,990	35,046	11,068	1,421,104
Ky., Tenn., and Mississippi.....	289,664	.....	.....	289,664
Ohio.....	506,787	249,289	29,696	785,772
Indiana and Illinois.....	48,523	118,478	.....	167,001
Mich., Wis., Minn., Mo., & Col..	581,144	53,256	.....	634,400
Total.....	4,374,012	628,686	82,254	5,084,952

States—Malleable pig iron made for sale. Gross tons.	Sand cast.	Machine cast.	Chill cast.	Total. Gross tons.
New York.....	176,503	49,022	13,924	239,449
Pennsylvania.....	64,906	27,891	8,000	100,797
Ohio.....	125,890	170,846	15,133	311,869
Illinois, Mich., and Wisconsin.	134,269	202,857	.....	337,126
Total.....	501,568	450,616	37,057	989,241

MISCELLANEOUS PIG IRON STATISTICS.

PRODUCTION OF PIG IRON IN PENNSYLVANIA BY DISTRICTS.

Districts—Gross tons.	1909.	1910.	1911.	1912.	1913.
Lehigh Valley.....	690,488	759,250	887,013	952,068	1,053,686
Schuylkill Valley.....	722,529	803,362	722,265	909,337	865,959
Lower Susquehanna Valley.....	609,971	643,270	446,671	562,774	635,079
Juniata Valley.....	131,015	191,554	93,624	123,021	140,173
Allegheny County.....	5,497,372	5,330,982	5,116,442	6,107,226	5,999,539
Shenango Valley.....	1,627,628	1,924,508	1,252,344	2,063,300	2,288,693
Other Western Penna. bit.	1,637,130	1,615,125	1,285,201	1,830,573	1,967,128
Charcoal.....	2,691	4,272	3,513	3,832	4,679
Total.....	10,918,824	11,272,323	9,807,073	12,552,131	12,954,936

PRODUCTION OF PIG IRON IN OHIO BY DISTRICTS, 1909-1913.

Districts—Gross tons.	1909.	1910.	1911.	1912.	1913.
Mahoning Valley.....	2,278,650	2,534,969	2,393,575	2,889,419	2,987,970
Hocking Valley.....	1,565,203	1,474,465	1,577,528	2,050,163	2,227,537
Lake Counties.....					
Miscellaneous bituminous	1,254,160	1,285,775	1,056,178	1,457,552	1,468,008
Hanging Rock bituminous	453,532	455,843	281,323	403,434	444,009
Hanging Rock charcoal....	.....	1,060	1,902	1,925	2,001
Total.....	5,551,545	5,752,112	5,310,506	6,802,493	7,129,525

The Hocking Valley has not made pig iron since 1909.

PRODUCTION OF BASIC PIG IRON IN PENNSYLVANIA AND OHIO BY DISTRICTS, 1909-1913.

Districts—Gross tons.	1909.	1910.	1911.	1912.	1913.
Lehigh Valley.....	297,007	366,132	471,838	521,495	572,521
Schuylkill Valley.....	275,270	391,582	423,846	462,020	531,950
L. Susq. and Juniata....	331,177	362,708	222,440	314,079	382,628
Allegheny County.....	3,187,687	2,807,551	2,883,927	3,355,490	3,314,770
Shenango Valley.....	553,206	620,658	451,607	890,087	1,221,689
Other West. Pa. bit.....	611,898	698,434	715,104	946,925	911,437
Total for Penna....	5,256,245	5,247,065	5,168,762	6,490,096	6,934,995
Mahoning Valley.....	296,467	416,995	430,367	620,421	769,454
Lake Counties.....	164,085	273,946	339,883	423,048	486,365
Miscellaneous bitum....	378,130	411,446	293,022	447,865	449,896
Hanging Rock bitum....	7,274	53,047	48,469	66,621	69,510
Total for Ohio.....	845,956	1,155,434	1,111,741	1,557,955	1,775,225

PRODUCTION OF BESSEMER PIG IRON IN PENNSYLVANIA AND OHIO BY DISTRICTS, 1909-1913.

Districts—Gross tons.	1909.	1910.	1911.	1912.	1913.
Lehigh Valley.....	61,324	60,924	103,506	136,219	170,204
Schuylkill Valley.....	81,223	104,052	70,481	94,826	99,768
L. Susquehanna Valley	119,874	126,463	87,305	92,484	112,819
Allegheny County.....	2,143,009	2,352,149	2,078,757	2,517,529	2,479,245
Shenango Valley.....	985,670	1,279,380	790,871	1,154,790	1,022,772
Other West. Pa. bit.....	460,506	470,937	330,345	406,443	594,029
Total for Penna....	3,851,606	4,393,905	3,461,265	4,402,291	4,478,837
Mahoning Valley.....	1,682,839	1,738,907	1,640,588	1,935,959	1,871,560
Lake Counties.....	1,051,329	830,921	862,031	1,236,446	1,271,871
Miscellaneous bitum....	826,863	837,166	727,591	949,193	948,483
Hanging Rock bitum....	67,015	53,742	53,760	52,628	92,188
Total for Ohio.....	3,628,046	3,460,736	3,283,970	4,174,226	4,184,102

APPROXIMATE CONSUMPTION OF PIG IRON, 1890-1913.

Years. Gross tons.	Production.	Add stocks unsold on January 1.	Add imports.	Deduct stocks Dec. 31.	Deduct exports.	Approximate consumption.
1890.....	9,202,703	283,879	134,955	661,858	16,341	8,943,338
1891.....	8,279,870	661,858	67,179	627,233	14,946	8,366,728
1892.....	9,157,000	627,233	70,125	535,616	15,427	9,303,315
1893.....	7,124,502	535,616	54,394	707,318	24,587	6,982,607
1894.....	6,657,388	707,318	15,582	661,328	24,482	6,694,478
1895.....	9,446,308	661,328	53,232	506,132	26,164	9,628,572
1896.....	8,623,127	506,132	56,272	847,686	62,071	8,275,774
1897.....	9,652,680	847,686	19,212	874,978	262,686	9,381,914
1898.....	11,773,934	874,978	25,152	415,333	253,057	12,005,674
1899.....	13,620,703	415,333	40,393	68,309	228,678	13,779,442
1900.....	13,789,242	68,309	52,565	446,020	286,687	13,177,409
1901.....	15,878,354	446,020	62,930	73,647	81,211	16,232,446
1902.....	17,821,307	73,647	619,354	49,951	27,487	18,436,870
1903.....	18,009,252	49,951	599,574	598,489	20,379	18,039,909
1904.....	16,497,033	598,489	79,500	446,442	49,025	16,679,555
1905.....	22,992,380	*.....	212,466	*.....	49,221	23,155,625
1906.....	25,307,191	.....	379,828	.....	83,317	25,603,702
1907.....	25,781,361	.....	489,475	.....	73,703	26,197,133
1908.....	15,936,018	.....	92,202	.....	46,696	15,981,524
1909.....	25,795,471	.....	176,442	.....	61,989	25,909,924
1910.....	27,303,567	.....	237,233	.....	127,385	27,413,415
1911.....	23,649,547	.....	148,459	.....	120,799	23,677,207
1912.....	29,726,937	.....	129,325	.....	272,676	29,583,586
1913.....	30,966,152	.....	156,435	.....	277,648	30,844,939

* Collection of unsold stock statistics discontinued.

MATERIALS CONSUMED BY BLAST FURNACES.

CONSUMPTION OF IRON ORE, MILL CINDER, SCALE, ETC., BY STATES, 1912-1913.

States. Gross tons.	1912—Gross tons.			1913—Gross tons.		
	Consumption of iron ore. Gross tons.	Consumption of mill cinder, scale, etc.	Total. Gross tons.	Consumption of iron ore. Gross tons.	Consumption of mill cinder, scale, etc.	Total. Gross tons.
Mass. & Conn..	41,522	.....	41,522	30,460	.....	30,460
New York.....	3,751,300	79,080	3,830,380	3,949,201	82,223	4,031,424
New Jersey.....	57,640	10,123	67,763	176,090	35,486	211,576
Pennsylvania..	22,318,549	2,308,690	24,627,239	23,111,198	1,746,065	24,857,263
Md. and Va...	903,855	90,915	994,770	1,208,243	46,081	1,254,324
Ky. and Miss...	94,376	38,208	132,584	130,506	22,551	153,057
Alabama	4,776,453	105,081	4,881,534	5,203,200	126,910	5,330,110
West Virginia.	461,190	51,495	512,685	400,929	26,677	427,606
Tennessee.....	753,864	34,990	788,854	642,639	36,337	678,976
Ohio	12,421,942	826,554	13,248,496	13,154,635	574,632	13,729,267
Illinois.....	5,291,139	429,282	5,720,421	5,435,560	208,679	5,644,239
Ind. & Mich...	3,391,008	296,547	3,687,555	3,467,008	102,857	3,569,865
Wis. & Minn...	578,506	37,179	615,685	711,379	23,897	735,276
Mo., Col., Cal..	814,656	10,856	825,512	669,952	18,605	688,557
Total.....	55,656,000	4,319,000	59,975,000	58,291,000	3,051,000	61,342,000

CONSUMPTION OF IRON ORE, MILL CINDER, SCALE, ETC., BY STATES, 1909-1913.

States—Gross tons.	1909.	1910.	1911.	1912.	1913.
Mass. & Conn.....	41,640	40,492	22,650	41,522	30,460
New York.....	3,465,405	3,782,567	3,085,499	3,830,380	4,031,424
New Jersey.....	546,561	499,797	77,426	67,763	211,576
Pennsylvania.....	21,083,807	21,957,288	19,254,523	24,627,239	24,857,263
Md. and Va.....	1,416,934	1,612,978	1,161,605	994,770	1,254,324
Ga., Ky., & Miss...	220,498	223,467	194,867	132,584	153,057
Alabama.....	4,488,267	4,973,747	4,386,908	4,881,534	5,330,110
West Virginia.....	475,425	309,282	547,690	512,685	427,606
Tenn. and Texas....	794,029	961,875	762,756	788,854	678,976
Ohio.....	10,523,085	11,011,262	10,288,019	13,248,496	13,729,267
Illinois.....	4,664,637	5,061,503	4,092,938	5,720,421	5,644,239
Ind. and Mich.....	1,970,317	2,574,170	2,459,096	3,687,555	3,569,865
Wis. and Minn.....	705,573	633,327	589,941	615,685	735,276
Mo., Col., Wash., Cal	798,822	897,245	817,082	825,512	688,557
Total.....	51,195,000	54,539,000	47,741,000	59,975,000	61,342,000

We estimate that about 58,291,000 gross tons of domestic and foreign iron ore, ore briquettes, manganese ore, etc., not including mill cinder, scale, scrap, etc., were consumed in the manufacture of pig iron, ferro-manganese, spiegeleisen, etc., in 1913, as compared with about 55,656,000 gross tons of similar materials in 1912. The average consumption of ore in 1913 per ton of iron made was about 1.882 gross tons, as compared with about 1.872 tons in 1912. From 800,000 to 900,000 tons of iron ore are also annually consumed by rolling mills and steel works.

In addition to the 58,291,000 gross tons of iron ore, ore briquettes, manganese ore, etc., consumed in 1913 by blast furnaces in the manufacture of pig iron, ferro-manganese, etc., about 3,051,000 tons of mill cinder, scale, scrap, slag, flue dust, zinc residuum, etc., were also used, as compared with about 4,319,000 tons in 1912. Adding these figures to the ore above reported gives a total consumption in 1913 of about 61,342,000 tons, or an average of about 1.981 tons of ore and other metallic material used per ton of iron made, as compared with a consumption of about 59,975,000 tons, or an average of 2.017 tons, in 1912.

Of the total consumption in 1913 about 95 per cent. was iron ore, manganese ore, briquettes, etc., and about 5 per cent. was mill cinder, scale, scrap, etc., against a consumption of about 92.8 per cent. of ore and about 7.2 per cent. of mill cinder, scale, scrap, etc., in 1912.

CONSUMPTION OF COKE, COAL, AND CHARCOAL IN THE MANUFACTURE OF PIG IRON.

In making the 30,966,152 gross tons of pig iron produced in 1913 there were consumed about 37,192,287 net tons of coke, as compared with about 35,721,127 net tons in 1912; about 39,008 net tons of bituminous coal, as compared with about 47,022 net tons in 1912; about 107,318 gross tons of anthracite coal, as compared with about 73,794 gross tons in 1912; and about 35,242,059 bushels of charcoal, as compared with 35,436,017 bushels in 1912. The average consumption of coke and bituminous coal per ton of pig iron made with these fuels in 1913 was about 2,433.3 pounds, as compared with 2,436.5 pounds in 1912; of anthracite coal and coke mixed, about 625.2 pounds of anthracite coal and about

2,415.6 pounds of coke per ton of pig iron made, as compared with about 565.2 pounds of anthracite coal and about 2,341.6 pounds of coke in 1912; of anthracite coal alone, about 2,978.1 pounds per ton of pig iron made, as compared with about 2,954.7 pounds in 1912; and of charcoal, about 103.6 bushels per ton of pig iron made, as compared with about 102.1 bushels in 1912. Details of fuel consumption were not collected for 1911 and prior years.

LIMESTONE CONSUMED IN MAKING PIG IRON BY STATES,
1909-1913.

States—Gross tons.	1909.	1910.	1911.	1912.	1913.
Mass. and Conn.....	6,669	5,909	3,685	6,897	5,395
New York.....	934,230	1,042,411	881,114	1,030,600	1,158,300
New Jersey.....	201,154	179,845	30,700	28,630	75,348
Pennsylvania.....	5,801,958	6,172,796	5,212,548	6,844,271	6,977,465
Maryland and Va.....	590,778	709,020	458,769	393,857	534,103
Georgia and Texas....	13,214	5,199	480	.....	.....
Alabama.....	874,316	918,006	574,981	442,981	687,995
West Virginia.....	111,273	93,952	137,946	136,198	110,653
Kentucky and Miss....	68,521	58,418	56,373	43,897	50,760
Tennessee.....	206,769	231,152	204,222	195,005	148,020
Ohio.....	2,697,717	2,819,761	2,648,284	3,445,617	3,733,346
Illinois.....	1,175,137	1,195,660	952,157	1,286,693	1,326,926
Indiana and Michigan	376,254	468,691	466,221	737,068	744,766
Wisconsin and Minn...	183,240	156,686	117,777	142,241	195,860
Mo., Col., Wash., Cal.	333,137	470,392	341,699	358,211	322,110
Total.....	13,574,367	14,527,898	12,086,956	15,092,166	16,071,047

The average consumption of limestone per ton of pig iron made was 1,162.3 pounds in 1913, against 1,137.2 pounds in 1912. By anthracite and bituminous furnaces the consumption in 1913 was 1,170.5 pounds, against 1,146.1 pounds in 1912, and by charcoal furnaces it was 441.6 pounds, against 381.6 pounds in 1912.

BLAST FURNACE STATISTICS.

ANNUAL CAPACITY OF ACTIVE FURNACES IN 1913.

States—Gross tons.	Number of active furnaces in 1913.	Production in 1913. Gross tons.	Annual capacity of furnaces active in 1913. Gross tons.	Capacity of active furnaces over production. Gross tons.
Massachusetts and Connecticut.....	5	12,810	24,500	11,690
New York, New Jersey, and Maryland..	28	2,477,579	3,404,000	926,421
Pennsylvania.....	137	12,954,936	15,950,100	2,995,164
Virginia, Alabama, and West Virginia..	42	2,634,242	3,210,600	576,358
Kentucky, Mississippi, and Tennessee..	16	361,756	727,175	365,419
Ohio.....	69	7,129,525	8,523,975	1,394,450
Indiana and Illinois.....	33	4,271,960	5,209,800	937,840
Mich., Wis., Minn., Mo., Col., and Cal..	25	1,123,344	1,578,850	455,506
Total.....	355	30,966,152	38,629,000	7,662,848

The annual capacity of furnaces idle in 1913 is not included. Similar information for 1912 and prior years was not collected by the Bureau of Statistics.

COMPLETED AND REBUILDING BLAST FURNACES, DECEMBER 31 OF EACH YEAR.

Fuel used—Blast furnaces.	1908.	1909.	1910.	1911.	1912.	1913.
Bituminous coal and coke.....	365	372	382	385	395	394
Anthracite and anth. and coke...	45	48	42	35	26	23
Charcoal.....	49	49	50	45	45	45
Total.....	459	469	474	465	466	462

FURNACES IN BLAST ON DECEMBER 31 OF EACH YEAR.

Fuel used—Active blast furnaces.	1908.	1909.	1910.	1911.	1912.	1913.
Bituminous coal and coke.....	205	289	174	206	282	183
Anthracite and anth. and coke..	13	25	10	6	10	5
Charcoal.....	18	24	22	19	21	17
Total.....	236	338	206	231	313	205

IDLE FURNACES ON DECEMBER 31 OF EACH YEAR.

Fuel used—Idle blast furnaces.	1908.	1909.	1910.	1911.	1912.	1913.
Bituminous coal and coke.....	160	83	208	179	113	211
Anthracite and anth. and coke..	32	23	32	29	16	18
Charcoal.....	31	25	28	26	24	28
Total.....	223	131	268	234	153	257

ACTIVE AND IDLE PENNSYLVANIA AND OHIO FURNACES.

Districts.	December 31, 1913.			December 31, 1912.		
	Active.	Idle.	Total.	Active.	Idle.	Total.
Lehigh Valley.....	9	13	22	15	10	25
Schuylkill Valley.....	8	10	18	12	6	18
L. Susquehanna Valley.....	6	9	15	11	4	15
Juniata Valley.....	2	5	7	3	4	7
Allegheny County.....	24	23	47	44	3	47
Shenango Valley.....	11	13	24	22	2	24
Other Western Penna. bit..	15	7	22	18	2	20
Charcoal.....	3	3	6	3	4	7
Total for Penna.....	78	83	161	128	35	163
Mahoning Valley.....	11	14	25	20	4	24
Hocking Valley.....	0	1	1	0	1	1
Lake Counties.....	12	5	17	16	1	17
Miscellaneous bituminous..	7	8	15	13	3	16
Hanging Rock bituminous	10	5	15	9	6	15
Hanging Rock charcoal....	0	2	2	0	2	2
Total for Ohio.....	40	35	75	58	17	75

FURNACES ACTUALLY IN BLAST.

During the first six months of 1913 the total number of furnaces actually in blast during the whole or a part of the period was 348, and during the last half of the year the number was 330. During the first half of 1912 the number of furnaces actually in blast was 302, as compared with 337 in the second half.

The following table gives by States the number of furnaces that were actually in blast in the first and second six months of 1913, as compared with the number of furnaces that were active on June 30 and December 31, 1913. Rebuilding furnaces are included with completed stacks.

States.	Com- pleted June 30.	In blast.		States.	Com- pleted Dec. 31.	In blast.	
		June 30, 1913.	1st half 1913.			Dec. 31, 1913.	2d half 1913.
Massachusetts..	2	1	2	Massachusetts.	2	1	1
Connecticut.....	3	2	3	Connecticut....	3	1	2
New York.....	28	20	22	New York.....	28	12	21
New Jersey.....	7	2	2	New Jersey...	7	2	2
Pennsylvania..	163	117	138	Pennsylvania..	161	78	126
Maryland.....	5	3	4	Maryland.....	5	1	3
Virginia.....	26	9	11	Virginia.....	24	8	11
Georgia.....	3	0	0	Georgia.....	4	0	0
Alabama.....	49	23	27	Alabama.....	49	23	25
Texas.....	4	0	0	Texas.....	4	0	0
West Virginia..	4	3	3	West Virginia..	4	1	3
Kentucky.....	8	2	3	Kentucky.....	8	1	3
Mississippi.....	0	0	0	Mississippi....	1	0	1
Tennessee.....	18	8	12	Tennessee.....	18	4	8
Ohio.....	74	62	65	Ohio.....	75	40	68
Indiana.....	10	10	10	Indiana.....	10	5	10
Illinois.....	26	23	23	Illinois.....	26	11	22
Michigan.....	16	9	12	Michigan.....	15	10	12
Wisconsin.....	7	5	6	Wisconsin.....	7	4	6
Minnesota.....	1	1	1	Minnesota.....	1	1	1
Missouri.....	2	1	1	Missouri.....	2	1	1
Colorado.....	6	3	3	Colorado.....	6	1	4
Oregon.....	1	0	0	Oregon.....	1	0	0
Washington....	1	0	0	Washington...	1	0	0
Total.....	464	304	348	Total.....	462	205	330

The following table gives by fuels the number of blast furnaces which were active during a part or the whole of each half year in 1912 and 1913; also the number idle:

Fuel used—Active and idle furnaces.	1912.						1913.					
	First half.			Second half.			First half.			Second half.		
	Active.	Idle.	Total.	Active.	Idle.	Total.	Active.	Idle.	Total.	Active.	Idle.	Total.
Bituminous, chiefly coke	274	121	395	301	94	395	308	86	394	297	97	394
Anthracite and coke.....	2	20	22	9	13	22	13	8	21	7	14	21
Anthracite alone.....	0	4	4	1	3	4	1	3	4	2	0	2
Charcoal.....	26	19	45	26	19	45	26	19	45	24	21	45
Total.....	302	164	466	337	129	466	348	116	464	330	132	462

BUILDING AND REBUILDING BLAST FURNACES.

On December 31, 1913, there were 3 furnaces in course of erection and 8 were being rebuilt. Of the building

furnaces 1 was in Pennsylvania and 2 were in Minnesota. When completed all will use coke for fuel. They will have a total annual capacity of 505,000 gross tons of pig iron. Of the 8 rebuilding furnaces 1 was in New Jersey, 2 in Pennsylvania, 1 in Maryland, 3 in Alabama, and 1 in Ohio. When rebuilt all will use bituminous fuel. Work on the New Jersey furnace has been suspended for some time.

BLAST FURNACES COMPLETED IN 1913.

In 1913 there were 5 entirely new blast furnaces built, 4 coke and 1 charcoal, with an annual capacity of 596,000 gross tons, as follows: Pennsylvania, 2, with an annual capacity of 360,000 tons; Virginia, 1, with an annual capacity of 50,000 tons; Ohio, 1, with an annual capacity of 182,500 tons; and Mississippi, 1, (charcoal,) with an annual capacity of 3,500 tons. In addition 1 charcoal furnace in Georgia, with an annual capacity of 13,500 tons, was revived.

BLAST FURNACES ABANDONED OR DISMANTLED IN 1913.

During 1913 there were 10 blast furnaces abandoned or dismantled, with a total annual capacity of 316,000 gross tons, as follows: New York, 1, with an annual capacity of 30,000 tons; Pennsylvania, 4, with an annual capacity of 76,000 tons; Virginia, 2, with an annual capacity of 50,000 tons; Tennessee, 1, with an annual capacity of 48,000 tons; Ohio, 1, with an annual capacity of 85,000 tons; and Michigan, 1, with an annual capacity of 27,000 tons. When last in blast 2 furnaces, with an annual capacity of 29,000 tons, used charcoal, and 8 furnaces, with an annual capacity of 287,000 tons, used mineral fuel. Some of these furnaces had been idle for many years.

ELECTRIC AND SPECIAL FURNACES.

In 1913 there were 5 plants in the United States which manufactured pig iron, ferro-silicon, ferro-titanium, ferro-vanadium, or other ferro-alloys with electricity, electricity and charcoal, etc. In addition 1 plant made ferro-alloys in special furnaces with mineral fuel and oil.

COMPLETED BLAST FURNACES.

The following table gives the number of completed blast furnaces by States at the close of each year from 1904 to 1913. Rebuilding furnaces are included since 1908.

States.	Number of completed furnaces on December 31.									
	1904.	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912.	1913.
Massachusetts.....	2	2	2	2	2	2	2	2	2	2
Connecticut.....	3	3	3	3	3	3	3	3	3	3
New York.....	22	23	25	26	27	28	29	29	29	28
New Jersey.....	12	11	11	11	11	11	9	8	7	7
Pennsylvania.....	158	153	155	157	160	162	165	164	163	161
Maryland.....	6	6	5	5	5	5	5	5	5	5
Virginia.....	26	26	25	26	26	26	26	25	25	24
North Carolina.....	1	1	1	0	0	0	0	0	0	0
Georgia.....	4	4	4	4	4	4	4	4	3	4
Texas.....	4	4	4	4	4	4	4	4	4	4
Alabama.....	49	49	47	49	51	51	50	49	49	49
West Virginia.....	4	4	4	4	4	4	4	4	4	4
Kentucky.....	7	8	9	8	8	8	8	8	8	8
Mississippi.....	0	0	0	0	0	0	0	0	0	1
Tennessee.....	22	20	21	21	21	21	20	19	19	18
Ohio.....	60	62	64	68	73	74	76	75	75	75
Illinois.....	21	21	22	24	25	26	26	24	26	26
Indiana.....	0	0	0	1	3	7	9	9	10	10
Michigan.....	12	11	12	13	13	14	15	15	16	15
Wisconsin.....	6	6	6	6	7	7	7	7	7	7
Minnesota.....	1	1	1	1	1	1	1	1	1	1
Missouri.....	2	2	2	2	2	2	2	2	2	2
Colorado.....	5	5	5	6	6	6	6	6	6	6
Oregon.....	1	1	1	1	1	1	1	1	1	1
Washington.....	1	1	0	1	1	1	1	1	1	1
Total.....	429	424	429	443	458	468	473	465	466	462

ACTIVE AND IDLE BLAST FURNACES AT THE END OF EACH YEAR, 1885-1913.

Years.	Active.	Idle.	Total.	Years.	Active.	Idle.	Total.
1885.....	276	315	591	1900.....	232	174	406
1886.....	331	246	577	1901.....	266	140	406
1887.....	339	244	583	1902.....	307	105	412
1888.....	332	257	589	1903.....	182	243	425
1889.....	344	226	570	1904.....	261	168	429
1890.....	311	251	562	1905.....	313	111	424
1891.....	313	256	569	1906.....	340	89	429
1892.....	253	311	564	1907.....	167	276	443
1893.....	137	381	518	1908.....	236	222	458
1894.....	185	326	511	1909.....	338	130	468
1895.....	242	226	468	1910.....	206	267	473
1896.....	159	311	470	1911.....	231	234	465
1897.....	191	232	423	1912.....	313	153	466
1898.....	202	212	414	1913.....	205	257	462
1899.....	289	125	414	.....	.....	.....	.....

STEEL INGOTS AND CASTINGS.

ALL KINDS OF STEEL INGOTS AND CASTINGS.

PRODUCTION OF STEEL BY PROCESSES, 1875-1913.

Years—Gross tons.	Bessemer ingots and castings.	Open- hearth ingots and castings.	Crucible ingots and castings.	Electric and miscel- laneous.	Total production of steel.
1875.....	335,283	8,080	35,180	11,256	389,799
1876.....	469,639	19,187	35,163	9,202	533,191
1877.....	500,524	22,349	36,098	10,647	569,618
1878.....	653,773	32,255	38,309	7,640	731,977
1879.....	829,439	50,259	50,696	4,879	935,273
1880.....	1,074,262	100,851	64,664	7,558	1,247,335
1881.....	1,374,247	131,202	80,145	2,720	1,588,314
1882.....	1,514,687	143,341	75,973	2,691	1,736,692
1883.....	1,477,345	119,356	71,835	4,999	1,673,535
1884.....	1,375,531	117,515	53,270	4,563	1,550,879
1885.....	1,519,430	133,376	57,599	1,515	1,711,920
1886.....	2,269,190	218,973	71,973	2,367	2,562,503
1887.....	2,936,033	322,069	75,375	5,594	3,339,071
1888.....	2,511,161	314,318	70,279	3,682	2,899,440
1889.....	2,930,204	374,543	75,865	5,120	3,385,732
1890.....	3,688,871	513,232	71,175	3,793	4,277,071
1891.....	3,247,417	579,753	72,586	4,484	3,904,240
1892.....	4,168,435	669,889	84,709	4,548	4,927,581
1893.....	3,215,686	737,890	63,613	2,806	4,019,995
1894.....	3,571,313	784,936	51,702	4,081	4,412,032
1895.....	4,909,128	1,137,182	67,666	858	6,114,834
1896.....	3,919,906	1,298,700	60,689	2,394	5,281,689
1897.....	5,475,315	1,608,671	69,959	3,012	7,156,957
1898.....	6,609,017	2,230,292	89,747	3,801	8,932,857
1899.....	7,586,354	2,947,316	101,213	4,974	10,639,857
1900.....	6,684,770	3,398,135	100,562	4,862	10,188,329
1901.....	8,713,302	4,656,309	98,513	5,471	13,473,595
1902.....	9,138,363	5,687,729	112,772	8,386	14,947,250
1903.....	8,592,829	5,829,911	102,434	9,804	14,534,978
1904.....	7,859,140	5,908,166	83,391	9,190	13,859,887
1905.....	10,941,375	8,971,376	102,233	8,963	20,023,947
1906.....	12,275,830	10,980,413	127,513	14,380	23,398,136
1907.....	11,667,549	11,549,736	131,234	14,075	23,362,594
1908.....	6,116,755	7,836,729	63,631	6,132	14,023,247
1909.....	9,330,783	14,493,936	107,355	22,947	23,955,021
1910.....	9,412,772	16,504,509	122,303	55,335	26,094,919
1911.....	7,947,854	15,598,650	97,653	31,949	23,676,106
1912.....	10,327,901	20,780,723	121,517	21,162	31,251,303
1913.....	9,545,706	21,599,931	121,226	34,011	31,300,874

PRODUCTION OF STEEL INGOTS AND CASTINGS, 1898-1913.

Years—Gross tons.	All kinds of ingots.	All kinds of castings.	Total. Gross tons.
1898.....	8,800,920	131,937	8,932,857
1899.....	10,458,745	181,112	10,639,857
1900.....	9,995,526	192,803	10,188,329
1901.....	13,156,025	317,570	13,473,595
1902.....	14,556,315	390,935	14,947,250
1903.....	14,104,713	430,265	14,534,978
1904.....	13,529,676	330,211	13,859,887
1905.....	19,463,180	560,767	20,023,947
1906.....	22,624,431	773,705	23,398,136
1907.....	22,559,477	803,117	23,362,594
1908.....	13,677,027	346,220	14,023,247
1909.....	23,298,779	656,242	23,955,021
1910.....	25,154,087	940,832	26,094,919
1911.....	23,029,479	646,627	23,676,106
1912.....	30,284,682	966,621	31,251,303
1913.....	30,280,130	1,020,744	31,300,874

The output of a few plants has been estimated.

Complete statistics of the output of steel castings alone are not available prior to 1898.

PRODUCTION OF ALL KINDS OF STEEL INGOTS AND CASTINGS BY STATES AND PROCESSES IN 1913.

States—Gross tons.	Bessemer.	Open-hearth.	Crucible and all other.	Total ingots and castings.
Mass., Rhode Island, and Conn.....	2,476	195,419	2,716	200,611
New York and New Jersey.....	371,372	996,312	39,032	1,406,716
Pennsylvania.....	2,954,818	12,522,227	77,249	15,554,294
Del., Md., Dist. of Col., Va., W. Va., Ky., Ga., Ala., Tenn., La., Tex...	637,063	1,183,977	1,285	1,822,325
Ohio.....	4,024,662	2,726,219	4,170	6,755,051
Indiana and Illinois.....	1,475,424	3,444,960	20,600	4,940,984
Mich., Wis., Minn., Mo., Iowa, Utah, Kan., Col., Ore., Wash., Cal., and Canal Zone, Panama.....	79,891	530,817	10,185	620,893
Total for 1913.....	9,545,706	21,599,931	155,237	31,300,874
Total for 1912.....	10,327,901	20,780,723	142,679	31,251,303

Pennsylvania made over 49.6 per cent. of the total production of all kinds of steel ingots and castings in 1913, as compared with over 50 per cent. in 1912; Ohio, which was the next largest maker in both years, made over 21.5 per cent. in 1913, as compared with over 21.9 per cent. in

1912; Illinois, the next largest maker, made over 8.8 per cent. in 1913, as compared with over 8.9 per cent. in 1912; while Indiana, the fourth largest maker, made over 6.9 per cent. in 1913, as compared with over 6.4 per cent. in 1912. No other State made 4 per cent. in 1912 or 1913. The next largest makers in 1913 were New York, Alabama, Colorado, West Virginia, and Maryland, in the order named.

In 1913 there were 304 works in 30 States, the District of Columbia, and the Canal Zone, Panama, which made steel ingots or castings, against 306 works in 31 States, the District of Columbia, and the Canal Zone in 1912.

PERCENTAGE OF PRODUCTION OF STEEL BY PROCESSES,
1912-1913.

Processes.	1912—Per cent.			1913—Per cent.		
	Ingots.	Castings.	Total.	Ingots.	Castings.	Total.
Open-hearth.....	65.7	90.1	66.5	68.3	89.2	69.0
Bessemer.....	33.9	7.1	33.0	31.3	7.9	30.5
Crucible and all other	.4	2.8	.5	.4	2.9	.5
Total	100.0	100.0	100.0	100.0	100.0	100.0
Acid open-hearth.....	2.3	44.2	3.6	2.6	44.1	4.0
Basic open-hearth.....	63.4	45.9	62.9	65.7	45.1	65.0

STEEL INGOTS.

PRODUCTION OF STEEL INGOTS BY PROCESSES, 1898-1913.

Years—Ingots only. Gross tons.	Bessemer ingots.	Open-hearth ingots.	Crucible and all other.	Total ingots. Gross tons.
1898.....	6,605,478	2,109,705	85,737	8,800,920
1899.....	7,582,415	2,777,587	98,743	10,458,745
1900.....	6,678,303	3,220,644	96,579	9,995,526
1901.....	8,706,538	4,354,687	94,800	13,156,025
1902.....	9,125,815	5,319,850	110,650	14,556,315
1903.....	8,574,730	5,429,563	100,420	14,104,713
1904.....	7,843,089	5,605,332	81,255	13,529,676
1905.....	10,919,272	8,444,836	99,072	19,463,180
1906.....	12,243,229	10,260,522	120,680	22,624,431
1907.....	11,634,276	10,803,211	121,990	22,559,477
1908.....	6,096,196	7,524,952	55,879	13,677,027
1909.....	9,296,969	13,892,896	108,914	23,298,779
1910.....	9,354,437	15,641,158	158,492	25,154,087
1911.....	7,890,753	15,027,459	111,267	23,029,479
1912.....	10,259,151	19,909,875	115,656	30,284,682
1913.....	9,465,200	20,689,715	125,215	30,280,130

PRODUCTION OF STEEL INGOTS BY STATES AND PROCESSES, 1913.

States—Ingots only—Gross tons.	Bessemer ingots.	Open-hearth ingots.	Crucible and all other.	Total ingots. Gross tons.
Mass., R. I., Conn., N. Y., & N. J.	358,504	1,112,749	38,176	1,509,429
Pennsylvania.....	2,942,070	12,160,867	70,268	15,173,205
Md., D. of C., W. Va., Ky., Ga., Ala.	628,859	1,163,533	.....	1,792,392
Ohio.....	4,016,664	2,578,295	.....	6,594,959
Indiana, Ill., Col., Utah, and Cal...	1,519,103	3,674,271	16,771	5,210,145
Total for 1913.....	9,465,200	20,689,715	125,215	30,280,130
Total for 1912.....	10,259,151	19,909,875	115,656	30,284,682

Pennsylvania made over 50.1 per cent. of the total production of steel ingots in 1913, against over 50.4 per cent. in 1912; Ohio made over 21.7 per cent., against over 22.1 per cent. in 1912; and Illinois made over 8.5 per cent., against over 8.8 per cent., in 1912. The next largest makers of steel ingots in 1913, in the order of their prominence, were Indiana, New York, Alabama, and Colorado.

There were 123 works in 17 States and the District of Columbia which made steel ingots in 1913, against 124 works in 17 States and the District of Columbia in 1912.

STEEL CASTINGS.

PRODUCTION OF STEEL CASTINGS BY PROCESSES, 1898-1913.

Years—Castings only—Gross tons.	Bessemer castings.	Open-hearth castings.	Crucible and all other.	Total castings. Gross tons.
1898.....	3,539	120,587	7,811	131,937
1899.....	3,939	169,729	7,444	181,112
1900.....	6,467	177,491	8,845	192,803
1901.....	6,764	301,622	9,184	317,570
1902.....	12,548	367,879	10,508	390,935
1903.....	18,099	400,348	11,818	430,265
1904.....	16,051	302,834	11,326	330,211
1905.....	22,103	526,540	12,124	560,767
1906.....	32,601	719,891	21,213	773,705
1907.....	33,273	746,525	23,319	803,117
1908.....	20,559	311,777	13,884	346,220
1909.....	33,814	601,040	21,388	656,242
1910.....	58,335	863,351	19,146	940,832
1911.....	57,101	571,191	18,335	646,627
1912.....	68,750	870,848	27,023	966,621
1913.....	80,506	910,216	30,022	1,020,744

PRODUCTION OF STEEL CASTINGS BY STATES AND
PROCESSES, 1913.

States—Castings only—Gross tons.	Bessemer castings.	Open- hearth castings.	Crucible and all other.	Total castings.
Mass., Conn., New York, and N. J.	15,344	78,982	3,572	97,898
Pennsylvania.....	12,748	361,360	6,981	381,089
Del., Md., Dist. of Col., Va., W. Va., Ky., Tenn., Ga., Ala., La., Tex., Ohio. }	16,202	168,368	5,455	190,025
Indiana, Illinois, and Michigan.....	18,588	194,406	6,078	219,072
Wis., Minn., Iowa, Mo., Kan., Col., Utah, Ore., Wash., Cal., Canal Zone.. }	17,624	107,100	7,936	132,660
Total for 1913.....	80,506	910,216	30,022	1,020,744
Total for 1912.....	68,750	870,848	27,023	966,621

In 1913 the production of all kinds of steel castings amounted to 1,020,744 tons, against 966,621 tons in 1912, an increase of 54,123 tons, or nearly 5.6 per cent.

Of the 30,022 tons of crucible and all other castings produced in 1913, 17,571 tons were made by the crucible process, 9,207 tons by the electric process, and 3,244 tons by various minor processes.

Pennsylvania made 381,089 tons, or 37.3 per cent. of the steel castings in 1913, as compared with 354,142 tons, or 36.6 per cent., in 1912; Ohio made 160,092 tons, or 15.6 per cent., as compared with 159,957 tons, or 16.5 per cent., in 1912; Illinois made 159,418 tons, or 15.6 per cent., as compared with 133,759 tons, or 13.8 per cent., in 1912. No other State made over 60,000 tons in 1913 or over 65,000 tons in 1912. The other States which made steel castings in 1913 were as follows, in the order of their prominence: New York, Missouri, Wisconsin, Indiana, Iowa, Massachusetts, Michigan, New Jersey, Delaware, West Virginia, California, Alabama, Colorado, Oregon, Louisiana, Tennessee, Utah, Connecticut, Washington, Minnesota, Texas, Virginia, Kentucky, Kansas, Maryland, and Georgia. The District of Columbia and the Canal Zone, Panama, also made small quantities of steel castings in 1913.

There were 223 works in 29 States, the District of Columbia, and the Canal Zone, Panama, which made steel castings in 1913, against 222 works in 28 States, the District of Columbia, and the Canal Zone, Panama, in 1912.

ALLOY TREATED STEEL.

APPROXIMATE PRODUCTION OF ALLOY TREATED STEEL INGOTS AND CASTINGS, BY PROCESSES, 1913.

Processes—Alloy treated steel—Gross tons.	Ingots.	Castings.	Total.
Bessemer steel	53,751	21,173	74,924
Open-hearth steel—acid	153,140	60,264	213,404
Open-hearth steel—basic	382,437	4,049	386,486
Crucible steel	25,281	2,998	28,279
Electric and miscellaneous steel	10,821	443	11,264
Total for 1913	625,430	88,927	714,357
Total for 1912	689,392	103,109	792,501
Total for 1911	425,169	56,290	481,459
Total for 1910	538,462	29,357	567,819
Total for 1909	158,978	23,002	181,980

In 1913 there were 119 works in 20 States and the District of Columbia which made steel ingots or castings which were treated with ferro-vanadium, ferro-titanium, ferro-chrome, nickel, or other alloys, as follows: Massachusetts, 4; Connecticut, 1; New York, 9; New Jersey, 4; Pennsylvania, 51; Delaware, 2; Maryland, 1; District of Columbia, 1; West Virginia, 2; Kentucky, 1; Ohio, 14; Indiana, 3; Illinois, 7; Michigan, 3; Wisconsin, 6; Minnesota, 2; Missouri, 1; Iowa, 2; Washington, 1; Oregon, 2; and California, 2. In 1912 there were 143 works in 21 States and the District of Columbia which made similarly treated steel.

OPEN HEARTH STEEL INGOTS AND CASTINGS.

PRODUCTION OF OPEN-HEARTH STEEL, 1898–1913.

Years.	Ingots.	Castings.	Total.	Years.	Ingots.	Castings.	Total.
1898...	2,109,705	120,587	2,230,292	1906...	10,260,522	719,891	10,980,413
1899...	2,777,587	169,729	2,947,316	1907...	10,803,211	746,525	11,549,736
1900...	3,220,644	177,491	3,398,135	1908...	7,524,952	311,777	7,836,729
1901...	4,354,687	301,622	4,656,309	1909...	13,892,896	601,040	14,493,936
1902...	5,319,850	367,879	5,687,729	1910...	15,641,158	863,351	16,504,509
1903...	5,429,563	400,348	5,829,911	1911...	15,027,459	571,191	15,598,650
1904...	5,605,332	302,834	5,908,166	1912...	19,909,875	870,848	20,780,723
1905...	8,444,836	526,540	8,971,376	1913...	20,689,715	910,216	21,599,931

PRODUCTION OF OPEN-HEARTH STEEL BY STATES, 1908-1913.

States—Gross tons.	1908.	1909.	1910.	1911.	1912.	1913.
New England....	158,417	257,392	223,158	189,879	214,325	195,419
N. Y. and N. J..	350,348	618,117	713,245	679,152	792,201	996,312
Pennsylvania.....	5,322,229	9,400,287	10,153,816	9,594,914	12,408,109	12,522,227
Del., Md., and Dist. of Col....	28,689	35,285	158,827	128,309	44,079	186,961
West Va., Ky., Ga., and Ala....	470,407	477,365	738,392	636,625	967,557	997,016
Ohio.....	525,171	1,424,452	1,733,409	1,721,549	2,565,343	2,726,219
Indiana.....	167,299	783,957	1,307,129	1,394,520	2,001,937	2,180,106
Illinois.....	483,104	1,052,572	995,011	801,624	1,235,166	1,264,854
Mich. and Wis...	19,615	28,512	38,638	27,993	41,827	44,173
Other States.....	311,450	415,997	442,884	424,085	510,179	486,644
Total.....	7,836,729	14,493,936	16,504,509	15,598,650	20,780,723	21,599,931

In addition to the States named in the table, Massachusetts, Rhode Island, Connecticut, Iowa, Missouri, Kansas, Colorado, and California made open-hearth steel in 1913.

In 1908 the production of open-hearth steel for the first time exceeded the production of Bessemer steel, the excess amounting to 1,719,974 tons, or over 28.1 per cent. In 1913 the output of open-hearth steel exceeded the output of Bessemer steel by 12,054,225 tons, or over 126.2 per cent.

PRODUCTION OF OPEN-HEARTH STEEL BY STATES, 1913.

States—Ingots and castings—Gross tons.	Ingots.	Castings.	Total.
New England, New York, and New Jersey..	1,112,749	78,982	1,191,731
Pennsylvania.....	12,160,867	361,360	12,522,227
Ohio.....	2,578,295	147,924	2,726,219
Indiana.....	2,141,226	38,880	2,180,106
Illinois.....	1,121,188	143,666	1,264,854
Ala., Md., Mich., Wis., District of Col., etc....	1,575,390	139,404	1,714,794
Total for 1913.....	20,689,715	910,216	21,599,931
Total for 1912.....	19,909,875	870,848	20,780,723

Pennsylvania made nearly 58 per cent. of the total production of open-hearth steel ingots and castings in 1913. The next largest producers in 1913, in the order of their prominence, were Ohio, Indiana, Illinois, New York, and Alabama.

In 1913 there were 158 works in 22 States and the District of Columbia which made open-hearth steel ingots or castings. In addition 25 open-hearth plants were idle in that

year. Of the active plants, 56 made ingots but not castings, 70 made castings but not ingots, and 32 made both ingots and castings. In 1912 there were 182 completed plants, of which 157 were active during the year and 25 were idle.

BASIC AND ACID OPEN HEARTH STEEL INGOTS AND CASTINGS.

PRODUCTION OF BASIC AND ACID OPEN-HEARTH STEEL, 1898-1913.

Years.	Basic.	Acid.	Total.	Years.	Basic.	Acid.	Total.
1898...	1,569,412	660,880	2,230,292	1906..	9,658,760	1,321,653	10,980,413
1899...	2,080,426	866,890	2,947,316	1907..	10,279,315	1,270,421	11,549,736
1900...	2,545,091	853,044	3,398,135	1908..	7,140,425	696,304	7,836,729
1901...	3,618,993	1,037,316	4,656,309	1909..	13,417,472	1,076,464	14,493,936
1902...	4,496,533	1,191,196	5,687,729	1910..	15,292,329	1,212,180	16,504,509
1903...	4,734,913	1,094,998	5,829,911	1911..	14,685,932	912,718	15,598,650
1904...	5,106,367	801,799	5,908,166	1912..	19,641,502	1,139,221	20,780,723
1905...	7,815,728	1,155,648	8,971,376	1913..	20,344,626	1,255,305	21,599,931

PRODUCTION OF BASIC AND ACID OPEN-HEARTH STEEL BY STATES, 1913.

States—Basic and acid steel—Gross tons.	Basic steel.	Acid steel.	Total.
New England.....	136,754	58,665	195,419
New York and New Jersey.....	919,506	76,806	996,312
Pennsylvania.....	11,578,352	943,875	12,522,227
Ohio.....	2,680,357	45,862	2,726,219
Indiana.....	2,116,261	63,845	2,180,106
Illinois.....	1,251,285	13,569	1,264,854
Ala., Md., Mich., Wis., Dist. of Col., etc..	1,662,111	52,683	1,714,794
Total for 1913.....	20,344,626	1,255,305	21,599,931
Total for 1912.....	19,641,502	1,139,221	20,780,723

In 1913, Pennsylvania made over 56.9 per cent. of the total production of basic ingots and castings and over 75.1 per cent. of the total production of acid ingots and castings.

The increase in the production of basic steel in 1913 over 1912 amounted to 703,124 tons, or over 3.5 per cent., while the increase in the production of acid steel amounted to 116,084 tons, or over 10.1 per cent.

In 1913, there were 82 open-hearth works which made basic but not acid steel, 53 which made acid but not basic steel, and 23 which made both basic and acid steel.

**PRODUCTION OF BASIC AND ACID OPEN HEARTH STEEL INGOTS,
1898-1913.**

Years.	Basic.	Acid.	Total.	Years.	Basic.	Acid.	Total.
1898...	1,540,952	568,753	2,109,705	1906...	9,345,212	915,310	10,260,522
1899...	2,040,737	736,850	2,777,587	1907...	9,912,839	890,372	10,803,211
1900...	2,502,447	718,197	3,220,644	1908...	6,985,420	539,532	7,524,952
1901...	3,524,052	830,635	4,354,687	1909...	13,111,467	781,429	13,892,896
1902...	4,384,129	935,721	5,319,850	1910...	14,858,353	782,805	15,641,158
1903...	4,600,034	829,529	5,429,563	1911...	14,419,306	608,153	15,027,459
1904...	5,007,448	597,884	5,605,332	1912...	19,197,504	712,371	19,909,875
1905...	7,609,569	835,267	8,444,836	1913...	19,884,465	805,250	20,689,715

**PRODUCTION OF BASIC AND ACID OPEN-HEARTH STEEL INGOTS
BY STATES, 1913.**

States—Ingots only—Gross tons.	Basic ingots.	Acid ingots.	Total. Gross tons.
New England, New York, and New Jersey..	1,020,211	92,538	1,112,749
Pennsylvania.....	11,488,352	672,515	12,160,867
Ohio, Indiana, and Illinois.....	5,800,512	40,197	5,840,709
Md., W. Va., Ky., Ala., Col., and other States.	1,575,390	.....	1,575,390
Total for 1913..	19,884,465	805,250	20,689,715
Total for 1912.....	19,197,504	712,371	19,909,875

In addition to the States above named, Massachusetts, Rhode Island, Connecticut, Georgia, and California made open-hearth steel ingots in 1913; also the District of Columbia. The seven largest makers of open-hearth steel ingots in 1913 in the order named were Pennsylvania, Ohio, Indiana, Illinois, New York, Alabama, and Colorado. The largest makers of acid open-hearth ingots were Pennsylvania, New Jersey, Massachusetts, Indiana, Illinois, and Ohio.

The States which made basic but not acid ingots in 1913 were Rhode Island, Connecticut, New York, Maryland, West Virginia, Kentucky, Georgia, Alabama, Colorado, and California; also the District of Columbia. No State made acid but not basic ingots. Both basic and acid ingots were made by Massachusetts, New Jersey, Pennsylvania, Ohio, Indiana, and Illinois.

Pennsylvania made over 58.7 per cent. of the total production of open-hearth steel ingots in 1913, while Ohio made over 12.4 per cent. Of the total production of basic open-hearth ingots in 1913, Pennsylvania made over 57.7 per cent. Ohio was the next largest producer, its output

amounting to over 12.9 per cent. of the total. Of the total production of acid open-hearth ingots in 1913, Pennsylvania made over 83.5 per cent. New Jersey was the next largest producer, its output amounting to over 6.5 per cent. of the total.

There were 88 works in 1913 which made open-hearth steel ingots, of which 62 made ingots by the basic but not by the acid process, 5 made ingots by the acid but not by the basic process, and 21 made ingots by both the basic and acid processes. In 1912 there were 87 works which made open-hearth steel ingots.

PRODUCTION OF BASIC AND ACID OPEN-HEARTH STEEL
CASTINGS, 1898-1913.

Years.	Basic.	Acid.	Total.	Years.	Basic.	Acid.	Total.
1898...	28,460	92,127	120,587	1906...	313,548	406,343	719,891
1899...	39,689	130,040	169,729	1907...	366,476	380,049	746,525
1900...	42,644	134,847	177,491	1908...	155,005	156,772	311,777
1901...	94,941	206,681	301,622	1909...	306,005	295,035	601,040
1902...	112,404	255,475	367,879	1910...	433,976	429,375	863,351
1903...	134,879	265,469	400,348	1911...	266,626	304,565	571,191
1904...	98,919	203,915	302,834	1912...	443,998	426,850	870,848
1905...	206,159	320,381	526,540	1913...	460,161	450,055	910,216

PRODUCTION OF BASIC AND ACID OPEN HEARTH STEEL CAST-
INGS BY STATES, 1913.

States—Castings only—Gross tons.	Basic castings.	Acid castings.	Total. Gross tons.
New England, New York, and New Jersey.	36,049	42,933	78,982
Pennsylvania	90,000	271,360	361,360
Ohio.....	106,582	41,342	147,924
Indiana and Illinois.....	140,809	41,737	182,546
W. Va., Mich., Wis., Col., and other States..	86,721	52,683	139,404
Total for 1913.....	460,161	450,055	910,216
Total for 1912.....	443,998	426,850	870,848

In addition to the States named in the table, Massachusetts, Delaware, Georgia, Alabama, Missouri, Iowa, Kansas, and California made open-hearth castings in 1913. Of the total production of open-hearth castings in 1913, Pennsylvania made over 39.7 per cent., as compared with over 38.9 per cent. in 1912, while Ohio made over 16.2 per cent. of the total in 1913, as compared with over 17 per cent. in 1912. Pennsylvania made nearly 60.3 per cent. of the

total production of acid open-hearth castings in 1913, against over 58.3 per cent. in 1912, while Illinois made over 30.5 per cent. of the total production of basic open-hearth castings in 1913, against over 25.9 per cent. in 1912.

The States which made basic but not acid castings in 1913 were Georgia, Alabama, Missouri, Iowa, Colorado, and California; the States which made acid but not basic castings were Delaware, West Virginia, and Kansas; and the States which made both basic and acid castings were Massachusetts, New York, New Jersey, Pennsylvania, Ohio, Indiana, Illinois, Michigan, and Wisconsin.

In 1913 there were 102 works which made open-hearth steel castings, of which 38 made castings by the basic but not by the acid process, 55 made castings by the acid but not by the basic process, and 9 made castings by both the basic and acid processes. In 1912 the same number of works made open-hearth castings.

COMPLETED, BUILDING, AND PROJECTED OPEN HEARTH PLANTS.

At the close of 1913 there were 183 completed open-hearth steel plants, of which 158 were active during the year and 25 were idle. Of the total, 119 were equipped to make basic steel, of which 105 were active during the year and 14 were idle; and 93 were equipped to make acid steel, of which 76 were active and 17 were idle. Some of the plants were equipped to make both basic and acid steel. Seven plants were being built on December 31, 1913, located as follows: Pennsylvania, 1; District of Columbia, 1; Ohio, 3; Indiana, 1; and Minnesota, 1. On the same date work had been suspended upon 1 partly-erected plant. In addition 5 plants were projected, namely, 1 in West Virginia and 4 in Ohio.

At the close of 1912 there were 182 completed open-hearth steel plants, of which 157 were active during the year and 25 were idle. Of the total, 113 were equipped to make basic steel, of which 101 were active during the year and 12 were idle; and 96 were equipped to make acid steel, of which 77 were active in 1912 and 19 were idle. Several plants were equipped to make both basic and acid steel. Six plants were being built on December 31, 1912, located in 4 States. Three of these plants were completed in 1913.

DUPLEX STEEL INGOTS AND CASTINGS.

Included in the 20,344,626 tons of basic open-hearth steel ingots and castings produced in 1913 are 2,210,718 tons of duplex steel ingots and castings which were made from metal partly purified in Bessemer converters and finally purified in basic open-hearth steel furnaces, against 1,438,654 tons in 1912, an increase of 772,064 tons, or over 53.6 per cent. In 1913 duplex steel ingots and castings were produced by 9 works in 5 States, as follows: New York, 1; Pennsylvania, 5; Maryland, 1; Alabama, 1; and Illinois, 1; against 7 works in 4 States in 1912, namely, 4 in Pennsylvania and 1 each in Maryland, Alabama, and Illinois. Acid open-hearth steel was not produced by the duplex process in 1912 or 1913. Similar statistics for 1911 were not collected by the American Iron and Steel Association.

BESSEMER STEEL INGOTS AND CASTINGS.

PRODUCTION OF BESSEMER STEEL BY STANDARD AND OTHER CONVERTERS, 1903-1913.

Years—Bessemer ingots and castings.	Standard Bessemer process.	Tropenas and all other modified processes.	Total. Gross tons.
1903.....	8,578,712	14,117	8,592,829
1904.....	7,849,773	9,367	7,859,140
1905.....	10,920,591	20,784	10,941,375
1906.....	12,244,309	31,521	12,275,830
1907.....	11,635,092	32,457	11,667,549
1908.....	6,096,478	20,277	6,116,755
1909.....	9,297,781	33,002	9,330,783
1910.....	9,355,350	57,422	9,412,772
1911.....	7,893,961	53,893	7,947,854
1912.....	10,260,913	66,988	10,327,901
1913.....	9,465,882	79,824	9,545,706

PRODUCTION OF BESSEMER STEEL BY STATES, 1908-1913.

States—Gross tons.	1908.	1909.	1910.	1911.	1912.	1913.
Ohio	1,955,446	3,466,077	3,314,053	3,268,994	4,285,673	4,024,662
Pennsylvania.....	2,106,382	2,845,602	2,975,750	2,338,813	3,157,928	2,954,818
Illinois.....	1,237,747	1,632,444	1,693,053	1,335,053	1,559,576	1,475,274
Other States.....	817,180	1,386,660	1,429,916	1,004,994	1,324,724	1,090,952
Total.....	6,116,755	9,330,783	9,412,772	7,947,854	10,327,901	9,545,706

Ohio made over 42.1 per cent. of the total production of Bessemer steel ingots and castings in 1913, against over 41.5 per cent. in 1912; Pennsylvania made over 30.9 per cent. in 1913, against 30.5 per cent. in 1912; and Illinois made over 15.4 per cent. in 1913, against 15.1 per cent. in 1912.

PRODUCTION OF BESSEMER STEEL INGOTS AND CASTINGS,
1898-1913.

Years.	Ingots.	Castings.	Total.	Years.	Ingots.	Castings.	Total.
1898.....	6,605,478	3,539	6,609,017	1906.....	12,243,229	32,601	12,275,830
1899.....	7,582,415	3,939	7,586,354	1907.....	11,634,276	33,273	11,667,549
1900.....	6,678,303	6,467	6,684,770	1908.....	6,096,196	20,559	6,116,755
1901.....	8,706,538	6,764	8,713,302	1909.....	9,296,969	33,814	9,330,783
1902.....	9,125,815	12,548	9,138,363	1910.....	9,354,437	58,335	9,412,772
1903.....	8,574,730	18,099	8,592,829	1911.....	7,890,753	57,101	7,947,854
1904.....	7,843,089	16,051	7,859,140	1912.....	10,259,151	68,750	10,327,901
1905.....	10,919,272	22,103	10,941,375	1913.....	9,465,200	80,506	9,545,706

PRODUCTION OF BESSEMER STEEL INGOTS AND CASTINGS BY
STATES, 1913.

States—Bessemer steel—Gross tons.	Ingots.	Castings.	Total.
Ohio.....	4,016,664	7,998	4,024,662
Pennsylvania....	2,942,070	12,748	2,954,818
Illinois.....	1,461,649	13,625	1,475,274
Mass., New York, Md., and other States...	1,044,817	46,135	1,090,952
Total for 1913.....	9,465,200	80,506	9,545,706
Total for 1912.....	10,259,151	68,750	10,327,901

With the exception of 335 tons all the ingots produced in 1913 were made by the standard Bessemer process. Of the total production of steel castings in 1913 only 1,017 tons were made by the standard process. The production of castings in that year by the Tropenas process amounted to 42,373 tons and by the Bretau, Zenzes, and other modifications of the Bessemer process to 37,116 tons.

In 1913 Bessemer steel was made by 93 works, located in 25 States, the District of Columbia, and the Canal Zone, Panama, as follows: Massachusetts, 2; Connecticut, 1; New York, 5; New Jersey, 2; Pennsylvania, 14; Delaware, 3; Maryland, 3; District of Columbia, 1; Virginia, 2; West Virginia, 2; Kentucky, 1; Louisiana, 2; Texas, 1; Ohio, 18; Indiana, 1; Illinois, 10; Michigan, 6; Wisconsin, 5; Minne-

sota, 2 ; Iowa, 1 ; Missouri, 1 ; Colorado, 1 ; Utah, 1 ; Washington, 3 ; Oregon, 1 ; California, 3 ; and the Canal Zone, Panama, 1. Of the works which produced Bessemer steel in 1913, 17 made ingots but not castings, 68 made castings but not ingots, and 8 made both ingots and castings. Eighty-three works in 25 States, the District of Columbia, and the Canal Zone, Panama, made Bessemer steel in 1912.

Twenty-three plants for the manufacture of steel by the standard Bessemer process were active in 1913, against the same number in 1912 ; and 36 Tropenas plants were active in 1913, against 31 in 1912. In addition 34 plants made steel by other modified Bessemer processes.

In 1913 there were 13 idle Bessemer steel plants. In addition there were 4 plants which operated Bessemer converters for desiliconizing and decarburizing metal for open-hearth furnaces but did not produce any Bessemer steel. These plants are not included in the 13 idle Bessemer plants enumerated above. Five plants in 1913 which made Bessemer steel also made partly-purified metal for open-hearth furnaces. These 5 plants are included in the 93 active Bessemer works referred to above.

COMPLETED, BUILDING, AND PROJECTED BESSEMER PLANTS.

On December 31, 1913, 107 plants were equipped to make steel by the standard Bessemer process or some of its modifications, as compared with 102 plants on December 31, 1912, an increase of 5 plants. Three plants which made steel in 1913, but whose converters were dismantled or destroyed by fire prior to December 31, 1913, are not included. At the close of 1913 thirty plants were equipped to make steel by the standard Bessemer process, 39 plants by the Tropenas process, and 38 plants by other modifications of the standard Bessemer process, while, at the close of 1912, thirty plants were equipped to make steel by the standard Bessemer process, 35 by the Tropenas process, and 37 by other modifications of the standard Bessemer process. On December 31, 1913, one small Bessemer steel plant was being built in Pennsylvania ; at the close of 1912 no plants were under construction. On December 31, 1913, 7 modified Bessemer plants were projected, as compared with 13 plants on December 31, 1912.

CRUCIBLE. STEEL INGOTS AND CASTINGS.

PRODUCTION OF CRUCIBLE STEEL, 1898-1913.

Years.	Ingots.	Castings.	Total.	Years.	Ingots.	Castings.	Total.
1898.....	85,512	4,235	89,747	1906.....	117,170	10,343	127,513
1899.....	97,713	3,500	101,213	1907.....	121,001	10,233	131,234
1900.....	96,573	3,989	100,562	1908.....	55,360	8,271	63,631
1901.....	94,586	3,927	98,513	1909.....	94,672	12,683	107,355
1902.....	107,817	4,955	112,772	1910.....	107,671	14,632	122,303
1903.....	97,025	5,409	102,434	1911.....	83,623	14,030	97,653
1904.....	79,083	4,308	83,391	1912.....	100,967	20,550	121,517
1905.....	96,500	5,733	102,233	1913.....	103,655	17,571	121,226

PRODUCTION OF CRUCIBLE STEEL BY STATES, 1913.

States—Crucible steel—Gross tons.	Ingots.	Castings.	Total.
Pennsylvania	69,200	1,415	70,615
Mass., Conn., N. Y., Ohio, Mich., Wis., etc...	34,455	16,156	50,611
Total for 1913.....	103,655	17,571	121,226
Total for 1912.....	100,967	20,550	121,517

In addition to the States named in the table, New Jersey, West Virginia, Tennessee, Texas, Indiana, Illinois, Minnesota, Missouri, Iowa, Oregon, and California made crucible steel ingots or castings in 1913. The total number of completed crucible plants in 1913 was 99, of which 82 were active and 17 were idle. At the close of 1912, there were 108 completed plants, of which 95 were active during the year and 13 were idle. On December 31, 1913, two crucible steel plants were being built—one in New York and one in the State of Washington, while at the close of 1912, one plant in Michigan was in course of construction.

Of the active works in 1913, there were 28 in 4 States which made ingots but not castings, 52 in 16 States which made castings but not ingots, and 2 in 2 States which made both ingots and castings.

Pennsylvania made 70,615 tons of crucible steel ingots and castings in 1913, or over 58.2 per cent. of the total output, against 63,687 tons, or over 52.4 per cent., in 1912. New York was the next largest maker in 1913, producing 23,574 tons, or over 19.4 per cent., against 26,263 tons, or over 21.6 per cent., in 1912. No other State made over 7.7 per cent. in 1913 or over 8.2 per cent. in 1912.

ELECTRIC STEEL INGOTS AND CASTINGS.

PRODUCTION OF ELECTRIC STEEL INGOTS AND CASTINGS,
1909-1913.

Years—Electric steel—Gross tons.	Ingots.	Castings.	Total.
1909.....	13,456	306	13,762
1910.....	50,821	1,320	52,141
1911.....	27,227	1,878	29,105
1912.....	14,147	4,162	18,309
1913.....	20,973	9,207	30,180

In 1908 there were 55 tons of electric steel produced, but this tonnage was included with open-hearth steel for that year.

There were 15 plants in 8 States which made steel by the electric process in 1913, as follows: New York, 3; New Jersey, 1; Pennsylvania, 5; Illinois, 2; Michigan, 1; Wisconsin, 1; Washington, 1; and California, 1.

On December 31, 1913, the number of completed plants which were equipped for the manufacture of steel by the electric process was 16, as compared with 14 plants at the close of 1912, a gain of 2 plants. In addition 3 steel plants had electric furnaces for melting ferro-alloys, etc. Three plants for the manufacture of steel by electricity were being built on December 31, 1913—1 in New York, 1 in Pennsylvania, and 1 in Oregon—and 7 plants were projected—1 in New York, 1 in New Jersey, 2 in Pennsylvania, 1 in Tennessee, 1 in Ohio, and 1 in Michigan. One electric steel furnace which made steel castings in 1913 was abandoned during the year and one furnace was changed from electricity to gas.

MISCELLANEOUS STEEL INGOTS AND CASTINGS.

Years.	Ingots.	Castings.	Total.	Years.	Ingots.	Castings.	Total.
1898.....	225	3,576	3,801	1906.....	3,510	10,870	14,380
1899.....	1,030	3,944	4,974	1907.....	989	13,086	14,075
1900.....	6	4,856	4,862	1908.....	519	5,613	6,132
1901.....	214	5,257	5,471	1909.....	786	8,399	9,185
1902.....	2,833	5,553	8,386	1910.....	.....	3,194	3,194
1903.....	3,395	6,409	9,804	1911.....	417	2,427	2,844
1904.....	2,172	7,018	9,190	1912.....	542	2,311	2,853
1905.....	2,572	6,391	8,963	1913.....	587	3,244	3,831

ACTIVE AND IDLE STEEL WORKS BY STATES.

States.	Open-hearth steel plants.			Bessemer steel plants.			Cruc., elec., and misc. plants.		
	Act.	Idle.	Total.	Act.	Idle.	Total.	Act.	Idle.	Total.
Maine.....	0	1	1	0	0	0	0	0	0
Massachusetts.....	4	2	6	2	0	2	6	2	8
Rhode Island.....	1	0	1	0	0	0	0	0	0
Connecticut.....	1	1	2	1	0	1	2	2	4
New York.....	8	2	10	5	1	6	9	0	9
New Jersey.....	7	1	8	2	2	4	7	2	9
Pennsylvania.....	74	9	83	14	7	21	31	5	36
Delaware.....	2	1	3	3	0	3	0	0	0
Maryland.....	2	0	2	3	0	3	0	0	0
District of Columbia.....	1	0	1	1	0	1	0	0	0
Virginia.....	0	1	1	2	0	2	0	0	0
West Virginia.....	3	1	4	2	0	2	1	0	1
Kentucky.....	1	0	1	1	0	1	0	0	0
Tennessee.....	0	0	0	0	1	1	1	0	1
Georgia.....	1	0	1	0	0	0	0	0	0
Alabama.....	3	1	4	0	1	1	0	0	0
Louisiana.....	0	0	0	2	0	2	0	0	0
Texas.....	0	0	0	1	0	1	1	0	1
Ohio.....	21	1	22	18	0	18	7	4	11
Indiana.....	6	1	7	1	0	1	5	0	5
Illinois.....	9	1	10	10	0	10	3	2	5
Michigan.....	3	1	4	6	2	8	8	2	10
Wisconsin.....	4	0	4	5	1	6	10	1	11
Minnesota.....	0	0	0	2	0	2	2	0	2
Missouri.....	1	0	1	1	1	2	1	0	1
Iowa.....	2	0	2	1	0	1	2	0	2
Oklahoma.....	0	0	0	0	1	1	0	0	0
Kansas.....	1	0	1	0	0	0	0	0	0
Colorado.....	1	0	1	1	0	1	0	0	0
Utah.....	0	0	0	1	0	1	0	0	0
Washington.....	0	1	1	3	0	3	1	0	1
Oregon.....	0	0	0	1	0	1	1	0	1
California.....	2	0	2	3	0	3	4	0	4
Canal Zone, Panama.....	0	0	0	1	0	1	0	0	0
Total for 1913.....	158	25	183	†93	*17	†110	102	20	122
Total for 1912.....	157	25	182	83	*19	102	112	15	127
Total for 1911.....	149	28	177	74	*15	89	101	13	114

*Include 4 plants in 1913, 4 plants in 1912, and 2 plants in 1911 which were equipped with Bessemer steel converters, but which did not make Bessemer steel in any of these years, the converters having been utilized for desiliconizing and decarburizing molten metal for open-hearth steel furnaces.

†Includes 3 plants which made steel in 1913, but whose converters were dismantled or destroyed by fire prior to December 31, 1913.

COMPLETED STEEL FURNACES AND CONVERTERS.

The following table gives by States the number of completed open-hearth steel furnaces, Bessemer converters, crucible steel-melting furnaces, electric steel furnaces, and miscellaneous steel furnaces in the United States and the Canal Zone, Panama, on December 31, 1913. Open-hearth furnaces used for melting stock for malleable works, Bessemer converters used for desiliconizing and decarburizing molten metal, and electric furnaces used for melting alloys are included.

States.	Open-hearth steel furnaces.	Bessemer steel converters.	Crucible steel furnaces.	Electric steel furnaces.	Miscella- neous steel furnaces.
Maine	1	0	0	0	0
Massachusetts.....	16	2	19	2	0
Rhode Island.....	2	0	0	0	0
Connecticut.....	5	2	6	0	3
New York.....	39	13	24	5	0
New Jersey.....	23	7	18	3	0
Pennsylvania.....	511	42	119	4	1
Delaware.....	9	8	0	0	0
Maryland.....	8	4	0	0	0
District of Columbia.	2	1	0	0	0
Virginia.....	1	2	0	0	0
West Virginia.....	9	4	2	0	0
Kentucky	6	2	0	0	0
Tennessee.....	0	1	3	0	0
Georgia.....	2	0	0	0	0
Alabama	16	2	0	0	0
Louisiana.....	0	2	0	0	0
Texas	0	2	2	0	0
Ohio.....	105	28	33	0	6
Indiana	70	1	11	0	2
Illinois	58	21	11	3	0
Michigan	5	10	40	3	0
Wisconsin	9	10	59	1	0
Minnesota	0	2	10	0	0
Missouri.....	8	3	4	0	0
Iowa.....	5	1	8	0	0
Oklahoma.....	0	1	0	0	0
Kansas	1	0	0	0	0
Colorado	12	2	0	0	0
Utah	0	1	0	0	0
Washington.....	3	3	0	1	0
Oregon.....	0	1	1	0	0
California	4	3	9	1	0
Canal Zone, Panama.	0	1	0	0	0
Total.....	930	182	379	23	12

TOTAL ANNUAL CAPACITY OF STEEL FURNACES AND CONVERTERS.

The following table gives by States the total annual capacity in ingots and castings of the open-hearth, Bessemer, crucible, electric, and miscellaneous steel plants in the United States and the Canal Zone, Panama, on December 31, 1913. The figures do not include the capacity of the open-hearth furnaces used for melting stock for malleable works, Bessemer converters used for desiliconizing and decarburizing molten metal, or electric furnaces used for melting alloys.

States. Annual capacity.	Open- hearth.	Bessemer.	Crucible.	Electric.	Miscellaneous.	Total. Gross tons.
Maine.....	12,000	0	0	0	0	12,000
Massachusetts.....	197,200	2,275	1,750	25,000	0	226,225
Rhode Island.....	25,000	0	0	0	0	25,000
Connecticut.....	70,000	1,300	5,800	0	600	77,700
New York.....	1,153,500	724,500	35,225	7,400	0	1,920,625
New Jersey.....	295,650	31,600	14,840	6,500	0	348,590
Pennsylvania.....	15,288,950	3,497,100	161,080	13,900	2,000	18,963,030
Delaware.....	170,000	13,000	0	0	0	183,000
Maryland.....	191,000	437,100	0	0	0	628,100
District of Columbia....	13,200	300	0	0	0	13,500
Virginia.....	0	1,200	0	0	0	1,200
West Virginia.....	102,000	446,000	7,500	0	0	555,500
Kentucky.....	180,000	150,000	0	0	0	330,000
Tennessee.....	0	1,500	1,500	0	0	3,000
Georgia.....	60,000	0	0	0	0	60,000
Alabama.....	989,600	0	0	0	0	989,600
Louisiana.....	0	1,850	0	0	0	1,850
Texas.....	0	500	125	0	0	625
Ohio.....	3,255,650	4,561,450	5,900	0	2,500	7,825,500
Indiana.....	2,615,200	150	830	0	2,000	2,618,180
Illinois.....	1,557,000	1,794,300	6,530	30,800	0	3,388,630
Michigan.....	21,100	16,200	5,850	4,000	0	47,150
Wisconsin.....	74,500	106,850	9,650	3,000	0	194,000
Minnesota.....	0	2,900	1,300	0	0	4,200
Missouri.....	100,000	9,000	500	0	0	109,500
Iowa.....	33,200	1,200	2,100	0	0	36,500
Oklahoma.....	0	1,800	0	0	0	1,800
Kansas.....	250	0	0	0	0	250
Colorado.....	420,000	600,000	0	0	0	1,020,000
Utah.....	0	3,600	0	0	0	3,600
Washington.....	40,000	3,300	0	5,000	0	48,300
Oregon.....	0	2,400	360	0	0	2,760
California.....	39,200	4,200	1,150	1,800	0	46,350
Canal Zone, Panama..	0	3,000	0	0	0	3,000
Total.....	26,904,200	12,418,575	261,990	97,400	7,100	39,689,265

CAPACITY OF OPEN HEARTH STEEL FURNACES IN THE UNITED STATES, DECEMBER 31, 1913.

States.	No. of plants.	Number of completed acid and basic furnaces.												Annual capacity.		
		Less 5 tons.	5 less 10	10 less 20	20 less 30	30 less 40	40 less 50	50 less 60	60 less 70	70 less 80	80 less 90	90 less 100	100 and over.	Ingots. Gross tons.	Castings. Gross tons.	Total Gross tons.
Maine.....	1	0	0	0	1	0	0	0	0	0	0	0	0	12,000	0	12,000
Massachusetts.....	6	1	0	6	3	2	0	4	0	0	0	0	0	164,650	32,550	197,200
Rhode Island.....	1	0	0	0	2	0	0	0	0	0	0	0	0	25,000	0	25,000
Connecticut.....	2	0	0	0	2	3	0	0	0	0	0	0	0	60,000	10,000	70,000
New York.....	10	0	2	5	5	3	0	5	1	14	0	0	4	1,065,000	88,500	1,153,500
New Jersey.....	8	1	0	1	10	6	4	1	0	0	0	0	0	234,050	61,600	295,650
Pennsylvania.....	83	2	5	43	61	77	26	128	78	47	11	17	16	14,690,100	598,850	15,288,950
Delaware.....	3	1	0	1	2	0	0	5	0	0	0	0	0	150,000	20,000	170,000
Maryland.....	2	0	0	0	3	0	0	5	0	0	0	0	0	191,000	0	191,000
District of Columbia.....	1	0	0	2	0	0	0	0	0	0	0	0	0	13,200	0	13,200
Virginia and West Va.....	5	0	3	1	3	0	3	0	0	0	0	0	0	80,000	22,000	102,000
Kentucky.....	1	0	0	0	0	0	0	3	3	0	0	0	0	180,000	0	180,000
Georgia.....	1	0	0	0	0	2	0	0	0	0	0	0	0	60,000	0	60,000
Alabama.....	4	0	0	1	1	0	0	6	0	0	0	0	0	981,600	8,000	989,600
Ohio.....	22	1	0	13	9	6	4	21	39	0	6	0	6	3,064,200	191,450	3,255,650
Indiana.....	7	1	1	7	6	1	0	12	0	0	28	1	13	2,560,000	55,200	2,615,200
Illinois.....	10	0	0	10	11	0	4	29	4	0	0	0	0	1,866,000	191,000	1,557,000
Michigan.....	4	1	1	2	1	0	0	0	0	0	0	0	0	21,100	21,100	21,100
Wisconsin.....	4	1	0	6	1	1	0	0	0	0	0	0	0	74,500	33,200	107,700
Iowa.....	2	0	2	0	3	0	0	0	0	0	0	0	0	100,000	100,000	200,000
Missouri.....	1	0	0	0	8	0	0	12	0	0	0	0	0	420,000	0	420,000
Colorado.....	1	1	0	0	0	0	0	0	0	0	0	0	0	250	250	500
Kansas.....	1	1	0	0	0	0	0	0	0	0	0	0	0	40,000	0	40,000
Washington.....	1	1	0	0	0	0	0	0	0	0	0	0	0	35,000	4,200	39,200
California.....	2	0	0	0	4	0	0	0	0	0	0	0	0	25,391,800	1,512,400	26,904,200
Total.....	183	10	14	98	139	101	41	231	125	61	45	18	47	930		

CAPACITY OF BASIC OPEN HEARTH STEEL FURNACES, DECEMBER 31, 1913.

States.	Number of completed basic furnaces.												Annual capacity.			
	Less 5 tons.	5 less 10	10 less 20	20 less 30	30 less 40	40 less 50	50 less 60	60 less 70	70 less 80	80 less 90	90 less 100	100 and over	Total	Ingot. Gross tons.	Castings. Gross tons.	Total. Gross tons.
Maine.....	0	0	0	1	0	0	0	0	0	0	0	0	1	12,000	0	12,000
Massachusetts.....	0	0	0	1	2	0	3	0	0	0	0	0	6	105,000	0	105,000
Rhode Island.....	0	0	0	2	0	0	0	0	0	0	0	0	2	25,000	0	25,000
Connecticut.....	0	0	0	0	3	0	0	0	0	0	0	0	3	60,000	0	60,000
New York.....	0	0	0	5	3	0	5	1	14	0	0	4	32	1,065,000	50,000	1,115,000
New Jersey.....	0	0	1	6	2	4	1	0	0	0	0	0	14	155,250	48,000	203,250
Pennsylvania.....	0	1	8	26	58	20	120	74	46	11	17	16	397	13,821,200	148,400	13,969,600
Delaware.....	0	0	0	0	0	0	4	0	0	0	0	0	4	120,000	0	120,000
Maryland.....	0	0	0	3	0	0	5	0	0	0	0	0	8	191,000	0	191,000
District of Columbia.....	0	0	2	0	0	0	0	0	0	0	0	0	2	13,200	0	13,200
Virginia and West Virginia.....	0	0	1	0	0	3	0	0	0	0	0	0	4	80,000	0	80,000
Kentucky.....	0	0	0	0	0	0	3	3	0	0	0	0	6	180,000	0	180,000
Georgia.....	0	0	0	0	2	0	0	0	0	0	0	0	2	60,000	0	60,000
Alabama.....	0	0	1	1	0	0	6	0	0	0	0	8	16	981,600	8,000	989,600
Ohio.....	0	0	7	9	6	3	21	39	0	6	0	6	97	3,054,200	140,350	3,194,550
Indiana.....	0	1	0	0	0	0	12	0	0	28	0	13	54	2,520,000	500	2,520,500
Illinois.....	0	0	10	10	0	3	29	4	0	0	0	0	56	1,319,800	185,000	1,504,800
Michigan.....	1	0	0	1	0	0	0	0	0	0	0	0	2	0	0	10,000
Wisconsin.....	0	2	0	0	0	0	0	0	0	0	0	0	2	7,500	0	7,500
Iowa.....	0	2	0	3	0	0	0	0	0	0	0	0	5	33,200	0	33,200
Missouri.....	0	0	0	8	0	0	0	0	0	0	0	0	8	100,000	0	100,000
Colorado.....	0	0	0	0	0	0	12	0	0	0	0	0	12	420,000	0	420,000
Washington.....	0	0	0	3	0	0	0	0	0	0	0	0	3	40,000	0	40,000
California.....	0	0	0	4	0	0	0	0	0	0	0	0	4	35,000	4,200	39,200
Total.....	1	4	32	83	76	33	221	121	60	45	17	47	740	24,258,250	735,150	24,993,400

CAPACITY OF ACID OPEN HEARTH STEEL FURNACES, DECEMBER 31, 1913.

States.	Number of completed acid furnaces.												Annual capacity.			
	Less 5 tons.	5 less 10	10 less 20	20 less 30	30 less 40	40 less 50	50 less 60	60 less 70	70 less 80	80 less 90	90 less 100	100 and over	Total	Ingots. Gross tons.	Castings. Gross tons.	Total. Gross tons.
Massachusetts.	1	0	6	2	0	0	1	0	0	0	0	0	10	59,650	32,550	92,200
Connecticut.....	0	0	0	2	0	0	0	0	0	0	0	0	2	0	10,000	10,000
New York.....	0	2	5	0	0	0	0	0	0	0	0	0	7	0	38,500	38,500
New Jersey.....	1	0	0	4	4	0	0	0	0	0	0	0	9	78,800	13,600	92,400
Pennsylvania.....	2	4	35	35	19	6	8	4	1	0	0	0	114	868,900	450,450	1,319,350
Delaware.....	1	0	1	2	0	0	1	0	0	0	0	0	5	30,000	20,000	50,000
West Virginia.....	0	3	0	3	0	0	0	0	0	0	0	0	6	0	22,000	22,000
Ohio.....	1	0	6	0	0	1	0	0	0	0	0	0	8	10,000	51,100	61,100
Indiana.....	1	0	7	6	1	0	0	0	0	0	1	0	16	40,000	54,700	94,700
Illinois.....	0	0	0	1	0	1	0	0	0	0	0	0	2	46,200	6,000	52,200
Michigan.....	0	1	2	0	0	0	0	0	0	0	0	0	3	0	11,100	11,100
Wisconsin.....	1	0	4	1	1	0	0	0	0	0	0	0	7	0	67,000	67,000
Kansas.....	1	0	0	0	0	0	0	0	0	0	0	0	1	0	250	250
Total	9	10	66	56	25	8	10	4	1	0	1	0	190	1,133,550	777,250	1,910,800

NUMBER AND CAPACITY OF BUILDING OPEN HEARTH STEEL FURNACES, DECEMBER 31, 1913.

States.	Number of building acid and basic furnaces.										Annual capacity—Gross tons.				
	5 less 10 tons.	10 less 20 tons.	20 less 30 tons.	30 less 40 tons.	40 less 50 tons.	50 less 60 tons.	60 less 70 tons.	70 less 80 tons.	80 less 90 tons.	90 less 100 tons.	100 and over.	Total.	Ingots.	Cast-ings.	Total.
New York....	0	0	0	0	0	0	0	0	8	0	8		375,000	0	375,000
Pennsylvania.	0	0	0	4	0	0	0	0	0	2	6		195,000	0	195,000
Dist. of Col....	1	0	0	0	0	0	0	0	0	0	1		0	2,500	2,500
Ohio.....	0	0	0	0	2	17	0	0	0	0	19		980,000	0	980,000
Indiana.....	0	0	0	0	0	0	0	2	0	0	2		75,000	0	75,000
Illinois.....	0	0	1	0	0	0	0	0	0	0	1		0	13,500	13,500
Minnesota.....	0	0	0	0	0	10	0	0	0	0	10		500,000	0	500,000
Colorado.....	0	0	0	3	0	0	0	0	0	0	3		105,000	0	105,000
Washington...	0	1	0	0	0	0	0	0	0	0	1		0	3,000	3,000
Total.....	1	1	1	7	2	27	2	8	2	2	51		2,230,000	19,000	†2,249,000

* Includes one acid furnace (in the District of Columbia) of 5 but less than 10 tons capacity and 50 basic furnaces.

† Includes 2,500 tons of acid castings and 2,246,500 tons of basic ingots and castings.

In New York, 8 furnaces were being added to an existing plant; in Pennsylvania, 2 furnaces were being added to an existing plant and 4 furnaces were being built by a new plant; in the District of Columbia, one furnace was being built by a new plant; in Ohio, 2 furnaces were being added to an existing plant and 17 furnaces were being built by 3 new plants; in Indiana, 2 furnaces were being built by a new plant; in Illinois, one furnace was being added to an existing plant; in Minnesota, 10 furnaces were being built by a new plant; in Washington, the construction of one furnace was commenced by a new plant some time ago but work upon it had been suspended for some time; and in Colorado, 3 furnaces were being added to an existing plant.

NUMBER AND CAPACITY OF COMPLETED BESSEMER STEEL CONVERTERS, DECEMBER 31, 1913.

The following table gives the number of completed Bessemer steel converters in the United States on December 31, 1913. In Pennsylvania, 3 plants use 5 converters for desilicizing and decarburizing molten metal, and in Alabama one plant uses 2 converters for the same purpose.

CAPACITY OF COMPLETED BESSEMER STEEL CONVERTERS IN THE UNITED STATES, DECEMBER 31, 1913.

States.	Standard Bessemer.				Tropenas.				Other Bessemer.				Total converters and capacity.						
	No. and capacity of converters.			Annual capacity.	No. & cap.	Annual capacity.			No. & cap.	Annual capacity.	No. and capacity of converters.						Total annual capacity.	Total.	
	Number of plants.	Less 5 tons.	5 less 10.	10 less 15.	15 less 20.	20 less 25.	25 and over.	Ingot.	Castings.	Total.	Less 5 tons.	5 less 10.	10 less 15.	15 less 20.	20 less 25.	25 and over.	Ingot.	Castings.	Total.
Mass.	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,275	2,275
Conn.	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,300	1,300
New York.	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9,500	9,500
New Jersey.	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	31,600	31,600
Penn.	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28,100	28,100
Delaware.	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,469,000	3,469,000
Maryland.	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13,000	13,000
Dist. of Col.	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	436,500	436,500
Virginia.	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	600	600
West Virginia.	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,200	1,200
Kentucky.	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	445,800	445,800
Tennessee.	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	150,000	150,000
Louisiana.	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,850	1,850
Texas.	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,850	1,850
Alabama.	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ohio.	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17,200	17,200
Indiana.	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	150	150
Illinois.	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22,300	22,300
Michigan.	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16,200	16,200
Wisconsin.	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15,850	15,850
Minnesota.	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,900	2,900
Iowa.	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,200	1,200
Missouri.	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9,000	9,000
Oklahoma.	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,800	1,800
Colorado.	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	600,000	600,000
Utah.	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	700	700
Oregon.	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,400	2,400
Washington.	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,300	3,300
California.	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4,200	4,200
Panama.	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,000	3,000
Total.	107	4	11	33	11	7	2	68	103,175	103,175	45	1	46	700	90,950	91,650	12,224,250	194,325	12,418,575

CAPACITY OF BUILDING BESSEMER STEEL CONVERTERS IN THE UNITED STATES,
DECEMBER 31, 1913.

States—Gross tons.	Standard Bessemer.				Trépanas.				Other Bessemer.				Total converters and capacity.							
	No. and capacity of converters.		Annual capacity.		No. and capacity of converters.		Annual capacity.		No. and capacity of converters.		Annual capacity.		No. and capacity of converters.		Annual capacity.					
	20 to 25 tons.	To- tal.	In- gots. inga. tal.	Cast- inga. tal.	To- tal.	Less than 5 tons.	To- tal.	In- gots. inga. tal.	Cast- inga. tal.	To- tal.	Less than 5 tons.	To- tal.	In- gots. inga. tal.	Cast- inga. tal.	To- tal.	Less than 5 tons.	To- tal.			
Pennsylvania.....	*1	*0	*0	*0	+2	+2	0	4,700	4,700	1	1	0	3,000	3,000	3	1	4	0	8,300	8,300
Ohio.....	0	0	0	0	1	1	0	2,000	2,000	0	0	0	0	0	1	0	1	0	2,000	2,000
Michigan.....	0	0	0	0	0	0	0	0	0	1	1	0	1,200	1,200	1	0	1	0	1,200	1,200
Washington.....	0	0	0	0	0	0	0	0	0	†1	†1	0	1,200	1,200	1	0	1	0	1,200	1,200
Total.....	*1	*0	*0	*0	†3	†3	0	6,700	6,700	†3	†3	0	6,000	6,000	6	1	7	0	12,700	12,700

* To be used for duplexing.

† Includes 1 partly-erected converter.

‡ Partly-erected converter.

* To be used for duplexing.

† Includes 1 partly-erected converter.

‡ Partly-erected converter.

ANNUAL CAPACITY OF CRUCIBLE STEEL FURNACES,
DECEMBER 31, 1913.

States.	No. of plants.	Number of completed furnaces.	Number of pots used single heat.	Annual capacity—Gross tons.		
				Ingots.	Castings.	Total.
Massachusetts.....	7	19	146	0	1,750	1,750
Connecticut.....	3	6	88	4,900	900	5,800
New York.....	6	24	514	34,625	600	35,225
New Jersey.....	7	18	314	11,850	2,990	14,840
Pennsylvania.....	29	119	2,478	155,750	5,330	161,080
West Virginia.....	1	2	54	7,500	0	7,500
Tennessee.....	1	3	48	0	1,500	1,500
Texas.....	1	2	8	0	125	125
Ohio.....	10	33	248	0	5,900	5,900
Indiana.....	3	11	66	0	830	830
Illinois.....	3	11	108	5,400	1,130	6,530
Michigan.....	9	40	222	0	5,850	5,850
Wisconsin.....	10	59	268	0	9,650	9,650
Minnesota.....	2	10	60	0	1,300	1,300
Missouri.....	1	4	96	0	500	500
Iowa.....	2	8	48	0	2,100	2,100
Oregon.....	1	1	8	0	360	360
California.....	3	9	42	0	1,150	1,150
Total.....	99	379	4,816	220,025	41,965	261,990

ANNUAL CAPACITY OF ELECTRIC STEEL FURNACES.

The following table gives the number of plants in the United States on December 31, 1913, which were equipped with electric furnaces for the manufacture of steel ingots or castings; also the number of completed electric steel furnaces on the same date and their annual capacity. Electric furnaces used for melting ferro-alloys, etc., are not included.

States.	Number of plants.	Number of furnaces.	Annual capacity, double turn, gross tons.
Massachusetts.....	1	1	25,000
New York.....	3	5	7,400
New Jersey.....	2	2	6,500
Pennsylvania.....	4	4	13,900
Illinois.....	2	2	30,800
Michigan.....	1	3	4,000
Wisconsin.....	1	1	3,000
Washington.....	1	1	5,000
California.....	1	1	1,800
Total.....	16	20	97,400

METAL MIXERS.

NUMBER AND CAPACITY OF COMPLETED METAL MIXERS,
DECEMBER 31, 1913.

States.	100 tons.	150 tons.	200 tons.	230 tons.	250 tons.	300 tons.	400 tons.	425 tons.	450 tons.	500 tons.	600 tons.	1,000 tons.	Total.
New York	0	0	0	0	1	2	0	0	0	0	1	0	4
Penna.....	0	2	3	2	9	5	4	0	0	2	0	1	28
Maryland...	2	0	0	0	0	0	0	0	0	0	0	0	2
West Va....	0	0	0	0	1	0	0	0	0	0	0	0	1
Alabama...	0	0	0	0	1	0	0	0	0	0	1	0	2
Ohio.....	0	0	4	0	8	1	0	1	1	0	1	0	16
Indiana....	0	0	0	0	0	3	2	0	0	0	0	0	5
Illinois.....	0	1	0	0	5	3	0	0	0	0	0	0	9
Colorado....	0	0	0	0	3	0	0	0	0	0	0	0	3
Total.....	2	3	7	2	28	14	6	1	1	2	3	1	70

NUMBER AND CAPACITY OF BUILDING METAL MIXERS,
DECEMBER 31, 1913.

States.	150 tons.	400 tons.	500 tons.	600 tons.	800 tons.	1,000 tons.	Total.
Pennsylvania.....	1	1	1	0	1	0	4
Maryland.....	0	0	0	0	0	1	1
Ohio.....	0	0	0	0	0	1	1
Minnesota.....	0	0	0	1	0	0	1
Total.....	1	1	1	1	1	2	7

NUMBER AND TOTAL CAPACITY OF COMPLETED AND BUILDING
METAL MIXERS, DECEMBER 31, 1913.

States.	Completed mixers.		Building mixers.		Completed and building mixers.	
	Number	Capacity. Gross tons.	Number.	Capacity. Gross tons.	Number.	Capacity. Gross tons.
New York.....	4	1,450	0	0	4	1,450
Pennsylvania.....	28	8,710	4	1,850	32	10,560
Maryland.....	2	200	1	1,000	3	1,200
West Virginia....	1	250	0	0	1	250
Alabama.....	2	850	0	0	2	850
Ohio.....	16	4,575	1	1,000	17	5,575
Indiana.....	5	1,700	0	0	5	1,700
Illinois.....	9	2,300	0	0	9	2,300
Minnesota.....	0	0	1	600	1	600
Colorado.....	3	750	0	0	3	750
Total.....	70	20,785	7	4,450	77	25,235

ROLLED IRON AND STEEL.

The production of all kinds of iron and steel rolled into finished forms in 1913, (including blooms, billets, and axle blanks rolled for forging purposes and semi-finished products which were rolled for export in that year,) amounted to 24,791,243 gross tons, against 24,656,841 tons in 1912, an increase of 134,402 tons, or a little over one-half of one per cent.

TOTAL PRODUCTION OF ALL KINDS OF FINISHED ROLLED IRON AND STEEL, 1887-1913.

Years.	Iron and steel rails. Gross tons.	Plates and sheets, except nail plate.	Wire rods. Gross tons.	Structural shapes, not including plates.	Nail plate. Gross tons.	Bars, skelp, and all other forms.	Total. Gross tons.
1887...	2,139,640	603,355	.....	.....	308,432	2,184,279	5,235,706
1888...	1,403,700	609,827	279,769	.....	289,891	2,034,162	4,617,349
1889...	1,522,204	716,496	363,851	.....	259,409	2,374,968	5,236,928
1890...	1,885,307	809,981	457,099	.....	251,828	2,618,660	6,022,875
1891...	1,307,176	678,927	536,607	.....	223,312	2,644,941	5,390,963
1892...	1,551,844	751,460	627,829	453,957	201,242	2,579,482	6,165,814
1893...	1,136,458	674,345	537,272	387,307	136,113	2,104,190	4,975,685
1894...	1,021,772	682,900	673,402	360,305	108,262	1,795,570	4,642,211
1895...	1,306,135	991,459	791,130	517,920	95,085	2,487,845	6,189,574
1896...	1,122,010	965,776	623,986	495,571	72,137	2,236,361	5,515,841
1897...	1,647,892	1,207,286	970,736	583,790	94,054	2,497,970	7,001,728
1898...	1,981,241	1,448,301	1,071,683	702,197	70,188	3,239,760	8,513,370
1899...	2,272,700	1,903,505	1,036,398	850,376	85,015	4,146,425	10,294,419
1900...	2,385,682	1,794,528	846,291	815,161	70,245	3,575,536	9,487,443
1901...	2,874,639	2,254,425	1,365,934	1,013,150	68,850	4,772,329	12,349,327
1902...	2,947,933	2,665,409	1,574,293	1,300,326	72,936	5,383,219	13,944,116
1903...	2,992,477	2,599,665	1,503,455	1,095,813	64,102	4,952,185	13,207,697
1904...	2,284,711	2,421,398	1,699,028	949,146	61,601	4,597,497	12,013,381
1905...	3,375,929	3,532,230	1,808,688	1,660,519	64,542	6,398,107	16,840,015
1906...	3,977,887	4,182,156	1,871,614	2,118,772	54,211	7,383,828	19,588,468
1907...	3,633,654	4,248,832	2,017,583	1,940,352	52,027	7,972,374	19,864,822
1908...	1,921,015	2,649,693	1,816,949	1,083,181	45,747	4,311,608	11,828,193
1909...	3,023,845	4,234,346	2,335,685	2,275,562	63,746	7,711,506	19,644,690
1910...	3,636,031	4,955,484	2,241,830	2,266,890	45,294	8,475,750	21,621,279
1911...	2,822,790	4,488,049	2,450,453	1,912,367	48,522	7,316,990	19,039,171
1912...	3,327,915	5,875,080	2,653,553	2,846,487	45,331	9,908,475	24,656,841
1913...	3,502,780	5,751,037	2,464,807	3,004,972	37,503	10,030,144	24,791,243

Rolled blooms and billets for forging purposes are included from 1905, while semi-finished products rolled for export are included for 1912 and 1913 only. Prior to 1892 structural shapes were grouped with bars, hoops, etc.

**PRODUCTION OF ALL KINDS OF FINISHED ROLLED IRON AND
STEEL BY STATES, 1909-1913.**

States.	1909.	1910.	1911.	1912.	1913.
Me. and Mass.....	169,855	171,782	157,448	193,401	178,782
R. I. and Conn....	120,922	121,065	73,788	81,410	78,604
New York.....	851,465	1,013,768	768,763	1,034,071	1,036,606
New Jersey.....	188,256	165,057	154,563	175,143	194,153
Pennsylvania.....	9,685,298	10,774,531	9,426,827	12,254,040	12,195,709
Delaware and Va.	38,392	36,806	30,487	32,888	35,594
Maryland.....	324,173	307,837	264,222	284,617	324,091
West Virginia....	455,949	405,925	472,177	591,333	561,535
Ky. and N. Car....	155,006	173,653	115,370	115,264	140,494
Tenn., Ga., Tex.	60,986	61,497	71,779	77,473	74,074
Alabama.....	257,972	426,471	356,609	532,247	540,171
Ohio.....	3,174,908	3,228,223	3,382,063	4,330,487	4,259,813
Indiana.....	965,621	1,310,645	1,156,411	1,873,906	2,135,962
Illinois.....	2,378,500	2,547,662	1,939,350	2,253,664	2,248,638
Michigan.....	56,735	62,398	26,914	28,737	41,324
Wisconsin.....	264,369	242,777	121,371	218,254	209,325
Missouri.....	79,691	84,320	68,961	82,883	73,496
Kan., Col., Wash.	364,495	437,685	407,314	438,622	409,789
Wy., Ore., & Cal.	52,097	49,177	44,754	58,401	53,083
Total.....	19,644,690	21,621,279	19,039,171	24,656,841	24,791,243

**PRODUCTION OF ALL KINDS OF FINISHED ROLLED IRON AND
STEEL IN PENNSYLVANIA AND OHIO BY DISTRICTS, 1909-1913.**

Districts—Gross tons.	1909.	1910.	1911.	1912.	1913.
Philadelphia Co.....	83,272	111,884	82,331	97,292	107,195
Lehigh Valley.....	449,873	442,723	512,085	584,919	629,581
Schuylkill Valley...	717,712	790,887	666,293	797,599	769,037
Eastern Penna.....	351,453	404,209	333,761	423,444	469,046
Upper Susq. Valley.	131,091	154,777	159,623	180,795	194,042
Lower Susq. Valley.	544,451	616,063	576,871	588,137	596,620
Juniata Valley.....	59,881	68,510	54,460	77,277	78,278
Allegheny County..	5,140,858	5,677,537	4,504,152	6,015,105	6,023,785
Shenango Valley....	494,713	618,312	648,201	1,171,866	1,076,358
Western Penna.....	1,711,994	1,889,629	1,889,050	2,317,606	2,251,767
Total for Penna.	9,685,298	10,774,531	9,426,827	12,254,040	12,195,709
Mahoning Valley...	1,146,001	1,287,328	1,287,177	1,766,962	1,711,053
Lake Counties.....	1,162,870	1,101,489	1,119,336	1,321,395	1,376,065
Hanging Rock	402,689	491,448	489,168	646,181	637,537
Interior Counties....					
Ohio River Counties	463,348	347,958	486,382	595,949	535,158
Total for Ohio....	3,174,908	3,228,223	3,382,063	4,330,487	4,259,813

Comparing 1913 with 1909, the increase in Pennsylvania was 25.9 per cent., while in Ohio it was 34.1 per cent.

PRODUCTION OF FINISHED ROLLED IRON AND STEEL BY LEADING ARTICLES, 1913.

The following table gives the production of all forms of finished rolled steel in 1913 and prior years, as compared with the production of all forms of finished rolled iron for the same period. Rolled forging blooms and billets are included from 1905 to 1913, and semi-finished products rolled for export for 1912 and 1913. In early years rolled iron was separated from rolled steel, but in 1891 this separation was discontinued and was not resumed until 1904.

Articles—Gross tons.	1913—Gross tons.		
	Iron.	Steel.	Total.
Rails.....	.....	3,502,780	3,502,780
Plates and sheets.....	64,729	5,686,308	5,751,037
Nail and spike plate.....	5,044	32,459	37,503
Wire rods.....	832	2,463,975	2,464,807
Structural shapes.....	3,841	3,001,131	3,004,972
Merchant bars.....	1,026,632	2,930,977	3,957,609
Bars for reinforced concrete work.....	113	319,557	319,670
Skelp, flue, etc.....	312,746	2,189,218	2,501,964
Long angle splice bars, tie-plate bars, etc.	46,574	639,816	686,390
Hoops.....	.....	280,886	280,886
Bands and cotton-ties.....	.....	499,660	499,660
Rolled sheet piling, not incl'd'ng fabricated.	.....	46,289	46,289
Railroad ties.....	.....	44,244	44,244
All other finished rolled products.....	217,343	850,101	1,067,444
Rolled forging blooms, forging billets, etc..	403	536,807	537,210
Exports of blooms, billets, sheet bars, etc...	.....	88,778	88,778
Total for 1913.....	1,678,257	23,112,986	24,791,243
Total for 1912.....	1,637,582	23,019,259	24,656,841
Total for 1911.....	1,460,615	17,578,556	19,039,171
Total for 1910.....	1,740,156	19,881,123	21,621,279
Total for 1909.....	1,709,431	17,935,259	19,644,690
Total for 1908.....	1,238,449	10,589,744	11,828,193
Total for 1907.....	2,200,086	17,664,736	19,864,822
Total for 1906.....	2,186,557	17,401,911	19,588,468
Total for 1905.....	2,059,990	14,780,025	16,840,015
Total for 1904.....	1,760,084	10,253,297	12,013,381

In addition to the 46,289 tons of rolled sheet piling above reported there were produced by rolling mills and steel works in 1913 about 13,463 tons of fabricated sheet piling.

PRODUCTION OF FINISHED ROLLED FORMS BY STATES, 1912-1913, SHOWING SEPARATELY IRON AND STEEL.

States.	1912—Gross tons.			1913—Gross tons.		
	Iron.	Steel.	Total.	Iron.	Steel.	Total.
Me. and Mass...	18,026	175,375	193,401	20,459	158,323	178,782
R. I. and Conn.	15,043	66,367	81,410	20,880	57,724	78,604
New York.....	84,523	949,548	1,034,071	75,705	960,901	1,036,606
New Jersey.....	36,960	138,183	175,143	39,225	154,928	194,153
Pennsylvania...	735,008	11,519,032	12,254,040	758,683	11,437,026	12,195,709
Del. and Va.....	18,299	14,589	32,888	20,334	15,260	35,594
Maryland.....	.....	284,617	284,617	2,700	321,391	324,091
West Virginia..	3,584	587,749	591,333	2,126	559,409	561,535
Ky., Tenn., N. C., Ga., Tex. }	44,146	148,591	192,737	46,804	167,764	214,568
Alabama.....	2,523	529,724	532,247	2,200	537,971	540,171
Ohio.....	224,822	4,105,665	4,330,487	198,859	4,060,954	4,259,813
Indiana.....	222,613	1,651,293	1,873,906	224,380	1,911,582	2,135,962
Illinois.....	99,979	2,153,685	2,253,664	130,276	2,118,362	2,248,638
Mich. and Wis.	11,194	235,797	246,991	25,564	225,085	250,649
Missouri.....	68,582	14,301	82,883	63,174	10,322	73,496
Kan., Col., and Washington.. }	17,283	421,339	438,622	21,080	388,709	409,789
California.....	34,997	23,404	58,401	25,808	27,275	53,083
Total.....	1,637,582	23,019,259	24,656,841	1,678,257	23,112,986	24,791,243

Of the total production in 1913, about 93.2 per cent. was rolled from steel, as compared with about 93.4 per cent. rolled from steel in 1912.

Pennsylvania made about 49.2 per cent. of the total rolled production in 1913, against about 49.7 per cent. in 1912; Ohio made about 17.2 per cent. in 1913, against about 17.6 per cent. in 1912; Illinois made about 9 per cent. in 1913, against about 9.1 per cent. in 1912; and Indiana made about 8.6 per cent. in 1913, against about 7.6 per cent. in 1912. These 4 States made over 84 per cent. of the total rolled production in 1913, as compared with the same percentage in 1912. No other State made 5 per cent. of the total output of rolled iron or steel in 1912 or 1913.

In 1913 there were 379 plants in 28 States which rolled finished forms of iron or steel, as compared with 373 plants in 27 States in 1912. One State—North Carolina—rolled iron products only in 1913, and 3 States—Delaware, Wisconsin, and Kansas—rolled steel products only in that year. All the other States named in the table rolled both iron and steel products in 1913.

PRODUCTION OF RAILS.

PRODUCTION OF RAILS BY PROCESSES, IN GROSS TONS,
1897-1913.

Years.	Open-hearth steel.	Bessemer steel.	Rerolled steel.	Electric steel.	Iron.	Total.
1897	500	1,644,520	Included with Bessemer and open-hearth steel rails from 1897 to 1910 inclusive.	.....	2,872	1,647,892
1898	1,220	1,976,702		.....	3,319	1,981,241
1899	523	2,270,585		.....	1,592	2,272,700
1900	1,333	2,383,654		.....	695	2,385,682
1901	2,093	2,870,816		.....	1,730	2,874,639
1902	6,029	2,935,392		.....	6,512	2,947,933
1903	45,054	2,946,756		.....	667	2,992,477
1904	145,883	2,137,957		.....	871	2,284,711
1905	183,264	3,192,347		.....	318	3,375,929
1906	186,413	3,791,459		.....	15	3,977,887
1907	252,704	3,380,025		.....	925	3,633,654
1908	571,791	1,349,153		.....	71	1,921,015
1909	1,256,674	1,767,171		†	none.	3,023,845
1910	1,751,359	1,884,442		†	230	3,636,031
1911	1,676,923	1,053,420	*91,751	462	234	2,822,790
1912	2,105,144	1,099,926	*119,390	3,455	none.	3,327,915
1913	2,527,710	817,591	*155,043	2,436	none.	3,502,780

* Rerolled from old steel rails and renewed rails which the manufacturers could not classify as Bessemer or open-hearth. † Small tonnages rolled in 1909 and 1910 but included with Bessemer and open-hearth rails for these years.

Of the total production in 1913 about 72.16 per cent. was rolled from open-hearth steel, about 23.34 per cent. from Bessemer steel, and about 4.50 per cent. from electric steel, old steel rails, and renewed rails.

PRODUCTION OF RAILS BY STATES, 1910-1913.

States—Gross tons. All kinds of rails.	1910.	1911.	1912.	1913.
New York, New Jersey, and Md.....	711,975	490,980	585,817	654,207
Pennsylvania	986,702	839,663	888,672	971,820
West Virginia, Alabama, and Ohio	496,716	447,905	622,121	657,912
Ind., Ill., Wis., Kan., Col., Wash., Cal.	1,440,638	1,044,242	1,231,305	1,218,841
Total	3,636,031	2,822,790	3,327,915	3,502,780

The production of all kinds of rails in 1913 amounted to 3,502,780 tons, against 3,327,915 tons in 1912, an increase of 174,865 tons, or over 5.2 per cent. Included in the total for 1913 are 195,659 tons of girder and high T steel rails for electric and street railways, against 174,004 tons in 1912 and 205,409 tons in 1911. The maximum production of

rails was reached in 1906, when 3,977,887 tons were rolled.

Of the total production of rails in 1913, 3,303,944 tons were rolled from open-hearth, Bessemer, and electric steel blooms or billets, against 3,165,939 tons in 1912; 43,793 tons were rolled from new seconds, defective new rails, and steel crop ends, against 42,586 tons in 1912; and 155,043 tons were rerolled from old steel rails or were renewed steel rails, against 119,390 tons in 1912.

PRODUCTION OF RAILS BY PROCESSES AND STATES, 1913.

States—Gross tons. All kinds of rails.	Open-hearth rails. Gross tons.	Bessemer rails. Gross tons.	Electric, renewed, and rerolled old steel rails.	Total. Gross tons.
New York, New Jersey, and Md....	416,212	202,329	35,666	654,207
Pennsylvania.....	618,795	326,819	26,206	971,820
West Virginia, Alabama, and Ohio.	632,858	none	25,054	657,912
Ind., Ill., Wis., Kan., Col., and Wash.	859,845	288,443	70,553	1,218,841
Total for 1913.....	2,527,710	817,591	157,479	3,502,780
Total for 1912.....	2,105,144	1,099,926	122,845	3,327,915

Twenty-five works in 13 States rolled or rerolled rails in 1913, as compared with 24 works in 12 States in 1912.

PRODUCTION OF RAILS BY WEIGHT PER YARD, 1897-1913.

Years—Gross tons.	Under 45 pounds per yard.	45 pounds and less than 85.	85 pounds and over per yard.	Total. Gross tons.
1897.....	88,896	1,223,435	335,561	1,647,892
1898.....	123,881	1,404,150	453,210	1,981,241
1899.....	133,836	1,559,340	579,524	2,272,700
1900.....	157,531	1,626,093	602,058	2,385,682
1901.....	155,406	2,225,411	493,822	2,874,639
1902.....	261,887	2,040,884	645,162	2,947,933
1903.....	221,262	1,603,088	1,168,127	2,992,477
1904.....	291,883	1,320,677	672,151	2,284,711
1905.....	228,252	1,601,624	1,546,053	3,375,929
1906.....	284,612	1,749,650	1,943,625	3,977,887
1907.....	295,838	1,569,985	1,767,831	3,633,654
1908.....	183,869	687,632	1,049,514	1,921,015
1909.....	255,726	1,024,856	1,743,263	3,023,845
1910.....	260,709	1,275,339	2,099,983	3,636,031
1911.....	218,758	1,067,696	1,536,336	2,822,790
1912.....	248,672	1,118,592	1,960,651	3,327,915
1913.....	*270,405	†967,313	2,265,062	3,502,780

* Includes rails under 50 pounds. † Includes 50 pounds and less than 85 pounds.

The rail classification by weight per yard was slightly changed in 1913. Girder and high T steel rails for electric and street railways are included.

PRODUCTION OF RAILS BY WEIGHT PER YARD AND PROCESSES, 1913.

Kinds of rails—Gross tons.	Under 50 pounds.	50 pounds and less than 85.	85 pounds and over.	Total. Gross tons.
Open-hearth steel rails.....	80,761	470,810	1,976,139	2,527,710
Bessemer steel rails.....	110,795	433,372	273,424	817,591
Other steel rails	78,793	63,100	13,150	155,043
Electric steel rails.....	56	31	2,349	2,436
Iron rails.....	None.	None.	None.	None.
Total.....	270,405	967,313	2,265,062	3,502,780

In 1913 nearly 29.9 per cent. of the rails weighing less than 50 pounds to the yard, nearly 48.7 per cent. of the rails weighing 50 pounds and less than 85 pounds, and over 87.2 per cent. of the rails weighing 85 pounds and over were rolled from open-hearth steel, while in the same year nearly 41 per cent. of the rails weighing less than 50 pounds to the yard, over 44.8 per cent. of the rails weighing 50 pounds and less than 85 pounds, and nearly 12.1 per cent. of the rails weighing 85 pounds and over were rolled from Bessemer steel. In addition in 1913 over 29.1 per cent. of the rails weighing less than 50 pounds to the yard, over 6.5 per cent. of the rails weighing 50 pounds and less than 85 pounds, and less than 1 per cent. of the rails weighing 85 pounds and over were rolled from electric ingots and old steel rails or were renewed rails.

PRODUCTION OF OPEN HEARTH STEEL RAILS BY STATES, 1908-1913.

States—Gross tons.	1908.	1909.	1910.	1911.	1912.	1913.
N. Y., N. J., and Pa.	184,059	335,856	445,139	579,924	712,056	924,445
Md., Ala., and Ohio.....	251,956	344,842	570,878	509,950	600,113	743,420
Ind., Ill., Wis., Col., and California.....	135,776	575,976	735,342	587,049	792,975	859,845
Total.....	571,791	1,256,674	1,751,359	1,676,923	2,105,144	2,527,710

The production of open-hearth steel rails in 1913 shows an increase of 422,566 tons over 1912, or over 20 per cent. Of the total in 1913, 2,514,658 tons were rolled from ingots

and 13,052 tons were rolled from new seconds, defective new rails, crop ends, etc. Almost all were rolled from basic steel.

There were 15 works in 9 States in 1913 which produced open-hearth rails, as follows: New York, 1; Pennsylvania, 5; Maryland, 1; Alabama, 2; Ohio, 2; Indiana, 1; Illinois, 1; Wisconsin, 1; and Colorado, 1; against 16 works in 9 States in 1912. Pennsylvania was the largest maker of open-hearth rails in 1911, 1912, and 1913. In 1909 and 1910 Indiana was the largest maker of open-hearth rails, but in 1907 and 1908 Alabama was the largest maker of rails of this kind.

PRODUCTION OF BESSEMER STEEL RAILS BY STATES IN GROSS TONS, 1908-1913.

States.	1908.	1909.	1910.	1911.	1912.	1913.
N.Y., N.J. & Md.	386,730	586,193	568,353	284,230	367,128	202,329
Pennsylvania....	315,547	553,719	591,473	352,331	343,837	326,819
West Va., Ala., Ohio, Ind., and Illinois...	576,040	627,259	724,616	416,859	388,961	288,443
Wis., Col., Cal., and Wash.....	70,836					
Total.....	1,349,153	1,767,171	1,884,442	1,053,420	1,099,926	817,591

The production of Bessemer steel rails in 1913 shows a decrease from 1912 of 282,335 tons, or over 25.6 per cent. Of the total in 1913, 786,850 tons were rolled from ingots and 30,741 tons were rolled from new seconds, defective new rails, crop ends, etc. Pennsylvania was the largest maker of Bessemer rails in 1913, but Illinois was the largest maker in 1908, 1909, 1910, 1911, and 1912. The maximum production of Bessemer rails was reached in 1906, when 3,791,459 tons were made. Bessemer rails were rolled by 8 works in 5 States in 1913, against 10 works in 7 States in 1912.

PRODUCTION OF REROLLED OR RENEWED STEEL RAILS.

In 1913 the production of steel rails rolled from new seconds, defective new rails, crop ends, old steel rails, etc., including renewed rails, amounted to 198,836 tons, against 161,976 tons in 1912. Of the total in 1913, 43,793 tons were rolled from new seconds, etc., against 42,586 tons in 1912, and 155,043 tons were renewed rails or were rerolled from old steel rails, against 119,390 tons in 1912.

**PRODUCTION OF ALLOY TREATED STEEL RAILS BY PROCESSES,
1909-1913.**

Alloy rails—Gross tons.	Open-hearth and electric.	Bessemer.	Total.
Titanium steel rails.....	30,653	17,002	47,655
Manganese, copper, and nickel.....	2,914	8,950	11,864
Total for 1913	33,567	25,952	59,519
Total for 1912	40,393	108,874	149,267
Total for 1911	38,539	115,450	153,989
Total for 1910	27,389	229,935	257,324
Total for 1909	13,696	35,699	49,395

**PRODUCTION OF ALLOY TREATED STEEL RAILS BY WEIGHT
PER YARD, 1909-1913.**

Alloy rails—Gross tons.	Under 45 pounds.	45 pounds and less than 85.	85 pounds and over.	Total.
Titanium steel rails.....	75	9,017	38,563	47,655
Mang., copper, and nickel	16	397	11,451	11,864
Total for 1913	* 91	† 9,414	50,014	59,519
Total for 1912	21	5,426	143,820	149,267
Total for 1911 .....	.....	27,097	126,892	153,989
Total for 1910 .....	.....	70,170	187,154	257,324
Total for 1909 .....	.....	9,132	40,263	49,395

* Includes rails under 50 pounds. † Includes 50 pounds and less than 85 pounds.

**PRODUCTION OF ALLOY TREATED STEEL RAILS BY STATES,
1909-1913.**

Alloy rails—Gross tons.	1909.	1910.	1911.	1912.	1913.
New York, N. J., & Pa..	46,759	191,265	91,304	54,767	11,107
Md., Ohio, Ind., and Ill.	2,636	66,059	62,685	94,500	48,412
Total.....	49,395	257,324	153,989	149,267	59,519

**PRODUCTION OF ALLOY TREATED STEEL RAILS BY ALLOYS,
1909-1913.**

Alloy rails—Gross tons.	1909.	1910.	1911.	1912.	1913.
Titanium steel rails....	35,945	256,759	152,990	141,773	47,655
Mang., cop., nickel, etc.	13,450	565	999	7,494	11,864
Total.....	49,395	257,324	153,989	149,267	59,519

APPROXIMATE CONSUMPTION OF RAILS, 1874-1913.

Years. Gross tons.	Production—Gross tons.			Add imports.	Deduct exports.	Approximate consumption.
	Iron.	Steel.	Total.			
1874.....	521,848	129,414	651,262	96,706	1,122	746,846
1875.....	447,901	259,699	707,600	17,364	1,080	723,884
1876.....	417,114	368,269	785,383	256	3,180	782,459
1877.....	296,911	385,865	682,776	31	6,647	676,160
1878.....	288,295	499,817	788,112	9	8,354	779,767
1879.....	375,143	618,850	993,993	39,417	3,066	1,030,344
1880.....	440,859	864,353	1,305,212	259,543	958	1,563,797
1881.....	436,233	1,210,285	1,646,518	344,929	611	1,990,836
1882.....	203,459	1,304,392	1,507,851	200,113	3,220	1,704,744
1883.....	57,994	1,156,911	1,214,905	34,801	2,308	1,247,398
1884.....	22,821	999,367	1,022,188	2,829	6,034	1,018,983
1885.....	13,228	963,750	976,978	2,189	7,757	971,410
1886.....	21,142	1,579,395	1,600,537	41,587	2,644	1,639,480
1887.....	20,591	2,119,049	2,139,640	137,830	549	2,276,921
1888.....	12,725	1,390,975	1,403,700	63,037	6,908	1,459,829
1889.....	9,159	1,513,045	1,522,204	6,217	9,325	1,519,096
1890.....	13,882	1,871,425	1,885,307	204	16,947	1,868,564
1891.....	8,240	1,298,936	1,307,176	253	11,239	1,296,190
1892.....	10,437	1,541,407	1,551,844	347	7,982	1,544,209
1893.....	6,090	1,130,368	1,136,458	2,888	19,876	1,119,470
1894.....	4,674	1,017,098	1,021,772	300	13,556	1,008,516
1895.....	5,810	1,300,325	1,306,135	1,447	15,599	1,291,983
1896.....	4,347	1,117,663	1,122,010	7,796	73,131	1,056,675
1897.....	2,872	1,645,020	1,647,892	415	148,221	1,500,086
1898.....	3,319	1,977,922	1,981,241	200	301,903	1,679,538
1899.....	1,592	2,271,108	2,272,700	2,134	277,714	1,997,120
1900.....	695	2,384,987	2,385,682	1,448	361,619	2,025,511
1901.....	1,730	2,872,909	2,874,639	1,905	318,956	2,557,588
1902.....	6,512	2,941,421	2,947,933	63,522	67,666	2,943,789
1903.....	667	2,991,810	2,992,477	95,555	30,837	3,057,195
1904.....	871	2,283,840	2,284,711	37,776	416,250	1,906,237
1905.....	318	3,375,611	3,375,929	17,278	295,023	3,098,184
1906.....	15	3,977,872	3,977,887	4,943	328,036	3,654,794
1907.....	925	3,632,729	3,633,654	3,752	338,906	3,298,500
1908.....	71	1,920,944	1,921,015	1,719	196,510	1,726,224
1909.....	none.	3,023,845	3,023,845	1,542	299,540	2,725,847
1910.....	230	3,635,801	3,636,031	7,861	353,180	3,290,712
1911.....	234	2,822,556	2,822,790	3,414	420,874	2,405,330
1912.....	none.	3,327,915	3,327,915	3,780	446,473	2,885,222
1913.....	none.	3,502,780	3,502,780	10,408	460,553	3,052,635

PRODUCTION OF STRUCTURAL SHAPES.

PRODUCTION OF STRUCTURAL SHAPES, 1892-1913.

Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.
1892.....	453,957	1900.....	815,161	1908.....	1,083,181
1893.....	387,307	1901.....	1,013,150	1909.....	2,275,562
1894.....	360,305	1902.....	1,300,326	1910.....	2,266,890
1895.....	517,920	1903.....	1,095,813	1911.....	1,912,367
1896.....	495,571	1904.....	949,146	1912.....	2,846,487
1897.....	583,790	1905.....	1,660,519	1913.....	3,004,972
1898.....	702,197	1906.....	2,118,772	.....	.....
1899.....	850,376	1907.....	1,940,352	.....	.....

PRODUCTION OF STRUCTURAL SHAPES BY STATES, 1909-1913.

States—Gross tons.	1909.	1910.	1911.	1912.	1913.
New York and N. J..	177,483	1,853,407	1,565,457	122,773	141,690
Pennsylvania.....	1,642,074			2,050,844	2,133,605
Alabama and Ohio....	60,213	40,433	30,773	73,141	87,538
Ind., Ill., Mich., Wis., Col., and Cal.....	395,792	373,050	316,137	599,729	642,139
Total	2,275,562	2,266,890	1,912,367	2,846,487	3,004,972

Prior to 1912 the output of heavy structural shapes was not separated from the output of light structural shapes. In the statistics for 1910 and 1911 the production of small angles, small channels, and other similar light structural forms for use in the manufacture of bedsteads, safes, fences, etc., was not included in the total output of structural shapes, but was included for 1909 and some prior years.

The figures given for heavy structural shapes for 1912 and 1913 include all beams, tees, zee bars, angles, channels, etc., having one leg or web of 3 inches and over which were rolled for structural or fabricating purposes, while the figures given for light structural shapes include only such light shapes and small angles, etc., as were rolled for use in the manufacture of bedsteads, agricultural implements, fences, safes, vaults, or for other fabricating purposes having a section smaller than is provided for in the heavy structural classification. The production of iron and steel plates, girders made from plates, merchant bars, bars for reinforced concrete, sheet piling, etc., all of which are provided for elsewhere is not included in any of the figures given for structural shapes

PRODUCTION OF HEAVY AND LIGHT STRUCTURAL SHAPES BY STATES, 1913.

States—Gross tons.	Heavy shapes.	Light shapes.	Total.
New York, New Jersey, and Penna.....	2,028,320	246,975	2,275,295
Alabama and Ohio.....	15,092	72,446	87,538
Indiana, Illinois, Wis., Col., Mich., & Cal.	510,394	131,745	642,139
Total for 1913.....	2,553,806	451,166	3,004,972
Total for 1912.....	2,470,415	376,072	2,846,487

All the heavy structural shapes were rolled from steel.

In 1913 there were 40 works in 11 States which rolled heavy or light structural shapes, namely: New York, 2; New Jersey, 3; Pennsylvania, 21; Alabama, 1; Ohio, 3; Indiana, 3; Illinois, 3; Michigan, 1; Wisconsin, 1; Colorado, 1; and California, 1. In 1912 there were 40 works in 10 States which rolled heavy or light structural shapes. Pennsylvania made over 71 per cent. of the total production in 1913, against over 72 per cent. in 1912. The next largest producers in 1913 in the order of their prominence were Illinois, Indiana, New York, Wisconsin, Ohio, Alabama, California, New Jersey, Colorado, and Michigan.

APPROXIMATE ANNUAL CONSUMPTION OF STRUCTURAL SHAPES, 1900-1913.

Years. Gross tons.	Production of structural shapes.			Add imports.	Deduct exports.	Approximate con- sumption.
	Iron.	Steel.	Total.			
1900.....	815,161		815,161	*.....	67,714	747,447
1901.....	1,013,150		1,013,150	*.....	54,005	959,145
1902.....	1,300,326		1,300,326	*.....	53,859	1,246,467
1903.....	1,095,813		1,095,813	8,865	30,641	1,074,037
1904.....	8,019	941,127	949,146	7,203	55,514	900,835
1905.....	11,630	1,648,889	1,660,519	16,147	84,234	1,592,432
1906.....	4,719	2,114,053	2,118,772	28,573	112,555	2,034,790
1907.....	3,973	1,936,379	1,940,352	2,294	138,442	1,804,204
1908.....	2,423	1,080,758	1,083,181	3,623	116,881	969,923
1909.....	44,814	2,230,748	2,275,562	6,146	90,830	2,190,878
1910.....	426	2,266,464	2,266,890	14,897	146,721	2,135,066
1911.....	811	1,911,556	1,912,367	5,343	223,493	1,694,217
1912.....	5,517	2,840,970	2,846,487	3,120	288,164	2,561,443
1913.....	3,841	3,001,131	3,004,972	11,659	403,264	2,613,367

* Imports of structural shapes were included with ingots, billets, etc., prior to 1903.

† Do not include some small forms of rolled iron and steel which were classified as structural shapes in 1909 and prior years.

PRODUCTION OF WIRE RODS.

PRODUCTION OF WIRE RODS IN GROSS TONS, 1888-1913.

Years.	Tons.	Years.	Tons.	Years.	Tons.	Years.	Tons.
1888....	279,769	1895....	791,130	1902....	1,574,293	1909....	2,335,685
1889....	363,851	1896....	623,986	1903....	1,503,455	1910....	2,241,830
1890....	457,099	1897....	970,736	1904....	1,699,028	1911....	2,450,453
1891....	536,607	1898....	1,071,683	1905....	1,808,688	1912....	2,653,553
1892....	627,829	1899....	1,036,398	1906....	1,871,614	1913....	2,464,807
1893....	537,272	1900....	846,291	1907....	2,017,583	.....	.....
1894....	673,402	1901....	1,365,934	1908....	1,816,949	.....	.....

PRODUCTION OF WIRE RODS BY STATES, 1909-1913.

States—Gross tons.	1909.	1910.	1911.	1912.	1913.
Mass., R.I., N.Y., & N.J.	280,101	246,669	244,300	258,680	259,681
Pa., Ky., Ga., Ala., Ohio	1,388,237	1,412,352	1,585,973	1,806,720	1,645,182
Indiana, Illinois, & Col.	667,347	582,809	620,180	588,153	559,944
Total.....	2,335,685	2,241,830	2,450,453	2,653,553	2,464,807

Small quantities of steel copper-clad wire rods are included in the totals for recent years. It was necessary to estimate the output of one plant in 1913.

Iron or steel wire rods were rolled in 1913 by 37 works. In 1913 Pennsylvania rolled over 44.1 per cent. of the total production, against over 44.6 per cent. in 1912.

APPROXIMATE CONSUMPTION OF WIRE RODS, 1900-1913.

Years. Gross tons.	Production of wire rods.			Add imports.	Deduct exports.	Approximate consumption.
	Iron.	Steel.	Total.			
1900.....	1,929	844,362	846,291	21,092	10,652	856,731
1901.....	475	1,365,459	1,365,934	16,804	8,165	1,374,573
1902.....	206	1,574,087	1,574,293	21,382	24,613	1,571,062
1903.....	30	1,503,425	1,503,455	20,836	22,360	1,501,931
1904.....	1,166	1,697,862	1,699,028	15,313	20,073	1,694,268
1905.....	1,281	1,807,407	1,808,688	17,616	6,514	1,819,790
1906.....	1,201	1,870,413	1,871,614	17,799	5,895	1,883,518
1907.....	1,550	2,016,033	2,017,583	17,076	10,697	2,023,962
1908.....	509	1,816,440	1,816,949	11,209	7,412	1,820,746
1909.....	.....	2,335,685	2,335,685	10,544	20,142	2,326,087
1910.....	627	2,241,203	2,241,830	20,374	22,869	2,239,335
1911.....	610	2,449,843	2,450,453	15,483	22,641	2,443,295
1912.....	1,289	2,652,264	2,653,553	15,069	64,978	2,603,644
1913.....	832	2,463,975	2,464,807	16,098	61,637	2,419,268

PRODUCTION OF PLATES AND SHEETS.

PRODUCTION OF PLATES AND SHEETS, 1887-1913.

Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.
1887.....	603,355	1896.....	965,776	1905.....	3,532,230
1888.....	609,827	1897.....	1,207,286	1906.....	4,182,156
1889.....	716,496	1898.....	1,448,301	1907.....	4,248,832
1890.....	809,981	1899.....	1,903,505	1908.....	2,649,693
1891.....	678,927	1900.....	1,794,528	1909.....	4,234,346
1892.....	751,460	1901.....	2,254,425	1910.....	4,955,484
1893.....	674,345	1902.....	2,665,409	1911.....	4,488,049
1894.....	682,900	1903.....	2,599,665	1912.....	5,875,080
1895.....	991,459	1904.....	2,421,398	1913.....	5,751,037

PRODUCTION OF PLATES AND SHEETS BY STATES, 1909-1913.

States—Gross tons.	1909.	1910.	1911.	1912.	1913.
New Eng., N. Y., & N. J..	119,642	141,999	106,298	108,477	103,671
Pennsylvania.....	2,384,185	2,808,883	2,405,247	3,166,872	3,115,796
Delaware and Maryland..	29,038	23,863	22,060	19,488	14,413
West Virginia.....	211,012	225,649	246,893	317,718	298,789
Kentucky and Alabama	70,639	69,610	67,930	65,598	82,385
Ohio.....	938,185	1,052,414	1,168,879	1,493,825	1,327,913
Ind., Ill., Wis., Mo., Wyo- ming, and California...	481,645	633,066	470,742	703,102	808,070
Total.....	4,234,346	4,955,484	4,488,049	5,875,080	5,751,037

The production of iron and steel plates and sheets does not include nail plate and skelp, but includes black plates, or sheets, for tinning. Tie plates are included for 1909, 1910, and 1911 but not for 1912 or 1913. The production of a few plate and sheet plants for 1913 is estimated.

In 1913, 127 works in 15 States rolled plates or sheets.

PRODUCTION OF IRON AND STEEL PLATES AND SHEETS, 1905-1912.

Years. Gross tons.	Plates—No. 12 and thicker.			Sheets—No. 13 and thinner.			Grand total.
	Iron.	Steel.	Total.	Iron.	Steel.	Total.	
1905....	10,022	2,031,184	2,041,206	62,134	1,428,890	1,491,024	3,532,230
1906....	23,333	2,508,219	2,531,552	51,040	1,599,564	1,650,604	4,182,156
1907....	30,277	2,629,783	2,660,060	43,761	1,545,011	1,588,772	4,248,832
1908....	31,679	1,239,342	1,271,021	22,354	1,356,318	1,378,672	2,649,693
1909....	32,332	2,346,766	2,379,098	43,870	1,811,378	1,855,248	4,234,346
1910....	37,763	2,769,965	2,807,728	53,355	2,094,401	2,147,756	4,955,484
1911....	46,147	2,288,194	2,334,341	43,280	2,110,428	2,153,708	4,488,049
1912....	33,349	3,001,851	3,035,200	41,695	2,798,185	2,839,880	5,875,080

NEW PLATE AND SHEET CLASSIFICATION.

At the request of the manufacturers a new plate and sheet classification was adopted in collecting the 1913 statistics. It will not therefore be possible to compare separately the plate or the sheet output in 1913, under the new classification, with the plate or the sheet output in 1912, under the old classification. But the new classification does not in any way affect comparisons of the total output of plates and sheets for the two years.

PRODUCTION OF PLATES AND SHEETS BY SIZE AND MODE OF MANUFACTURE, 1913.

Kinds of products—Gross tons.	Iron.	Steel.	Total.
Universal plates, inc. flats or bars over 6 in. wide:			
$\frac{1}{4}$ of an inch and over in thickness.....	1,565	1,108,509	1,110,074
Under $\frac{1}{4}$ of an inch thick.....	.....	48,342	48,342
Total universal plates.....	1,565	1,156,851	1,158,416
Sheared plates, rolled on single stands of rolls:			
$\frac{1}{4}$ of an inch and over in thickness.....	1,852	1,179,372	1,181,224
Under $\frac{1}{4}$ of an inch thick.....	732	213,671	214,403
Total.....	2,584	1,393,043	1,395,627
Sheared plates, roughed and fin. on sep. stands:			
$\frac{1}{4}$ of an inch and over in thickness.....	450	250,580	251,030
Under $\frac{1}{4}$ of an inch thick.....	450	197,247	197,697
Total.....	900	447,827	448,727
Black sheets, made on either sheet or job. mills:			
No. 12 gauge and thicker.....	16,994	235,343	252,337
No. 13 gauge and thinner.....	39,907	1,424,724	1,464,631
Total black sheets.....	56,901	1,660,067	1,716,968
Black plates, including black plates for tinning, and also all other black plate specialties rolled on tin mills.....	* 2,779	*1,028,520	*1,031,299
Grand total of plates and sheets.....	64,729	5,686,308	5,751,037

* Includes 2,779 tons of iron and 824,487 tons of steel black plates, or sheets, for tinning, a total of 827,266 tons. See page 73.

Combining the two classes of sheared plates gives a total output in 1913 of 1,844,354 gross tons, of which 3,484 tons were iron and 1,840,870 tons were steel. The total output of sheared plates which were one-quarter of an inch and

over in thickness was 1,432,254 tons, of which 2,302 tons were iron and 1,429,952 tons were steel, while the total production under one-quarter of an inch thick was 412,100 tons, of which 1,182 tons were iron and 410,918 tons were steel.

To the total output of plates and sheets in 1913 universal plates contributed about 20.1 per cent.; sheared plates, rolled on single stands of rolls, about 24.3 per cent.; sheared plates, roughed and finished on separate stands of rolls, about 7.8 per cent.; black sheets, made on either sheet or jobbing mills, about 29.9 per cent.; and black plates, including black plates for tinning, and all other black plate specialties rolled on tin mills, about 17.9 per cent.

ACTIVE PLATE AND SHEET WORKS.

In 1913 there were 26 works in 7 States which rolled universal plates—New York, 1; Pennsylvania, 17; Ohio, 3; Indiana, 2; Illinois, 1; Wisconsin, 1; and California, 1. Of the total, 1 works in 1 State rolled iron but not steel universal plates, 24 works in 6 States rolled steel but not iron universal plates, and 1 works in 1 State rolled both iron and steel universal plates.

Sheared plates, rolled on single stands of rolls, were produced by 21 works in 7 States in 1913, as follows: New York, 1; New Jersey, 1; Pennsylvania, 11; West Virginia, 1; Ohio, 4; Indiana, 2; and Illinois, 1.

Sheared plates, roughed and finished on separate stands of rolls, were produced in 1913 by 20 works in 9 States, as follows: Massachusetts, 1; New York, 1; Pennsylvania, 9; West Virginia, 1; Kentucky, 1; Alabama, 1; Ohio, 3; Indiana, 2; and Wisconsin, 1.

Black sheets, made on either sheet or jobbing mills, were produced in 1913 by 57 works, located in 10 States, as follows: Massachusetts, 1; New York, 2; Pennsylvania, 20; Delaware, 1; West Virginia, 3; Kentucky, 2; Ohio, 22; Indiana, 4; Illinois, 1; and Missouri, 1.

Black plates, including black plates for tinning, and all other black plate specialties rolled on tin mills, were produced in 1913 by 30 works in 6 States, as follows: Pennsylvania, 13; Maryland, 1; West Virginia, 7; Ohio, 7; Indiana, 1; and Illinois, 1.

PRODUCTION OF UNIVERSAL AND SHEARED PLATES, 1913.

States—Gross tons.	Universal plates, including flats or bars over 6 in. wide.	Sheared plates, rolled on single stands of rolls.	Sheared plates, roughed and finished on separate stands of rolls.	Total universal and sheared plates.
Mass., N. Y., N. J., and Pa...	817,394	1,065,414	276,460	2,159,268
W. Va., Ky., Ala., and Ohio.	106,685	164,048	100,713	371,446
Ind., Ill., Wis., and Cal.....	234,337	166,165	71,554	472,056
Total.....	1,158,416	1,395,627	448,727	3,002,770

Pennsylvania made 69.6 per cent. of the total production of universal and sheared plates in 1913 ; Ohio, 10.9 per cent. ; Illinois, 8.3 per cent. ; and Indiana, 7.1 per cent.

PRODUCTION OF BLACK SHEETS AND BLACK PLATES, 1913.

States—Gross tons.	Black sheets made on either sheet or jobbing mills.	Black plates, including black plates for tinning and all other black plate specialties rolled on tin mills.	Total black sheets and black plates. Gross tons.
Massachusetts and New York.....	36,151	.....	36,151
Pennsylvania.....	473,215	550,833	1,024,048
Delaware, Md., West Va., and Ky...	137,865	214,325	352,190
Ohio.....	850,164	149,700	999,864
Indiana, Illinois, and Missouri.....	219,573	116,441	336,014
Total.....	1,716,968	1,031,299	2,748,267

Pennsylvania made 37.2 per cent. of the total production of black plates and black sheets in 1913 ; Ohio, 36.3 per cent. ; West Virginia, 10.1 per cent. ; Indiana, 9.5 per cent. ; and Illinois, 2.4 per cent.

PRODUCTION OF UNIVERSAL PLATES BY WIDTHS, 1913.

Width of universal plates—Gross tons.	Iron.	Steel.	Total.
Under 30 inches wide.....	1,546	985,361	986,907
30 inches wide, but under 48 inches wide.....	19	169,630	169,649
48 inches wide and over.....	.....	1,860	1,860
Total.....	1,565	1,156,851	1,158,416

In a few cases it was necessary for the manufacturers to estimate their outputs by widths.

Of the total output of universal plates about 85.2 per cent. was under 30 inches wide, about 14.7 per cent. was 30 inches but under 48 inches wide, and about one-tenth of one per cent. was 48 inches wide and over.

APPROXIMATE CONSUMPTION OF PLATES AND SHEETS.

Years. Gross tons.	Production of plates and sheets.			Add imports.	Deduct exports.	Approximate con- sumption.
	Iron.	Steel.	Total.			
1900.....	1,794,528		1,794,528	5,143	54,865	1,744,806
1901.....	2,254,425		2,254,425	5,621	30,832	2,229,214
1902.....	2,665,409		2,665,409	7,156	18,300	2,654,265
1903.....	2,599,665		2,599,665	11,557	18,094	2,593,128
1904.....	67,713	2,353,685	2,421,398	4,165	55,204	2,370,359
1905.....	72,156	3,460,074	3,532,230	2,336	75,097	3,459,469
1906.....	74,373	4,107,783	4,182,156	3,231	110,700	4,074,687
1907.....	74,038	4,174,794	4,248,832	3,748	122,696	4,129,884
1908.....	54,033	2,595,660	2,649,693	2,629	104,993	2,547,329
1909.....	76,202	4,158,144	4,234,346	4,720	180,047	4,059,019
1910.....	91,118	4,864,366	4,955,484	6,152	274,521	4,687,115
1911.....	89,427	4,398,622	4,488,049	2,453	372,373	4,118,129
1912.....	75,044	5,800,036	5,875,080	3,300	546,521	5,331,859
1913.....	64,729	5,686,308	5,751,037	2,930	463,426	5,290,541

In 1913, 8 per cent. of the plates and sheets made in that year was exported, as compared with 9.3 per cent. in 1912 and 8.2 per cent. in 1911.

PRODUCTION OF BLACK PLATES FOR TINNING, 1894-1913.

Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.
1894.....	52,359	1901.....	398,026	1908.....	513,771
1895.....	129,615	1902.....	365,743	1909.....	606,482
1896.....	185,387	1903.....	490,652	1910.....	712,137
1897.....	271,886	1904.....	472,569	1911.....	795,598
1898.....	345,254	1905.....	507,587	1912.....	982,197
1899.....	375,000	1906.....	576,079	1913.....	827,266
1900.....	315,000	1907.....	504,072	.....	.....

PRODUCTION OF IRON AND STEEL BLACK PLATES FOR TINNING, IN GROSS TONS, 1904-1913.

Years.	Iron.	Steel.	Total.	Years.	Iron.	Steel.	Total.
1904.	2,981	469,588	472,569	1909.....	4,261	602,221	606,482
1905.....	3,152	504,435	507,587	1910.....	2,893	709,244	712,137
1906.....	5,666	570,413	576,079	1911.....	3,515	792,083	795,598
1907.....	3,161	500,911	504,072	1912.....	5,378	976,819	982,197
1908.....	2,954	510,817	513,771	1913....	2,779	824,487	827,266

Similar statistics for earlier years are not available.

PRODUCTION OF BLACK PLATES FOR TINNING.

The production of black plates for tinning in 1913 amounted to 827,266 gross tons, as compared with 982,197 tons in 1912, a decrease of 154,931 tons, or over 15.7 per cent. These figures are included in the plate and sheet statistics already given. We have estimated the output of a few plants for the two years.

PRODUCTION OF BLACK PLATES FOR TINNING BY STATES,
1908-1913.

States—Gross tons.	1908.	1909.	1910.	1911.	1912.	1913.
Pennsylvania.....	278,163	308,982	427,530	483,576	563,738	476,634
Md. and West Va....	92,860	115,866	132,483	154,900	207,158	175,625
Ohio, Ind., and Ill..	142,748	181,634	152,124	157,122	211,301	175,007
Total.....	513,771	606,482	712,137	795,598	982,197	827,266

Of the total production in 1913 Pennsylvania made over 57.6 per cent., against nearly 57.4 per cent. in 1912, over 60.7 per cent. in 1911, over 60 per cent. in 1910, over 50.9 per cent. in 1909, and over 54.1 per cent. in 1908. West Virginia, Ohio, Indiana, Illinois, and Maryland also made black plates for tinning in 1913 in the order named. The same States also made black plates for tinning in 1908, 1909, 1910, 1911, and 1912. Of the total production in 1913 about 2,779 tons were rolled from iron and about 824,487 tons from steel, while in 1912 about 5,378 tons were rolled from iron and about 976,819 tons from steel. The States which made iron black plates in 1913 were Pennsylvania and Ohio. All the States named in the table made steel black plates in that year.

In 1913 there were 30 works which made black plates for tinning, as compared with 34 in 1912, 31 in 1911, 35 in 1910, 31 in 1909, and 28 in 1908. In 1913 there were 9 idle works, against 3 in 1912, 4 in 1911, 4 in 1910, 9 in 1909, and 13 in 1908.

PRODUCTION OF MERCHANT BARS.

The production of iron and steel merchant bars in 1913 amounted to 3,957,609 tons, against 3,697,114 tons in 1912, an increase of 260,495 tons, or over 7 per cent.

PRODUCTION OF IRON AND STEEL MERCHANT BARS, 1905-1913.

States—Gross tons.	Iron.	Steel.	Total.
Maine, Massachusetts, Rhode Island, & Conn..	32,166	37,066	69,232
New York.....	26,852	141,204	168,056
New Jersey and Maryland.....	27,039	36,443	63,482
Pennsylvania.....	386,883	1,543,229	1,930,112
Virginia, Ky., Tenn., N. C., Ga., and Texas....	40,500	6,099	46,599
Alabama.....	2,200	45,086	47,286
Ohio.....	90,835	383,544	474,379
Indiana.....	218,021	319,864	537,885
Illinois.....	89,986	364,089	454,075
Michigan, Wisconsin, and Missouri.....	77,264	39,752	117,016
Colorado, Washington, and California.....	34,886	14,601	49,487
Total for 1913.....	1,026,632	2,930,977	3,957,609
Total for 1912.....	944,790	2,752,324	3,697,114
Total for 1911.....	835,625	2,211,737	3,047,362
Total for 1910.....	1,074,163	2,711,568	3,785,731
Total for 1909.....	952,230	2,311,301	3,263,531
Total for 1908.....	685,233	1,301,405	1,986,638
Total for 1907.....	1,440,356	2,530,632	3,970,988
Total for 1906.....	1,481,348	2,510,852	3,992,200
Total for 1905.....	1,322,439	2,271,162	3,593,601

Horseshoe bars, bolt and nut rods, spike and chain rods, concrete bars, etc., are not included.

In 1913 there were 149 plants in 24 States which rolled iron or steel merchant bars, as compared with 146 plants in 23 States in 1912. In 1913 iron merchant bars were rolled by 79 works in 23 States and steel merchant bars by 96 works in 18 States, while in 1912 iron merchant bars were rolled by 80 works in 22 States and steel merchant bars by 96 works in 17 States. With the exception of Wisconsin all the States named in the table rolled iron merchant bars in 1913. The States which rolled iron merchant bars but did not roll steel merchant bars were Maine, Rhode Island, Virginia, Kentucky, North Carolina, and Washington. In 1913 merchant bars were rolled by

every State which produced finished hot rolled products except Delaware, West Virginia, and Kansas.

Pennsylvania made over 48.7 per cent. of the total production of merchant bars in 1913, against over 50.8 per cent. in 1912; Indiana made nearly 13.6 per cent., against nearly 13 per cent. in 1912; Ohio made nearly 12 per cent., against over 10.6 per cent. in 1912; and Illinois made nearly 11.5 per cent., against over 10.3 per cent. in 1912. These four States made over 85.8 per cent. of the total output in 1913, against over 84.7 per cent. in 1912.

Of the total production of iron merchant bars in 1913 Pennsylvania made over 37.6 per cent., as compared with over 38.9 per cent. in 1912; Indiana, the next largest producer, made over 21.2 per cent., against over 21.4 per cent. in 1912; and Ohio, the third largest maker, made over 8.8 per cent., against over 9.3 per cent. in 1912.

Of the total production of steel merchant bars Pennsylvania made over 52.6 per cent. in 1913, against over 54.8 per cent. in 1912; Ohio made over 13 per cent., against over 11.1 per cent. in 1912; Illinois made over 12.4 per cent., against over 11.6 per cent. in 1912; and Indiana made over 10.9 per cent., against over 10 per cent. in 1912.

PRODUCTION OF MERCHANT BARS BY STATES, 1908-1913.

States—Gross tons.	1908.	1909.	1910.	1911.	1912.	1913.
New England.....	28,944	34,533	44,882	31,983	35,498	69,232
New York	82,966	67,396	97,478	110,682	183,757	168,056
Pennsylvania.....	911,721	1,646,834	1,994,092	1,528,771	1,878,388	1,930,112
New Jersey	34,596	51,359	46,986	46,197	56,743	68,728
Del., Md., and Va..	21,002	22,426	10,546	16,764	3,674	
W. Va., Ky., Tenn., N. C., Ga., & Tex. }	30,624	55,221	52,259	48,881	40,874	41,353
Alabama.....	12,727	17,626	31,389	28,591	33,004	47,286
Ohio.....	276,312	441,145	407,012	300,655	394,574	474,379
Indiana.....	152,862	199,580	291,728	334,155	480,510	537,885
Illinois	236,111	411,575	483,257	368,465	380,868	454,075
Mich., Wis., & Mo..	138,760	247,787	252,468	162,719	151,521	117,016
Kan., Col., Wash., Wyo., Ore., & Cal. }	60,013	68,049	73,634	69,499	57,703	49,487
Total.....	1,986,638	3,263,531	3,785,731	3,047,362	3,697,114	3,957,609

PRODUCTION OF CONCRETE BARS.

In 1913 the production of iron and steel bars for reinforced concrete work showed an increase over 1912 of 45,338 tons, or over 16.5 per cent.

PRODUCTION OF IRON AND STEEL CONCRETE BARS, 1909-1913.

States—Gross tons.	Iron.	Steel.	Total.
Maine, New York, and New Jersey.....	.....	75,376	75,376
Pennsylvania.....	.....	47,986	47,986
Virginia, Georgia, Alabama, and Texas.....	113	13,102	13,215
Ohio.....	.....	68,763	68,763
Indiana.....	.....	27,542	27,542
Illinois.....	.....	33,814	33,814
Wisconsin and Missouri.....	.....	19,959	19,959
Colorado, Washington, and California.....	.....	33,015	33,015
Total for 1913.....	113	319,557	319,670
Total for 1912.....	2,500	271,832	274,332
Total for 1911.....	2,388	256,353	258,741
Total for 1910.....	4,645	236,464	241,109
Total for 1909.....	.....	159,352	159,352

In 1913 there were 38 plants in 16 States which rolled iron or steel bars for reinforced concrete work, as compared with 36 plants in the same number of States in 1912. New York made over 22 per cent. of the total production in 1913, against over 24 per cent. in 1912, and Ohio made over 21.5 per cent., against over 3.1 per cent. in 1912.

PRODUCTION OF CONCRETE BARS BY STATES, 1909-1913.

States—Gross tons.	1909.	1910.	1911.	1912.	1913.
Maine, New York, and N. J....	36,516	67,642	59,395	69,755	75,376
Pennsylvania.....	29,887	71,081	75,525	73,639	47,986
Virginia, Georgia, Ala., & Tex....	1,500	3,260	8,181	13,005	13,215
Ohio.....	71,032	53,788	55,008	8,728	68,763
Indiana.....	5,564	21,119	16,140	24,902	27,542
Illinois.....	11,385	13,985	26,941	33,803	33,814
Mich., Wisconsin, and Missouri.....	.....	2,000	2,958	18,907	19,959
Colorado, Wash., and California.....	3,468	8,234	14,593	31,593	33,015
Total.....	159,352	241,109	258,741	274,332	319,670

Statistics are not available prior to 1909.

PRODUCTION OF SKELP.

PRODUCTION OF SKELP, SHOWING IRON AND STEEL SKELP SEPARATELY, 1905-1913.

States—Gross tons.	Iron.	Steel.	Total.
New York, West Virginia, and Wis.....	15,726	254,597	270,323
Pennsylvania	248,045	789,539	1,037,584
Ohio	48,975	1,145,082	1,194,057
Total for 1913.....	312,746	2,189,218	2,501,964
Total for 1912.....	327,012	2,119,804	2,446,816
Total for 1911.....	322,397	1,658,276	1,980,673
Total for 1910.....	350,578	1,477,616	1,828,194
Total for 1909.....	370,151	1,663,230	2,033,381
Total for 1908.....	297,049	853,534	1,150,583
Total for 1907.....	444,536	1,358,091	1,802,627
Total for 1906.....	391,517	1,137,068	1,528,585
Total for 1905.....	452,797	983,198	1,435,995

In 1913, 47 plants in 5 States rolled iron or steel skelp, as compared with 43 works in 5 States in 1912.

Ohio made over 47.7 per cent. of the total production of skelp in 1913, as compared with over 45 per cent. in 1912, and Pennsylvania made nearly 41.5 per cent., as compared with over 43 per cent. in 1912. These two States made nearly 89.2 per cent. of the total output in 1913. No other State made over 10 per cent. in 1912 or 1913.

Of the total production of iron skelp in 1913, Ohio made over 15.6 per cent., as compared with over 19.5 per cent. in 1912, and Pennsylvania made over 79.3 per cent., as compared with over 72.9 per cent. in 1912.

Of the total production of steel skelp in 1913, Ohio made over 52.3 per cent., as compared with over 48.9 per cent. in 1912, and Pennsylvania made over 36 per cent., as compared with over 38.3 per cent. in 1912.

PRODUCTION OF SKELP BY STATES, 1908-1913.

States.	1908.	1909.	1910.	1911.	1912.	1913.
Ohio.....	390,554	787,311	753,471	895,358	1,101,702	1,194,057
Pennsylvania.....	668,602	1,015,931	892,254	859,266	1,052,373	1,037,584
N. Y. and W. Va.	90,955	230,139	182,469	220,034	270,874	253,556
Indiana and Wis.	472	.....	.....	6,015	21,867	16,767
Total.....	1,150,583	2,033,381	1,828,194	1,980,673	2,446,816	2,501,964

PRODUCTION OF NAIL PLATE.

PRODUCTION OF NAIL PLATE BY STATES, 1908-1913.

States—Gross tons.	1908.	1909.	1910.	1911.	1912.	1913.
Pennsylvania.....	26,148	32,341	24,479	26,176	22,033	17,626
Mass., West Va., and Ky..	14,406	25,405	14,945	20,293	19,848	16,192
Ohio, Ill., and California..	5,193	6,000	5,870	2,053	3,450	3,685
Total.....	45,747	63,746	45,294	48,522	45,331	37,503

Eleven plants in 6 States rolled iron or steel nail or spike plate in 1913, against 11 plants in 5 States in 1912.

PRODUCTION OF IRON AND STEEL NAIL PLATE, 1887-1913.

Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.
1887.....	308,432	1894.....	108,262	1901.....	68,850	1908.....	45,747
1888.....	289,891	1895.....	95,085	1902.....	72,936	1909.....	63,746
1889.....	259,409	1896.....	72,137	1903.....	64,102	1910.....	45,294
1890.....	251,828	1897.....	94,054	1904.....	61,601	1911.....	48,522
1891.....	223,312	1898.....	70,188	1905.....	64,542	1912.....	45,331
1892.....	201,242	1899.....	85,015	1906.....	54,211	1913.....	37,503
1893.....	136,113	1900.....	70,245	1907.....	52,027	.....	.....

PRODUCTION OF MISCELLANEOUS ROLLED PRODUCTS.

PRODUCTION OF MISCELLANEOUS IRON AND STEEL ROLLED PRODUCTS, 1908-1913.

Miscellaneous rolled products—Gross tons.	Iron.	Steel.	Total.
Hoops.....	.....	280,886	280,886
Bands and cotton-ties .....	.....	499,660	499,660
Long anglesplice bars, fish-plate bars, tie-plate bars, and other rail joint shapes..	} 46,574	639,816	686,390
Sheet piling.....		46,289	46,289
Railroad ties .....	.....	44,244	44,244
Spike and chain rods, bolt and nut rods, horseshoe bars, strips, etc.....	} 217,343	850,101	1,067,444
Rolled forging blooms, billets, etc.....		536,807	537,210
Blooms, billets, sheet bars, etc., for export	.....	88,778	88,778
Total for 1913.....	264,320	2,986,581	3,250,901
Total for 1912.....	272,757	3,217,456	3,490,213
Total for 1911.....	199,172	1,831,042	2,030,214
Total for 1910.....	207,003	2,413,713	2,620,716
Total for 1909.....	250,110	2,005,132	2,255,242
Total for 1908.....	183,649	990,738	1,174,387

Rolled blooms, billets, and axle blanks or billets for forging purposes are included, but forged armor plate, hammered axles, eye-bars, shafting, and other forgings are not included. For 1912 and 1913 blooms, billets, sheet bars, tinplate bars, and other semi-finished products rolled for export are included, but for 1911 and all prior years they are not included.

In 1913 there were 16 plants in 7 States which rolled iron or steel hoops, 12 plants in 6 States which rolled bands or cotton-ties, 29 plants in 12 States which rolled blooms, billets, or axle blanks for forging purposes, 28 plants in 10 States which rolled long angle splice bars, fish-plate bars, tie-plate bars, and other bars for rail joint shapes, 3 plants in 2 States which rolled sheet piling, 3 plants in 2 States which rolled railroad ties, and 81 plants in 17 States which rolled spike and chain rods, bolt and nut rods, horseshoe bars, strips, shafting, finger bars, steel wheels, blanks for seamless tubes, and other miscellaneous forms. The number of plants which rolled billets, blooms, sheet bars, tinplate bars, etc., for export in 1913 was 12, located in 4 States, against 14 plants in 6 States in 1912.

PRODUCTION OF MISCELLANEOUS ROLLED PRODUCTS,
1909-1913.

Articles—Gross tons.	1909.	1910.	1911.	1912.	1913.
Hoops.....	250,179	262,214	225,074	270,007	280,886
Bands and cotton-ties...	395,333	424,979	342,810	587,395	499,660
Long angle splice bars, fish-plate bars, tie- plate bars, etc.....	*.....	*.....	*.....	571,772	686,390
Rolled sheet piling.....		26,598	22,827	22,276	46,289
Railroad ties.....		49,048	39,197	41,396	44,244
Spike and chain rods, bolt and nut rods, horseshoe bars, strips, shafting, tires, etc....	1,267,957	1,397,944	1,169,191	1,187,108	1,067,444
Rolled forging blooms and forging billets...	341,773	459,933	231,115	462,476	537,210
Blooms, billets, sheet bars, tinplate bars, etc., for export.....	*.....	*.....	*.....	347,783	88,778
Total.....	2,255,242	2,620,716	2,030,214	3,490,213	3,250,901

* Statistics not collected from the manufacturers prior to 1912.

ROLLING MILLS AND STEEL WORKS.

NUMBER OF ACTIVE AND IDLE ROLLING MILLS, 1913.

States and Districts.	Works equipped with hot trains.			Works not equipped with hot trains.			Total.		
	Active.	Idle.	Total.	Active.	Idle.	Total.	Active.	Idle.	Total.
Maine.....	1	0	1	0	0	0	1	0	1
Massachusetts.....	5	0	5	8	1	9	13	1	14
Rhode Island.....	4	0	4	0	0	0	4	0	4
Connecticut.....	5	1	6	1	2	3	6	3	9
New York.....	19	2	21	9	1	10	28	3	31
New Jersey.....	15	0	15	8	2	10	23	2	25
Pennsylvania.....	170	28	198	45	9	54	215	37	252
Delaware.....	1	2	3	5	0	5	6	2	8
Maryland.....	4	0	4	2	0	2	6	0	6
District of Col....	0	0	0	2	0	2	2	0	2
Virginia.....	2	3	5	2	0	2	4	3	7
West Virginia.....	17	1	18	2	1	3	19	2	21
Kentucky.....	6	2	8	0	0	0	6	2	8
Tennessee.....	1	0	1	1	1	2	2	1	3
North Carolina...	1	0	1	0	0	0	1	0	1
Georgia.....	2	0	2	0	0	0	2	0	2
Alabama.....	6	2	8	1	1	2	7	3	10
Louisiana.....	0	0	0	2	0	2	2	0	2
Texas.....	1	0	1	2	0	2	3	0	3
Ohio.....	62	6	68	22	2	24	84	8	92
Indiana.....	15	4	19	8	1	9	23	5	28
Illinois.....	23	3	26	12	2	14	35	5	40
Michigan.....	4	0	4	16	3	19	20	3	23
Wisconsin.....	3	2	5	15	0	15	18	2	20
Minnesota.....	0	0	0	4	0	4	4	0	4
Missouri.....	3	1	4	3	1	4	6	2	8
Iowa.....	0	0	0	5	0	5	5	0	5
Oklahoma.....	1	0	1	0	0	0	1	0	1
Kansas.....	1	1	2	1	0	1	2	1	3
Colorado.....	1	0	1	0	0	0	1	0	1
Utah.....	0	0	0	1	0	1	1	0	1
Washington.....	1	1	2	4	0	4	5	1	6
Oregon.....	0	1	1	2	0	2	2	1	3
California.....	5	0	5	6	0	6	11	0	11
Canal Zone, Pan.	0	0	0	1	0	1	1	0	1
Total in 1913..	379	60	439	190	27	217	569	87	656
Total in 1912..	373	72	445	192	24	216	565	96	661
Total in 1911..	368	80	448	175	24	199	543	104	647
Total in 1910..	396	58	454	156	27	183	552	85	637
Total in 1909..	385	60	445	138	28	166	523	88	611
Total in 1908..	369	78	447	122	34	156	491	112	603

NEW ROLLING MILLS AND STEEL WORKS.

In 1913 there were 15 rolling mills and steel plants added to the list of completed works, located in 9 States, of which 5 were equipped with hot trains of rolls and 10 were not, as follows: Massachusetts, 1; New Jersey, 1; Pennsylvania, 3; Maryland, 1; Virginia, 1; Ohio, 4; Illinois, 1; Michigan, 1; and Washington, 2. In 1912 the number of new rolling mills and steel works built was 29.

BUILDING ROLLING MILLS AND STEEL WORKS.

At the close of 1913 there were 10 rolling mills and steel works in course of erection, of which 6 were being equipped with hot trains of rolls and 4 were not being so equipped, as follows: New York, 2; Pennsylvania, 1; Alabama, 1; Ohio, 3; Minnesota, 1; Washington, 1; and Arkansas, 1. In addition at the close of 1913 there were 4 plants which were partly erected but upon which work had been suspended for some time. On December 31, 1912, 11 rolling mills and steel works were being built, of which 7 were being equipped with hot trains of rolls and 4 were not being so equipped.

ABANDONED ROLLING MILLS AND STEEL WORKS.

During 1913 there were 19 rolling mills and steel works abandoned or dismantled, located in 10 States, of which 14 were formerly equipped with hot trains of rolls and 5 were not, as follows: New York, 2; Pennsylvania, 6; Delaware, 1; West Virginia, 1; Texas, 1; Ohio, 2; Indiana, 1; Illinois, 3; Wisconsin, 1; and Colorado, 1.

TINPLATES, GALVANIZED SHEETS, PIPES AND TUBES, NAILS, RAIL JOINTS, AND CHARCOAL BLOOMS.

PRODUCTION OF TINPLATES AND TERNE PLATES.

PRODUCTION OF TINPLATES AND TERNE PLATES, 1891-1913.

Years—Pounds.	Tinplates.	Terne plates.	Total pounds.
1891 (second 6 months).....	368,400	1,868,343	2,236,743
1892 (calendar year).....	13,921,296	28,197,896	42,119,192
1893.....	64,536,209	59,070,498	123,606,707
1894.....	102,223,407	64,120,002	166,343,409
1895.....	165,927,907	88,683,488	254,611,395
1896.....	270,151,785	89,058,013	359,209,798
1897 (first 6 months).....	203,028,258	49,545,643	252,573,901
1897 (second 6 months).....			322,205,619
1898 (calendar year).....			732,289,600
1899.....			808,360,000
1900 (census year ending May 31)	707,718,239	141,285,783	*850,004,495
1901 (calendar year).....			894,411,840
1902.....			806,400,000
1903.....			1,075,200,000
1904 (census year ending Dec. 31)	867,526,985	158,857,866	*1,032,940,706
1905 (calendar year).....			1,105,440,000
1906.....	1,100,373,000	193,367,000	1,293,740,000
1907.....	996,650,000	156,447,000	1,153,097,000
1908.....	1,048,896,000	154,179,000	1,203,075,000
1909.....	1,179,858,000	190,930,000	1,370,788,000
1910.....	1,450,821,000	168,184,000	1,619,005,000
1911.....	1,597,629,000	158,441,000	1,756,070,000
1912.....	1,965,659,000	191,396,000	2,157,055,000
1913.....	1,708,186,000	136,944,000	1,845,130,000

* Revised. Include 1,000,473 pounds in 1900 and 6,555,855 pounds in 1904 of "other sheet iron and sheet steel, tin or terne plated."

From July 1, 1891, to June 30, 1897, the statistics were collected by Colonel Ira Ayer for the Treasury Department, and from July 1, 1897, to December 31, 1911, they were compiled from reliable sources of information but chiefly from the records of the American Iron and Steel Association. For 1912 and 1913 the figures were compiled by the Bureau of Statistics of the American Iron and Steel Institute.

From reports received from the large producers, and from estimates we have made for a few other makers, we find that the production of tinplates and terne plates in 1913 amounted to about 1,845,130,000 pounds, or 823,719 gross tons, against about 2,157,055,000 pounds, or 962,971 tons, in 1912, a decrease of 311,925,000 pounds, or 139,252 tons. As compared with 1912 the production in 1913 shows a decrease of over 14.4 per cent.

Of the total in 1913, 1,708,186,000 pounds, or 762,583 tons, were tinplates, as compared with 1,965,659,000 pounds, or 877,526 tons, in 1912, a decrease of 257,473,000 pounds, or 114,943 tons; and 136,944,000 pounds, or 61,136 tons, were terne plates, as compared with 191,396,000 pounds, or 85,445 tons, in 1912, a decrease of 54,452,000 pounds, or 24,309 tons. As compared with 1912 there was a decrease in 1913 in the production of tinplates of over 13 per cent. and in terne plates of over 28.4 per cent.

Of the total production of tinplates in 1913, namely, 1,708,186,000 pounds, or 762,583 tons, 1,662,148,000 pounds, or 742,030 tons, were coke tinplates, and 46,038,000 pounds, or 20,553 tons, were charcoal tinplates.

Articles stamped from black plates, or sheets, by companies which manufacture tinplates, and tinned after the completion of the stamping or forming process, are included in the tinplate production given for the two years. The quantities so included were 5,728,000 pounds in 1913 and 7,337,000 pounds in 1912.

PRODUCTION OF TINPLATES AND TERNE PLATES IN GROSS TONS,
1891-1913.

Calendar years.	Gross tons.	Calendar years.	Gross tons.
1891 (last six months)...	999	1903	480,000
1892.....	18,803	1904 (cen. yr. end. Dec. 31) ..	*461,134
1893.....	55,182	1905	493,500
1894.....	74,260	1906	577,562
1895.....	113,666	1907	514,775
1896.....	160,362	1908	537,087
1897.....	256,598	1909	611,959
1898.....	326,915	1910	722,770
1899.....	360,875	1911	783,960
1900 (cen. yr. end. May 31) ..	*379,466	1912	962,971
1901.....	399,291	1913	823,719
1902.....	360,000		

* Revised.

PRODUCTION OF IRON AND STEEL TERNE PLATES, 1908-1913.

Years. Pounds.	Terne plates—Pounds.			Steel tinplates. (Iron tinplates not reported.)	Grand total. Pounds.
	Iron.	Steel.	Total.		
1908.....	6,560,500	147,618,500	154,179,000	1,048,896,000	1,203,075,000
1909.....	8,054,900	182,875,100	190,930,000	1,179,858,000	1,370,788,000
1910.....	5,765,000	162,419,000	168,184,000	1,450,821,000	1,619,005,000
1911.....	7,720,000	150,721,000	158,441,000	1,597,629,000	1,756,070,000
1912.....	11,259,000	180,137,000	191,396,000	1,965,659,000	2,157,055,000
1913.....	6,433,000	130,511,000	136,944,000	*1,708,186,000	1,845,130,000

* Includes about 1,000 pounds of iron tinplates. Iron tinplates were not reported from 1908 to 1912 inclusive.

Similar statistics are not available for prior years.

Ohio made the small quantity of iron tinplates produced in 1913. Steel tinplates were made in 1913 by 7 States, namely, Pennsylvania, Maryland, West Virginia, Ohio, Indiana, Illinois, and Michigan.

In 1913 three States made iron terne plates, namely, Pennsylvania, West Virginia, and Ohio, while in 1912 two States made iron terne plates, namely, Pennsylvania and Ohio. Steel terne plates were made in 1913 by Pennsylvania, Maryland, West Virginia, and Ohio, while in 1912 they were made by the same States, with the exception of Maryland. Small quantities of pure lead coated and aluminum coated sheets produced in 1912 and 1913 are not included in the figures given above.

PRODUCTION OF TINPLATES AND TERNE PLATES BY STATES, 1913.

States—Pounds.	Tinplates.	Terne plates.	Total.
Pennsylvania	1,042,785,000	28,027,000	1,070,812,000
Maryland and West Virginia.....	291,358,000	92,409,000	383,767,000
Ohio, Indiana, Illinois, and Michigan.	374,043,000	16,508,000	390,551,000
Total for 1913.....	1,708,186,000	136,944,000	1,845,130,000
Total for 1912.....	1,965,659,000	191,396,000	2,157,055,000

Of the total production of tinplates in 1913 Pennsylvania made over 61 per cent., against over 60 per cent. in 1912, and of the total production of terne plates in 1913 the same State made over 20.4 per cent., against over 42.7 per cent. in 1912. Combining tinplates and terne plates Pennsylvania made over 58 per cent. of the total in 1913, against over 58.4 per cent. in 1912.

At the request of the manufacturers we have ascertained separately for 1913 the production of coke and charcoal tinplates. Similar details were not collected for 1912 and prior years. Terne plates are not included.

PRODUCTION OF COKE AND CHARCOAL TINPLATES, 1913.

States—Pounds.	Coke tinplates.	Charcoal tinplates.	Total tinplates. Pounds.
Pennsylvania.....	1,027,081,000	15,704,000	1,042,785,000
Maryland and West Virginia...	267,005,000	24,353,000	291,358,000
Ohio, Indiana, Ill., & Michigan	368,062,000	5,981,000	374,043,000
Total.....	*1,662,148,000	46,038,000	1,708,186,000

* Includes 5,728,000 pounds which were formed or stamped from black plates, or sheets, by companies which manufacture tinplates, and tinned after the completion of the forming or stamping process.

ACTIVE AND IDLE TINPLATE AND TERNE PLATE WORKS.

In 1913 there were 18 plants in 6 States which made tinplates but not terne plates, 4 plants in 2 States which made terne plates but not tinplates, and 13 plants in 4 States which made both tinplates and terne plates. The number of active plants in 1913 was 35, against 37 in 1912, and the number of idle plants was 7, against 5 in 1912. At the close of 1913 one tinplate plant was being built in Ohio.

APPROXIMATE CONSUMPTION OF TINPLATES AND TERNE PLATES
IN GROSS TONS, 1900-1913.

Calendar years. Gross tons.	Production.	Add imports.	Deduct ex- ports.	Approximate consumption.
1900 (Census year)...	*379,466	60,386	273	439,579
1901.....	399,291	77,395	439	476,247
1902.....	360,000	60,115	1,566	418,549
1903.....	480,000	47,360	292	527,068
1904 (Census year)...	*461,134	70,652	7,898	523,888
1905.....	493,500	65,740	7,941	551,299
1906.....	577,562	56,983	12,082	622,463
1907.....	514,775	57,773	10,203	562,345
1908.....	537,087	58,490	11,878	583,699
1909.....	611,959	62,593	9,327	665,225
1910.....	722,770	66,640	12,445	776,965
1911.....	783,960	14,099	61,381	736,678
1912.....	962,971	2,052	81,694	883,329
1913.....	823,719	20,680	57,812	786,587

* Revised. For 1900 the census year ended May 31, 1900; for 1904, December 31, 1904.

PRODUCTION OF GALVANIZED SHEETS.

The total production in the United States in 1913 of iron and steel galvanized sheets and of articles which were formed or stamped from iron or steel black plates or black sheets and galvanized after the completion of the forming or stamping process amounted to about 1,961,080,-107 pounds.

The production of galvanized sheets alone amounted to 1,811,752,565 pounds, and the production of articles galvanized after forming or stamping to 149,327,542 pounds.

PRODUCTION OF GALVANIZED SHEETS IN POUNDS, 1913.

States.	Galvanized sheets.	Galvanized formed products.	Total.
Mass., R. I., Conn., N. Y., N. J., and Penna.....	391,037,908	50,317,413	441,355,321
Del., West Va., Ky., and Ga.....	295,039,624	8,838,551	303,878,175
Ohio.....	853,610,444	50,176,677	903,787,121
Indiana and Illinois.....	272,039,784	12,290,899	284,330,683
Mich., Wis., Mo., and Iowa.....	24,805	27,704,002	27,728,807
Total.....Pounds.	1,811,752,565	149,327,542	1,961,080,107

In 1913, 92 plants made iron or steel galvanized sheets or articles galvanized after forming or stamping. These plants were located as follows: Massachusetts 6, Rhode Island 1, Connecticut 2, New York 7, New Jersey 5, Pennsylvania 9, Delaware 1, West Virginia 3, Kentucky 2, Georgia 2, Ohio 29, Indiana 4, Illinois 6, Michigan 4, Wisconsin 4, Missouri 4, and Iowa 3.

In 1913, 40 plants manufactured iron or steel galvanized sheets and were located as follows: New York 1, Pennsylvania 4, Delaware 1, West Virginia 3, Kentucky 2, Ohio 20, Indiana 3, Illinois 4, Michigan 1, and Iowa 1.

In 1913, 61 plants manufactured galvanized formed products. These plants were located as follows: Massachusetts 6, Rhode Island 1, Connecticut 2, New York 6, New Jersey 5, Pennsylvania 6, West Virginia 2, Georgia 2, Ohio 10, Indiana 1, Illinois 5, Michigan 4, Wisconsin 4, Missouri 4, and Iowa 3. A number of plants made both galvanized sheets and formed products.

PRODUCTION OF PIPES AND TUBES.

PRODUCTION OF WROUGHT IRON AND STEEL PIPE, 1913.

Kinds of pipe.	Iron.	Steel.	Total.
Black, standard.....	120,619	709,853	830,472
Galvanized.....	25,323	241,617	266,940
Oil country goods.....	84,778	756,311	841,089
Outside diameter and miscellaneous....	2,159	177,052	179,211
Boiler tubes.....	43,188	84,632	127,820
Total.....Gross tons.	276,067	1,969,465	2,245,532

NUMBER OF ACTIVE PLANTS, 1913.

States.	Total.	Of these plants, those making kinds of pipe named were:				
		Black.	Galvanized.	Oil country.	O. D. and misc.	Boiler tubes.
New York..	2	1	...	...	...	1
Penna.....	15	10	8	9	6	9
W. Va.....	2	2	2	2	1	...
Ohio.....	5	5	5	5	3	...
Illinois.....	1	1	1	1	...	...
Total...	25	19	16	17	10	10

There were 4 idle plants, 2 in Pennsylvania and 2 in Illinois.

PRODUCTION OF SEAMLESS STEEL TUBES.

The production of seamless steel tubes in 1913 amounted to 108,567 gross tons, of which 42,740 tons were hot-finished and 65,827 tons were cold-drawn. The output of a few plants is estimated. There were 9 active plants, 6 in Pennsylvania, 1 in Ohio, 1 in Michigan, and 1 in Wisconsin.

PRODUCTION OF CAST IRON PIPE.

The production of cast iron pipe in 1913 amounted to 1,266,245 net tons, of which 1,002,289 tons were gas and water pipe and fittings and 263,956 tons were soil and plumbers' pipe and fittings. Fittings made by cast iron pipe plants only are included. The production of gas and water pipe includes 46,831 tons of fittings, while the production of soil and plumbers' pipe includes 68,925 tons of fittings and 7,727 tons of culvert pipe. There were 67 active plants. Of these 34 made gas and water pipe and 37 made soil or plumbers' pipe or culvert pipe, 4 making both gas and water and soil and plumbers' pipe.

PRODUCTION OF CUT AND WIRE NAILS.

PRODUCTION OF CUT AND WIRE NAILS IN KEGS, 1890-1913.

Years—Kegs of 100 pounds.	Cut nails. Kegs.	Wire nails. Kegs.	Total. Kegs.	Cut nails over wire.	Wire nails over cut.
1890.....	5,640,946	3,135,911	8,776,857	2,505,035	.....
1891.....	5,002,176	4,114,385	9,116,561	887,791	.....
1892.....	4,507,819	4,719,524	9,227,343	.....	211,705
1893.....	3,048,933	5,095,945	8,144,878	.....	2,047,012
1894.....	2,425,060	5,681,801	8,106,861	.....	3,256,741
1895.....	2,129,894	5,841,403	7,971,297	.....	3,711,509
1896.....	1,615,870	4,719,860	6,335,730	.....	3,103,990
1897.....	2,106,799	8,997,245	11,104,044	.....	6,890,446
1898.....	1,572,221	7,418,475	8,990,696	.....	5,846,254
1899.....	1,904,340	7,618,130	9,522,470	.....	5,713,790
1900.....	1,573,494	7,233,979	8,807,473	.....	5,660,485
1901.....	1,542,240	9,803,822	11,346,062	.....	8,261,582
1902.....	1,633,762	10,982,246	12,616,008	.....	9,348,484
1903.....	1,435,893	9,631,661	11,067,554	.....	8,195,768
1904.....	1,283,362	11,926,661	13,210,023	.....	10,643,299
1905.....	1,357,549	10,854,892	12,212,441	.....	9,497,343
1906.....	1,189,239	11,486,647	12,675,886	.....	10,297,408
1907.....	1,109,138	11,731,044	12,840,182	.....	10,621,906
1908.....	956,182	10,662,972	11,619,154	.....	9,706,790
1909.....	1,207,597	13,916,053	15,123,650	.....	12,708,456
1910.....	1,005,233	12,704,902	13,710,135	.....	11,699,669
1911.....	967,636	13,437,778	14,405,414	.....	12,470,142
1912.....	978,415	14,659,700	15,638,115	.....	13,681,285
1913.....	842,038	13,559,727	14,401,765	.....	12,717,689

APPROXIMATE CONSUMPTION OF CUT AND WIRE NAILS.

Years. Kegs of 100 pounds.	Cut and wire nails.			Years. Kegs of 100 pounds.	Cut and wire nails.		
	Produce- tion.	Exports.	Consump- tion.		Produce- tion.	Exports.	Consump- tion.
1886.....	8,760,973	105,350	8,655,623	1900.....	8,807,473	863,911	7,943,562
1887.....	8,158,870	131,654	8,027,216	1901.....	11,346,062	628,865	10,717,197
1888.....	7,993,591	135,020	7,858,571	1902.....	12,616,008	756,619	11,859,389
1889.....	8,245,758	137,139	8,108,619	1903.....	11,067,554	903,672	10,163,882
1890.....	8,776,857	152,769	8,624,088	1904.....	13,210,023	942,274	12,267,749
1891.....	9,116,561	122,822	8,993,739	1905.....	12,212,441	976,475	11,235,966
1892.....	9,227,343	174,073	9,053,270	1906.....	12,675,886	1,205,224	11,470,662
1893.....	8,144,878	159,361	7,985,517	1907.....	12,840,182	1,100,247	11,739,935
1894.....	8,106,861	222,149	7,884,712	1908.....	11,619,154	751,138	10,868,016
1895.....	7,971,297	229,406	7,741,891	1909.....	15,123,650	909,252	14,214,398
1896.....	6,335,730	332,726	6,003,004	1910.....	13,710,135	1,142,382	12,567,753
1897.....	11,104,044	467,499	10,636,545	1911.....	14,405,414	1,456,811	12,948,603
1898.....	8,990,696	659,663	8,331,033	1912.....	15,638,115	1,738,921	13,899,194
1899.....	9,522,470	974,206	8,548,264	1913.....	14,401,765	1,062,362	13,339,403

PRODUCTION OF WIRE NAILS BY STATES, 1909-1913.

States. Kegs of 100 pounds.	1909.	1910.	1911.	1912.	1913.
Mass., R. I., & Conn..	195,298	175,730	107,740	112,870	116,782
N. Y., N. J., and Pa.	6,113,353	5,457,099	6,485,729	7,389,861	6,890,285
Md., Ky., Ga., Ala., and Ohio.....	3,470,001	3,503,433	3,628,584	3,853,667	3,372,417
Indiana and Illinois.	3,449,106	2,906,274	2,637,000	2,670,166	2,653,180
Wis., Col., and Cal..	688,295	662,366	578,725	633,136	527,063
Total.....	13,916,053	12,704,902	13,437,778	14,659,700	13,559,727

Steel wire nails only were made in 1912 and 1913. It was necessary to estimate the output of a few plants in 1913.

The leading producer of wire nails in 1913 was Pennsylvania, which made 6,701,936 kegs, or over 49.4 per cent. of the total, followed by Ohio, Illinois, Indiana, Colorado, Alabama, Georgia, New York, Kentucky, Massachusetts, and Wisconsin.

In 1913 wire nails were made by 51 works in 15 States, as follows: Massachusetts, 3; Rhode Island, 1; New York, 2; Connecticut, 1; New Jersey, 1; Pennsylvania, 13; Maryland, 1; Kentucky, 1; Georgia, 1; Alabama, 1; Ohio, 8; Indiana, 5; Illinois, 9; Wisconsin, 3; and Colorado, 1. In 1912 wire nails were made by 50 works in 14 States. Five wire-nail plants were idle in 1913, against 6 in 1912.

At the close of 1913 one plant for the manufacture of wire nails was almost completed in Alabama.

APPROXIMATE CONSUMPTION OF WIRE NAILS, 1887-1913.

Years. Kegs.	Produc- tion.	Exports.	Consump- tion.	Years. Kegs.	Produc- tion.	Exports.	Consump- tion.
1887	1,250,000	8,867	1,241,133	1901.....	9,803,822	420,506	9,383,316
1888	1,500,000	13,414	1,486,586	1902.....	10,982,246	595,391	10,386,855
1889	2,435,000	19,172	2,415,828	1903.....	9,631,661	704,546	8,927,115
1890	3,135,911	18,395	3,117,516	1904.....	11,926,661	734,554	11,192,107
1891	4,114,385	18,986	4,095,399	1905.....	10,854,892	799,734	10,055,158
1892	4,719,524	21,387	4,698,137	1906.....	11,486,647	1,035,705	10,450,942
1893	5,095,945	27,451	5,068,494	1907.....	11,731,044	945,035	10,786,009
1894	5,681,801	38,920	5,642,881	1908.....	10,662,972	593,819	10,069,153
1895	5,841,403	53,012	5,788,391	1909.....	13,916,053	686,687	13,229,366
1896	4,719,860	95,638	4,624,222	1910.....	12,704,902	960,295	11,744,607
1897	8,997,245	129,767	8,867,478	1911.....	13,437,778	1,200,957	12,236,821
1898	7,418,475	307,190	7,111,285	1912.....	14,659,700	1,530,353	13,129,347
1899	7,618,130	750,781	6,867,349	1913.....	13,559,727	977,477	12,582,250
1900	7,233,979	613,858	6,620,121	.....	.....	.....	.....

PRODUCTION OF CUT NAILS BY STATES, 1909-1913.

States—Kegs of 100 pounds.	1909.	1910.	1911.	1912.	1913.
Pennsylvania	666,792	537,118	559,550	510,804	442,694
West Va., Mass., and Ohio...	364,947	275,352	286,816	280,689	264,161
Ky., Ind., Ill., and Wis.....	175,858	192,763	121,270	186,922	135,183
Total	1,207,597	1,005,233	967,636	978,415	842,038

PRODUCTION OF IRON AND STEEL CUT NAILS BY STATES, 1913.

States—Kegs of 100 pounds.	1913.			1912.
	Iron.	Steel.	Total.	Total.
Pennsylvania.....	135,835	306,859	442,694	510,804
Massachusetts, West Virginia, and Ohio.....	.....	264,161	264,161	280,689
Kentucky, Indiana, Illinois, & Wisconsin	11,000	124,183	135,183	186,922
Total.....	146,835	695,203	842,038	978,415

Horseshoe nails, cut tacks, wire nails, or railroad or other forged iron or steel spikes are not included.

Sixteen works in 8 States made cut nails in 1913, as follows: Massachusetts, 2; Pennsylvania, 5; West Virginia, 2; Kentucky, 1; Ohio, 2; Indiana, 1; Illinois, 2; and Wisconsin, 1. In 1912 there were 17 works in the same number of States which made cut nails, as compared with 13 works in 6 States in 1911, 1910, and 1909, and 14 works in 7 States in 1908. Eight works were idle in 1913, as compared with the same number of works in 1912.

APPROXIMATE CONSUMPTION OF CUT NAILS, 1887-1913.

Years. Kegs.	Produc- tion.	Exports.	Consump- tion.	Years. Kegs.	Produc- tion.	Exports.	Consump- tion.
1887	6,908,870	122,787	6,786,083	1901	1,542,240	208,359	1,333,881
1888	6,493,591	121,606	6,371,985	1902	1,633,762	161,228	1,472,534
1889	5,810,758	117,967	5,692,791	1903	1,435,893	199,126	1,236,767
1890	5,640,946	134,374	5,506,572	1904	1,283,362	207,720	1,075,642
1891	5,002,176	103,836	4,898,340	1905	1,357,549	176,741	1,180,808
1892	4,507,819	152,686	4,355,133	1906	1,189,239	169,519	1,019,720
1893	3,048,933	131,910	2,917,023	1907	1,109,138	155,212	953,926
1894	2,425,060	183,229	2,241,831	1908	956,182	157,319	798,863
1895	2,129,894	176,394	1,953,500	1909	1,207,597	222,565	985,032
1896	1,615,870	237,088	1,378,782	1910	1,005,233	182,087	823,146
1897	2,106,799	337,732	1,769,067	1911	967,636	255,854	711,782
1898	1,572,221	352,473	1,219,748	1912	978,415	208,568	769,847
1899	1,904,340	223,425	1,680,915	1913	842,038	84,885	757,153
1900	1,573,494	250,053	1,323,441	.....	.....	.....	.....

PRODUCTION OF FINISHED ANGLE SPLICE BARS, TIE PLATES, FISH PLATES, ETC., BY ROLL- ING MILLS AND STEEL WORKS.

PRODUCTION OF RAIL JOINTS AND FASTENINGS, 1912-1913.

Articles—Gross tons.	Production—1912.			Production—1913.		
	Iron.	Steel.	Total.	Iron.	Steel.	Total.
Angle splice bars....	3,557	179,722	183,279	10,186	143,264	153,450
Tie plates.....	39,039	222,502	261,541	31,591	292,837	324,428
Fish plates.....	2,266	16,880	19,146	741	15,818	16,559
Other rail joints.....	3	63,802	63,805	.....	133,041	133,041
Total	44,865	482,906	527,771	42,518	584,960	627,478

It was necessary to estimate the output of one plant. The figures for 1912 have been revised. The output of spikes, bolts, nuts, and similar fastenings is not included. Statistics for 1911 and prior years are not available.

There was a decrease in the production of angle splice bars in 1913 as compared with 1912 of 29,829 tons and in fish plates of 2,587 tons. In the production of tie plates, however, there was an increase of 62,887 tons and in other rail joints of 69,236 tons. In the grand total the increase amounted to 99,707 tons, or over 18.8 per cent.

PRODUCTION OF RAIL JOINTS AND FASTENINGS BY STATES, 1913.

States—Gross tons.	Iron.	Steel.	Total.
New York, Pennsylvania, and Virginia.	2,344	318,474	320,818
Ohio and Indiana.....	5,350	123,868	129,218
Illinois, Wis., Colorado, Wash., and California.	34,824	142,618	177,442
Total for 1913.....	42,518	584,960	627,478
Total for 1912.....	44,865	482,906	527,771

There were 26 active works, as follows: New York, 2; Pennsylvania, 11; Virginia, 1; Ohio, 3; Indiana, 3; Illinois, 2; and Wisconsin, Colorado, Washington, and California, 1 each.

Seventeen rolling mills in 9 States made iron or steel angle splice bars in 1913, 18 works in 8 States made tie plates, 6 works in 5 States made fish plates, and 8 works in 4 States made other rail joints or fastenings.

PRODUCTION OF FORGED IRON AND STEEL.

The production of forged iron and steel axles, shafting, anchors, armor plate, gun carriages, etc., by rolling mills and steel works from 1906 to 1913 was as follows:

Years.	Production—Gross tons.			Years.	Production—Gross tons.		
	Iron.	Steel.	Total.		Iron.	Steel.	Total.
1906 ...	19,148	333,488	352,636	1910...	20,410	299,452	319,862
1907 ...	23,772	357,033	380,805	1911...	4,034	214,202	218,236
1908 ...	13,646	117,497	131,143	1912...	9,155	383,365	392,520
1909 ...	25,523	223,741	249,264	1913...	27,892	380,091	407,983

PRODUCTION OF HAMMERED CHARCOAL IRON BLOOMS, BILLETS, ETC.

PRODUCTION OF HAMMERED CHARCOAL IRON BLOOMS, ETC., 1906-1913.

Years—Gross tons.	For sale.	Consumption of makers.	Total.
1906	17,833	77,166	94,999
1907	17,554	67,069	84,623
1908	8,103	47,870	55,973
1909	9,593	46,772	56,365
1910	14,016	61,958	75,974
1911	2,271	62,345	64,616
1912	250	65,557	65,807
1913	80	59,313	59,393

PRODUCTION OF HAMMERED CHARCOAL IRON BLOOMS, ETC., BY STATES, 1907-1913.

States—Gross tons.	1907.	1908.	1909.	1910.	1911.	1912.	1913.
Pennsylvania	71,099	46,144	44,146	58,001	52,932	49,289	47,724
Mass., Md., Ky., & Ohio..	13,524	9,829	12,219	17,973	11,684	16,518	11,669
Total	84,623	55,973	56,365	75,974	64,616	65,807	59,393

In 1913 the producing States were Massachusetts, Pennsylvania, Maryland, Kentucky, and Ohio. Pennsylvania made over 80.3 per cent. of the total in 1913, against nearly 74.9 per cent. in 1912 and over 81.9 per cent. in 1911. The number of active plants in 1912 and 1913 was 12. There were 7 idle bloomaries in 1913, against 8 in 1912.

PRODUCTION AND SHIPMENTS OF IRON ORE, COAL, AND COKE.

PRODUCTION AND SHIPMENTS OF IRON ORE.

The total production of iron ore in the United States in 1913, as ascertained by the United States Geological Survey, amounted to 61,980,437 gross tons, against 55,150,147 tons in 1912, an increase of 6,830,290 tons, or over 12.4 per cent.

PRODUCTION OF IRON ORE BY STATES, 1909-1913.

[From Mineral Resources of the United States, U. S. Geological Survey.]

States—Gross tons.	1909.	1910.	1911.	1912.	1913.
Minnesota.....	28,975,149	31,966,769	24,645,105	34,431,768	38,658,793
Michigan.....	11,900,384	13,303,906	10,329,039	11,191,430	12,841,093
Alabama.....	4,321,252	4,801,275	3,827,791	4,563,603	5,215,740
New York.....	1,015,333	1,287,209	1,061,279	1,216,672	1,459,628
Wisconsin.....	1,067,436	1,149,551	698,660	860,600	1,018,272
Pennsylvania.....	666,889	739,799	537,506	517,081	489,056
Virginia.....	837,847	903,377	614,023	446,305	483,843
Tennessee.....	657,795	732,247	463,835	416,885	370,002
New Jersey.....	543,720	521,832	466,234	364,673	325,305
Georgia.....	221,016	313,878	203,889	134,637	155,236
W. Va., Ky., Md., and N. C.....	159,807	143,687	182,341	103,956	82,243
Missouri.....	89,954	78,341	65,325	43,480	39,354
Ohio.....	16,527	22,320	15,707	10,346	7,849
Other States.....	821,162	1,050,715	765,818	848,711	834,023
Total.....	51,294,271	57,014,906	43,876,552	55,150,147	61,980,437

SHIPMENTS OF LAKE SUPERIOR IRON ORE.

The total iron ore shipments by water and by all-rail routes in 1913 amounted to 49,947,116 tons, against 48,221,546 tons in 1912, an increase of 1,725,570 tons. The shipments by water in 1913 amounted to 49,070,478 tons, against 47,435,777 tons in 1912, an increase of 1,634,701 tons, and by rail to 876,638 tons, against 785,769 tons in 1912, an increase of 90,869 tons. Of the total ore shipped in 1913, 68.2 per cent. was shipped from the Mesabi range, 3.1 per cent. from the Vermilion range, 9.1 per cent. from the Gogebic range, 7.9 per cent. from the Marquette range, 9.9 per cent. from the Menominee range, and 1.8 per cent. from the Cuyuna range and other mines.

LAKE SUPERIOR IRON ORE SHIPMENTS BY RANGES, 1909-1913.

[From statistics gathered by The Iron Trade Review.]

Ranges—Gross tons.	1909.	1910.	1911.	1912.	1913.
Marquette.....	4,256,172	4,392,726	2,833,116	4,202,308	3,966,680
Menominee.....	4,875,385	4,237,738	3,911,174	4,711,440	4,965,604
Gogebic.....	4,088,057	4,315,314	2,603,318	5,006,266	4,531,558
Vermilion.....	1,108,215	1,203,177	1,088,930	1,844,981	1,566,600
Mesabi.....	28,176,281	29,201,760	22,093,532	32,047,409	34,038,643
Cuyuna .....	.....	.....	147,431	305,111	733,021
Miscellaneous.....	82,759	91,682	115,629	104,031	145,010
Total.....	42,586,869	43,442,397	32,793,130	48,221,546	49,947,116

LAKE SUPERIOR IRON ORE SHIPMENTS BY PORTS, 1909-1913.

[From statistics gathered by The Iron Trade Review.]

Ports—Gross tons.	1909.	1910.	1911.	1912.	1913.
Escanaba	5,747,801	4,959,726	4,278,445	5,234,655	5,399,444
Marquette	2,909,451	3,248,516	2,200,380	3,296,761	3,137,617
Ashland.....	3,834,207	4,094,374	2,429,290	4,797,101	4,338,230
Two Harbors.....	9,181,132	8,271,177	6,367,537	9,370,969	10,075,718
Superior	6,540,505	8,414,799	9,920,490	14,240,714	13,788,343
Duluth	13,470,503	13,640,166	6,934,269	10,495,577	12,331,126
Total lake.....	41,683,599	42,628,758	32,130,411	47,435,777	49,070,478
All rail.....	903,270	813,639	662,719	785,769	876,638
Grand total.....	42,586,869	43,442,397	32,793,130	48,221,546	49,947,116

IRON ORE RECEIVED AND ON DOCK AT CLOSE OF NAVIGATION
AT LAKE ERIE PORTS, 1884-1913.

[From statistics gathered by The Iron Trade Review.]

Years.	Receipts. Gross tons.	On dock. Gross tons.	Years.	Receipts. Gross tons.	On dock. Gross tons.
1884	1,841,877	1,038,135	1899.....	15,222,187	5,530,283
1885	1,503,969	1,048,940	1900.....	15,797,787	5,904,670
1886	2,270,554	966,472	1901.....	17,014,076	5,859,663
1887	3,439,198	1,558,861	1902.....	22,649,424	7,074,254
1888	3,783,659	1,848,555	1903.....	19,681,731	6,371,085
1889	5,856,344	2,607,106	1904.....	17,932,814	5,763,399
1890	6,874,664	3,893,487	1905.....	29,060,693	6,438,967
1891	4,939,684	3,508,489	1906.....	32,194,205	6,252,455
1892	6,660,734	4,149,451	1907.....	35,348,915	7,385,728
1893	5,333,061	4,070,710	1908.....	20,527,052	9,074,003
1894	6,350,825	4,834,247	1909.....	33,672,825	9,471,428
1895	8,112,228	4,415,712	1910.....	34,042,897	9,797,980
1896	8,026,432	4,954,984	1911.....	25,531,550	9,469,869
1897	10,120,906	5,923,755	1912.....	37,472,108	10,080,798
1898	11,028,321	5,136,407	1913.....	39,099,647	9,261,676

**RECEIPTS OF LAKE SUPERIOR IRON ORE AT LAKE ERIE PORTS
IN GROSS TONS, 1908-1913.**

[From statistics gathered by The Iron Trade Review.]

Ports.	1908.	1909.	1910.	1911.	1912.	1913.
Toledo.....	680,553	1,374,224	1,225,202	493,345	1,411,278	1,084,215
Sandusky.....		11,088				
Huron.....	213,377	243,082	197,951	223,947	540,586	687,485
Lorain.....	2,286,388	2,796,856	2,884,738	2,937,605	3,771,350	3,709,213
Cleveland.....	4,240,816	6,051,342	6,344,943	4,584,211	7,914,836	8,812,583
Fairport.....	1,518,961	1,734,277	1,516,434	666,365	1,810,381	2,037,126
Ashtabula.....	3,012,064	8,056,941	9,620,638	6,359,131	8,158,080	8,336,126
Conneaut.....	4,798,631	7,007,834	6,309,548	6,931,278	7,839,831	7,849,303
Erie.....	828,602	1,235,057	942,592	289,400	547,067	713,904
Buffalo.....	2,835,099	5,002,235	4,704,439	2,802,976	5,060,642	5,506,691
Detroit.....	112,561	159,889	296,412	243,292	418,057	363,001
Total.....	20,527,052	33,672,825	34,042,897	25,531,550	37,472,108	39,099,647

Shipments from the Helen mine and the Moose Mountain mine, both located in Ontario, are not included above.

The shipments of iron ore from the Lake Superior region for the account of the United States Steel Corporation from mines owned wholly or in part are reported to us annually. In 1913 the shipments amounted to 25,202,084 gross tons, or 50.4 per cent., as compared with 24,331,837 tons, or 50.4 per cent., in 1912; 17,806,257 tons, or 54.2 per cent., in 1911; 22,185,972 tons, or 51 per cent., in 1910; 21,876,246 tons, or 51.3 per cent., in 1909; 14,579,613 tons, or 56 per cent., in 1908; 23,148,467 tons, or 54.7 per cent., in 1907; 20,885,774 tons, or 54.1 per cent., in 1906; and 19,251,872 tons, or 56 per cent., in 1905. Iron Ridge ore is included.

LARGEST SHIPPERS OF LAKE SUPERIOR IRON ORE IN 1913.

Mesabi range—Hull-Rust, 3,457,608 gross tons; Sauntry-Alpena, 1,705,131 tons; Adams, 1,580,196 tons; Mahoning, 1,515,428 tons; Fayal, 1,257,430 tons; Leonard, 1,253,367 tons; Uno South, 1,202,341 tons; Genoa, 1,141,673 tons; Canisteo, 1,099,727 tons; Susquehanna, 904,019 tons; Hill, 855,965 tons; Shenango, 794,911 tons; and Holman, 751,422 tons. These 13 mines shipped 17,519,218 tons in 1913, or over one-half of the total ore shipped from this range in that year. No other mine in this range shipped over 688,000 tons. There were 110 active mines or groups of mines.

Gogebic range—The Norrie group shipped 1,503,443 tons; Newport, 1,146,730 tons; Colby, 305,744 tons; Montreal,

219,469 tons; Cary, 217,349 tons; Iron-ton, 166,123 tons; and Sunday Lake, 133,475 tons. No other mine in this range shipped over 120,000 tons. The active mines numbered 23.

Menominee range—The Penn Iron Mining Company shipped 416,244 tons; Bristol, (Claire,) 379,168 tons; Chapin, 370,211 tons; Pewabic, 364,176 tons; Caspian, 295,841 tons; Aragon, 230,958 tons; Davidson, 195,448 tons; and Mansfield, 190,503 tons. No other mine in this range shipped over 189,000 tons. The number of active mines was 44.

Marquette range—The Cleveland-Cliffs group shipped 997,520 tons; Negaunee, 326,877 tons; Queen group, 298,504 tons; Mary Charlotte, 264,120 tons; Lake Superior, 203,964 tons; Maas, 170,705 tons; Cambria, 169,473 tons; Rolling Mill, 163,286 tons; and American, (Sterling,) 162,253 tons. No other mine in this range shipped over 139,000 tons. The number of active mines was 29.

Vermilion range—Pioneer shipped 520,124 tons; Zenith, 433,603 tons; Sibley, 249,255 tons; Section 30, 136,359 tons; and Soudan, 100,885 tons. No other mine shipped over 75,000 tons. The number of active mines was 7.

Cuyuna range—Kennedy shipped 267,023 tons; Armour No. 2, 175,665 tons; Armour No. 1, 105,087 tons; and Pennington, 101,136 tons. No other mine shipped over 48,000 tons. The number of active mines was 8.

PRODUCTION, IMPORTS, AND CONSUMPTION OF MANGANESE ORE.

Years. Gross tons.	Produc- tion.	Imports.	Approxi- mate con- sumption.	Years. Gross tons.	Produc- tion.	Imports.	Approxi- mate con- sumption.
1889.....	24,197	4,286	28,483	1902....	7,477	235,576	243,053
1890.....	19,287	34,154	53,441	1903....	2,825	146,056	148,881
1891.....	22,452	28,825	51,277	1904....	3,146	108,519	111,665
1892....	13,613	58,572	72,185	1905....	4,118	257,033	261,151
1893.....	7,718	68,113	75,831	1906....	6,921	221,260	228,181
1894.....	6,308	44,655	50,963	1907....	5,604	209,021	214,625
1895.....	9,547	86,111	95,658	1908....	6,144	178,203	184,347
1896.....	10,088	31,489	41,577	1909....	1,544	212,765	214,309
1897.....	11,108	119,961	131,069	1910....	2,258	242,348	244,606
1898.....	15,957	114,885	130,842	1911....	2,457	176,852	179,309
1899.....	9,935	188,349	198,284	1912....	1,664	300,661	302,325
1900.....	11,771	256,252	268,023	1913....	4,048	345,090	349,138
1901.....	11,995	165,722	177,717	.....	.....	.....	.....

PRODUCTION AND SHIPMENTS OF COAL.

PRODUCTION OF COAL BY STATES FROM 1909 TO 1913.

[From Mineral Resources of the United States, U. S. Geological Survey.]

States—Net tons.	1909.	1910.	1911.	1912.	1913.
Alabama.....	13,703,450	16,111,462	15,021,421	16,100,600	17,678,522
Arkansas.....	2,377,157	1,905,958	2,106,789	2,100,819	2,234,107
Cal. and Alaska...	48,636	12,164	11,647	11,333	26,911
Colorado.....	10,716,936	11,973,736	10,157,383	10,977,824	9,232,510
Ga. and N. Car....	211,196	177,245	165,330	227,703	255,626
Idaho and Nevada	4,553	4,448	1,821	2,964	2,177
Illinois.....	50,904,990	45,900,246	53,679,118	59,885,226	61,618,744
Indiana.....	14,834,259	18,389,815	14,201,355	15,285,718	17,165,671
Iowa.....	7,757,762	7,928,120	7,331,648	7,289,529	7,525,936
Kansas.....	6,986,478	4,921,451	6,178,728	6,986,182	7,202,210
Kentucky.....	10,697,384	14,623,319	14,049,703	16,490,521	19,616,600
Maryland.....	4,023,241	5,217,125	4,685,795	4,964,038	4,779,839
Michigan.....	1,784,692	1,534,967	1,476,074	1,206,230	1,231,786
Missouri.....	3,756,530	2,982,433	3,836,107	4,339,856	4,318,125
Montana.....	2,553,940	2,920,970	2,976,358	3,048,495	3,240,973
New Mexico.....	2,801,128	3,508,321	3,148,158	3,536,824	3,708,806
North Dakota.....	422,047	399,041	502,628	499,480	495,320
Ohio.....	27,939,641	34,209,668	30,759,986	34,528,727	36,200,527
Oklahoma.....	3,119,377	2,646,226	3,074,242	3,675,418	4,165,770
Oregon.....	87,276	67,533	46,661	41,637	46,063
Pennsylvania bit..	137,966,791	150,521,526	144,561,257	161,865,488	173,781,217
Tennessee.....	6,358,645	7,121,380	6,433,156	6,473,228	6,903,784
Texas.....	1,824,440	1,892,176	1,974,593	2,188,612	2,429,144
Utah.....	2,266,899	2,517,809	2,513,175	3,016,149	3,254,828
Virginia.....	4,752,217	6,507,997	6,864,667	7,846,638	8,828,068
Washington.....	3,602,263	3,911,899	3,572,815	3,360,932	3,877,891
West Virginia.....	51,849,220	61,671,019	59,831,580	66,786,687	71,308,982
Wyoming.....	6,393,109	7,533,088	6,744,864	7,368,124	7,393,066
Total bitum..	379,744,257	417,111,142	405,907,059	450,104,982	478,523,203
Penna. anth..	81,070,359	84,485,236	90,464,067	84,361,598	91,524,922
Grand total...	460,814,616	501,596,378	496,371,126	534,466,580	570,048,125

The total production of coal in the United States in 1913 amounted to 570,048,125 net tons, or 508,971,540 gross tons, as compared with 534,466,580 net tons, or 477,202,304 gross tons, in 1912, an increase of 35,581,545 net tons, or 31,769,236 gross tons.

Of the total production of anthracite and bituminous coal in 1913, 91,524,922 net tons, or 81,718,680 gross tons, were Pennsylvania anthracite, and 478,523,203 net

tons, or 427,252,860 gross tons, were classed as bituminous and lignite. The anthracite production includes 2,340,990 net tons, or 2,090,170 gross tons, which were recovered from old culm banks by washeries and 150,064 net tons, or 133,986 gross tons, which were recovered by dredges from the bed of the Susquehanna river.

TOTAL CONSUMPTION OF COAL.

The total exports of coal in 1913 amounted to 24,798,080 net tons, or 22,141,143 gross tons, and the imports for consumption to 1,583,560 net tons, or 1,413,893 gross tons; the total consumption in 1913, not counting stocks on hand at the beginning and end of the year, was 546,833,605 net tons, or nearly 96 per cent. of the total domestic production of coal in that year.

SHIPMENTS OF ANTHRACITE COAL AND CUMBERLAND COAL.

The shipments of anthracite coal from the Pennsylvania mines in 1913 were 69,069,628 gross tons, against 63,610,578 tons in 1912, 69,954,299 tons in 1911, 64,905,786 tons in 1910, 61,969,885 tons in 1909, 64,665,014 tons in 1908, and 67,109,393 tons in 1907. These figures were obtained from the Bureau of Anthracite Coal Statistics.

The shipments of Cumberland coal from the mines of Western Maryland and West Virginia in 1913 amounted to 6,921,330 gross tons, against 6,369,375 tons in 1912. The largest shipments were made in 1907, when they amounted to 7,360,336 tons. For the above statistics we are indebted to the Cumberland and Pennsylvania Railroad Company.

MONONGAHELA SHIPMENTS OF COAL AND COKE.

We are advised by the War Department that in the fiscal year ended June 30, 1913, there were shipped on the Monongahela river 11,061,338 net tons of coal and 4,200 tons of coke, against 8,629,739 tons of coal in the fiscal year 1912. No shipments of coke were made in the fiscal year 1912. In the calendar year 1913 there were shipped 10,335,585 net tons of coal and 3,750 tons of coke, as compared with 9,943,333 tons of coal and 2,075 tons of coke in the calendar year 1912.

PRODUCTION AND SHIPMENTS OF COKE.

COKE PRODUCTION BY STATES FROM 1909 TO 1913.

[From Mineral Resources of the United States, U. S. Geological Survey.]

States—Net tons.	1909.	1910.	1911.	1912.	1913.
Pennsylvania.....	24,905,525	26,315,607	21,923,935	27,438,693	28,753,444
Alabama.....	3,085,824	3,249,027	2,761,521	2,975,489	3,323,664
Indiana.....	*	*	916,411	2,616,339	2,727,025
West Virginia.....	3,943,948	3,803,850	2,291,049	2,465,986	2,472,752
Illinois.....	1,276,956	1,514,504	1,610,212	1,764,944	1,859,553
Virginia.....	1,347,478	1,493,655	910,411	967,947	1,303,603
Colorado.....	† 1,251,805	† 1,346,211	951,748	972,941	879,461
New York.....	*	652,459	686,172	794,618	758,486
New Mexico.....	373,967	401,646	381,927	413,906	467,945
Tennessee.....	261,808	322,756	330,418	370,076	364,578
Ohio.....	222,711	282,315	311,382	388,669	351,846
Kentucky.....	46,371	53,857	66,099	191,555	317,084
New Jersey.....	*	*	*	270,429	255,792
Washington.....	42,981	59,337	40,180	49,260	76,221
Georgia.....	46,385	43,814	37,553	43,158	42,747
Other States.....	2,509,306	2,169,772	2,332,471	2,259,589	2,345,329
Total...Net tons.	39,315,065	41,708,810	35,551,489	43,983,599	46,299,530

* Production included with "other States." † Includes Utah.

At the close of 1913 there were 102,650 completed ovens in the United States, against 102,230 at the end of 1912. Of the total production of coke in 1913, 33,584,830 net tons, or over 72.5 per cent., were made in bee-hive ovens, and 12,714,700 tons, or almost 27.5 per cent., in the various types of retort ovens. In 1912 there were 32,868,435 tons of coke, or over 74.7 per cent., made in beehive ovens, and 11,115,164 tons, or almost 25.3 per cent., in retort ovens.

SHIPMENTS AND PRODUCTION OF CONNELLSVILLE COKE.

The Connellsville *Courier* reports that the total shipments of coke from the Connellsville region in 1913 amounted to 20,097,901 net tons, against 20,000,873 tons in 1912, an increase of 97,028 tons. The *Courier* includes in the Connellsville region the two districts which produce Connellsville coke, and which the United States Geological Survey classifies as Connellsville and Lower Connellsville.

the former shipping 11,366,288 tons in 1913 and the latter 8,731,613 tons. The *Courier* does not include the shipments and production of coke from the ovens north of Latrobe, known as the Latrobe or Upper Connellsville district, nor from the ovens in the Greensburg basin, known as the Greensburg-Connellsville district.

The total production of coke in the Connellsville region in 1913 is reported by the *Courier* as 20,078,579 net tons, shipments having exceeded production by 19,322 tons. In 1912 production exceeded shipments by 31,402 tons.

The following table, for which we are indebted to the editor of the *Courier*, gives the total number of ovens in the Connellsville region at the close of each year from 1880 to 1913, the annual shipments of coke in net tons, and the average annual price of coke per net ton at the ovens.

Calendar years. Net tons.	Total ovens.	Shipments. Net tons.	Average price.	Calendar years. Net tons.	Total ovens.	Shipments. Net tons.	Average price.
1880.....	7,211	2,205,946	\$1.79	1897.....	18,628	6,915,052	\$1.65
1881.....	8,208	2,639,002	1.63	1898.....	18,643	8,460,112	1.55
1882.....	9,283	3,043,394	1.47	1899.....	19,689	10,129,764	2.00
1883.....	10,176	3,552,402	1.14	1900.....	20,954	10,166,234	2.70
1884.....	10,543	3,192,105	1.13	1901.....	21,575	12,609,949	1.95
1885.....	10,471	3,096,012	1.22	1902.....	26,329	14,138,740	2.37
1886.....	10,952	4,180,521	1.36	1903.....	28,092	13,345,230	3.00
1887.....	11,923	4,146,989	1.79	1904.....	29,119	12,427,468	1.75
1888.....	13,975	4,955,553	1.19	1905.....	30,842	17,896,526	2.26
1889.....	14,458	5,930,428	1.34	1906.....	34,059	19,999,326	2.75
1890.....	16,020	6,464,156	1.94	1907.....	35,697	19,029,058	2.90
1891.....	17,204	4,760,665	1.87	1908.....	37,842	10,700,022	1.80
1892.....	17,256	6,329,452	1.83	1909.....	39,158	17,785,832	2.00
1893.....	17,513	4,805,623	1.49	1910.....	39,137	18,689,722	2.10
1894.....	17,834	5,454,451	1.00	1911.....	38,904	16,334,174	1.72
1895.....	17,947	8,244,438	1.23	1912.....	38,884	20,000,873	1.92
1896.....	18,351	5,411,602	1.90	1913.....	39,067	20,097,901	2.95

SHIPMENTS OF POCAHONTAS COKE.

The shipments of Pocahontas Flat Top coke in 1913, for which we are indebted to the Norfolk and Western Railway Company, amounted to 1,280,638 net tons, against 1,284,954 tons in 1912, 1,323,387 tons in 1911, and 2,335,932 tons in 1910. Of the shipments in 1913, 1,253,433 tons were line trade and 27,205 tons were tidewater, while in 1912, 1,232,810 tons were line trade and 52,144 tons tidewater.

MISCELLANEOUS PRODUCTION STATISTICS.

In 1913 Allegheny county made over 46.3 per cent. of the total production of pig iron in Pennsylvania and over 19.3 per cent. of the country's total production ; over 49.3 per cent. of the total production of steel ingots and castings in Pennsylvania and over 24.5 per cent. of the country's total production ; over 41.3 per cent. of the rail production in Pennsylvania and over 11.4 per cent. of the country's total production ; over 53.7 per cent. of the production of structural shapes in Pennsylvania and over 38.1 per cent. of the country's total production ; over 44.9 per cent. of the production of plates and sheets in Pennsylvania and over 24.3 per cent. of the total production ; over 60.5 per cent. of the production of merchant bars in Pennsylvania and over 29.5 per cent. of the country's total production ; over 72.4 per cent. of the production of skelp in Pennsylvania and over 30 per cent. of the country's total production ; and over 49.3 per cent. of the production of all kinds of finished rolled iron and steel in Pennsylvania and nearly 24.3 per cent. of the country's total production.

PRODUCTION OF IRON AND STEEL IN ALLEGHENY COUNTY, PENNSYLVANIA, 1901-1904.

Details—Gross tons.	1901.	1902.	1903.	1904.
Furnaces built and building.....No.	37	40	41	42
Consumption of limestone.....	1,625,152	1,906,974	1,860,026	1,892,735
Production of pig iron	3,690,011	4,260,769	4,211,569	4,383,169
Rolling mills and steel works...No.	63	66	65	64
Production of Bessemer steel.....	2,883,595	3,094,175	2,748,833	2,487,412
Production of open-hearth steel.....	2,199,191	2,503,245	2,604,349	2,737,560
Production of all other steel.....	56,053	62,888	51,195	36,408
Total production of steel	5,138,839	5,660,308	5,404,377	5,261,380
Production of all kinds of rails.....	711,031	712,286	749,953	586,210
Production of structural shapes.....	617,308	773,144	689,849	601,025
Production of plates and sheets.....	850,285	1,010,650	945,327	839,015
Production of other rolled products	1,816,587	1,977,179	1,797,795	1,707,545
Production of all rolled products...	3,995,211	4,473,259	4,182,924	3,733,795

PRODUCTION OF IRON AND STEEL IN ALLEGHENY COUNTY, PENNSYLVANIA, FROM 1905 TO 1913.

Compiled from Statistics Collected from the Manufacturers by the American Iron and Steel Association and the Bureau of Statistics of the American Iron and Steel Institute.

Details—Gross tons.	1905.		1906.		1907.		1908.		1909.		1910.		1911.		1912.		1913.	
	Gross tons.	No.	Gross tons.	No.	Gross tons.	No.	Gross tons.	No.	Gross tons.	No.	Gross tons.	No.	Gross tons.	No.	Gross tons.	No.	Gross tons.	No.
Furnaces built and building.....	42	No.	47	No.	47	No.	47	No.	47	No.	47	No.	47	No.	47	No.	47	No.
Consumption of iron ore.....	Not ascertained		Not ascertained		Not ascertained		Not ascertained		Not ascertained		Not ascertained		Not ascertained		Not ascertained		Not ascertained	
Consumption of mill cinder, scale, etc.....	2,356,803		2,570,646		2,500,321		1,926,667		2,643,550		2,680,176		2,656,811		3,242,709		3,065,549	
Consumption of limestone.....	5,410,890		5,702,721		5,438,233		3,917,938		5,497,372		5,330,982		5,116,442		6,107,226		5,999,539	
Production of pig iron.....	65	No.	67	No.	66	No.	64	No.	64	No.	65	No.	66	No.	65	No.	65	No.
Rolling mills and steel works.....	3,137,883		3,255,064		2,972,286		1,361,895		1,804,729		2,003,141		1,442,286		1,977,970		1,824,479	
Production of Bessemer steel.....	3,410,482		3,799,907		3,883,014		3,106,797		4,849,366		5,099,464		4,980,426		5,777,672		5,809,778	
Production of open-hearth steel.....	44,752		50,530		50,290		20,764		36,798		43,106		28,661		30,813		34,964	
Production of all other steel.....	6,593,117		7,105,501		6,905,590		4,489,456		6,690,893		7,145,711		6,451,373		7,786,455		7,669,221	
Total production of steel.....	743,612		851,419		770,333		269,719		483,026		534,511		427,140		380,255		401,984	
Production of all kinds of rails.....	881,932		1,054,747		889,066		463,761		907,569		950,848		717,819		1,062,735		1,145,870	
Production of structural shapes.....	1,232,705		1,300,873		1,346,517		715,164		1,118,939		1,341,343		1,113,794		1,426,310		1,401,321	
Production of plates and sheets.....	968,839		1,205,498		1,185,228		483,514		994,522		1,229,768		812,026		1,231,859		1,167,902	
Production of merchant bars.....	527,651		457,514		516,264		426,883		684,303		579,573		608,497		772,201		751,963	
Production of skelp.....	715,832		815,966		930,822		500,189		952,499		1,041,494		826,876		*1,141,745		*1,154,745	
Production of other rolled products.....	5,070,571		5,686,017		5,638,280		2,859,230		5,140,858		5,677,587		4,504,152		*6,015,105		*6,023,785	

* Includes blooms, billets, sheet bars, tinplate bars, and other semi-finished forms rolled for export not included in prior years.

COMPARATIVE PRODUCTION OF LEADING IRON AND STEEL PRODUCTS BY THE UNITED STATES
STEEL CORPORATION AND ALL OTHER COMPANIES FROM 1901 TO 1913.

The Corporation has specially verified its production as given in this table.

Years. Gross tons.	PRODUCTION OF PIG IRON.				PRODUCTION OF STEEL INGOTS AND STEEL CASTINGS.				PRODUCTION OF ALL KINDS OF FINISHED ROLLED PRODUCTS.			
	Corporation.	All other.	Total.	Per cent of Corp.	Corporation.	All other.	Total.	Per cent of Corp.	Corporation.	All other.	Total.	Per cent of Corp.
1901.....	6,855,731	9,022,623	15,878,354	43.2	8,854,820	4,618,775	13,473,595	65.7	6,189,958	6,159,369	12,349,327	50.1
1902.....	7,975,630	9,845,777	17,821,307	44.8	9,750,386	5,196,864	14,947,250	65.2	7,157,882	6,786,234	13,944,116	51.3
1903.....	7,279,241	10,730,011	18,009,252	40.4	9,173,870	5,361,108	14,534,978	63.1	6,756,071	6,451,626	13,207,697	51.2
1904.....	7,369,421	9,127,612	16,497,033	44.7	8,412,555	5,447,332	13,859,887	60.7	5,743,398	6,269,983	12,013,381	47.8
1905.....	10,172,148	12,820,232	22,992,380	44.2	12,006,381	8,017,566	20,023,947	60.0	7,978,955	8,861,060	16,840,015	47.4
1906.....	11,267,377	14,039,814	25,307,191	44.5	13,529,199	9,868,937	23,398,136	57.8	9,432,946	10,155,522	19,588,468	48.2
1907.....	*11,422,795	14,358,566	25,781,361	44.3	*13,343,019	10,019,575	23,362,594	57.1	*9,629,484	10,235,338	19,864,822	48.5
1908.....	6,934,408	9,001,610	15,936,018	43.5	7,838,713	6,184,534	14,023,247	55.9	5,571,528	6,256,665	11,828,193	47.1
1909.....	11,618,350	14,177,121	25,795,471	45.0	13,355,189	10,599,832	23,955,021	55.8	9,805,306	10,039,384	19,844,690	48.9
1910.....	11,831,398	15,472,169	27,303,567	43.3	14,179,369	11,915,550	26,094,919	54.3	10,393,925	11,227,354	21,621,279	48.1
1911.....	10,744,897	12,904,650	23,649,547	45.4	12,753,370	10,929,736	23,673,106	53.9	8,763,894	10,335,347	19,099,171	45.7
1912.....	14,186,164	15,540,773	29,726,937	47.7	16,901,223	14,350,080	31,251,303	54.1	11,964,792	12,692,049	24,656,841	48.5
1913.....	14,080,730	16,885,422	30,966,152	45.5	16,656,361	14,644,513	31,300,874	53.2	11,853,639	12,937,604	24,791,243	47.8

* For this and all subsequent years the production of the Tennessee Coal, Iron, and Railroad Company is included.

PERCENTAGE OF PRODUCTION OF THE UNITED STATES STEEL CORPORATION IN 1912.

Products.	Production U. S. Steel Corporation.	Production all other companies.	Total production.	Percentage U. S. Steel Corporation.
Shipments of iron ore from the Lake Superior region in 1912*.....gross tons.	24,331,837	23,889,709	48,221,546	50.46
Total production of iron ore in the United States in 1912.....gross tons.	26,428,449	28,721,898	55,150,347	47.92
Production of coke in 1912.....net tons.	16,719,387	27,264,212	43,983,599	38.01
Spiegeleisen and ferro-manganese.....	179,207	42,517	221,724	80.82
Bessemer, basic, low-phosphorus, foundry, forge, ferro-silicon, etc.....	14,006,957	15,498,256	29,505,213	47.47
Total pig iron, including spiegeleisen, ferro-manganese, ferro-silicon, etc.....gross tons.	14,186,164	15,540,773	29,726,937	47.72
Total production of steel ingots and castings.....gross tons.	16,901,223	14,350,080	31,251,303	54.08
Steel rails, including Bessemer, open-hearth, electric, rerolled, renewed, etc.....	1,872,772	1,455,143	3,327,915	56.27
Structural shapes.....	1,418,518	1,427,969	2,846,487	49.83
Plates and sheets, including black plates for tinning.....	2,959,056	2,916,024	5,875,080	50.37
Wire rods.....	1,676,916	976,637	2,653,553	63.20
Other finished rolled products, including nail plate, merchant bars, rolled forging blooms and billets, semi-finished products rolled for export, etc.....	4,037,530	5,916,276	9,953,806	40.56
Total of the rolled products enumerated above.....gross tons.	11,964,792	12,692,049	24,656,841	48.52
Wire nails.....kegs of 100 pounds.	7,227,502	7,432,198	14,659,700	49.30
Tinplates and terne plates.....gross tons.	581,346	381,625	962,971	60.37

* In this line shipments are given instead of production.

PERCENTAGE OF PRODUCTION OF THE UNITED STATES STEEL CORPORATION IN 1913.

PRODUCTS.	Production U. S. Steel Corporation.	Production all other companies.	Total production.	Percentage U. S. Steel Corporation.
Shipments of iron ore from the Lake Superior region in 1913*.....gross tons.	25,202,084	24,745,032	49,947,116	50.46
Total production of iron ore in the United States in 1913.....gross tons.	28,738,451	33,241,986	61,980,437	46.37
Production of coke in 1913.....net tons....	16,663,480	29,636,050	46,299,530	35.99
Spiegeleisen and ferro-manganese.....	184,731	45,102	229,833	80.38
Besemer, basic, low-phosphorus, foundry, forge, ferro-silicon, etc.....	13,895,999	16,840,320	30,736,319	45.21
Total pig iron, including spiegeleisen, ferro-manganese, ferro-silicon, etc.....gross tons.	14,080,730	16,885,422	30,966,152	45.47
Total production of steel ingots and castings.....gross tons.	16,656,361	14,644,513	31,300,874	53.21
Steel rails, including Besemer, open-hearth, electric, rerolled, renewed, etc.....	1,944,352	1,558,428	3,502,780	55.51
Structural shapes.....	1,623,669	1,381,303	3,004,972	54.03
Plates and sheets, including black plates for tinning.....	2,825,546	2,926,491	5,751,037	49.13
Wire rods.....	1,440,552	1,024,255	2,464,807	58.44
Other finished rolled products, including nail plate, merchant bars, rolled forging blooms and billets, semi-finished products rolled for export, etc.....	4,019,520	6,048,127	10,067,647	39.93
Total of the rolled products enumerated above.....gross tons.	11,853,639	12,937,604	24,791,243	47.81
Wire nails.....keys of 100 pounds.	6,041,330	7,518,397	13,559,727	44.55
Tinplates and terne plates.....gross tons.	483,002	340,717	823,719	58.64

* In this line shipments are given instead of production.

IMPORTS AND EXPORTS.

For statistics of imports and exports we are chiefly indebted to the Bureau of Foreign and Domestic Commerce.

IMPORTS OF IRON ORE.

IMPORTS OF IRON ORE IN CALENDAR YEARS, 1879-1913.

Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.
1879.....	284,141	1888.....	587,470	1897.....	489,970	1906.....	1,060,390
1880.....	493,408	1889.....	853,573	1898.....	187,093	1907.....	1,229,168
1881.....	782,887	1890.....	1,246,830	1899.....	674,082	1908.....	776,898
1882.....	589,655	1891.....	912,856	1900.....	897,831	1909.....	1,694,957
1883.....	490,875	1892.....	806,585	1901.....	966,950	1910.....	2,591,031
1884.....	487,820	1893.....	526,951	1902.....	1,165,470	1911.....	1,811,732
1885.....	390,786	1894.....	168,541	1903.....	980,440	1912.....	2,104,576
1886.....	1,039,433	1895.....	524,153	1904.....	487,613	1913.....	2,594,770
1887.....	1,194,301	1896.....	682,806	1905.....	845,651	.....	.....

IMPORTS OF IRON ORE BY CUSTOMS DISTRICTS, 1911-1913.

Customs districts. Gross tons.	1911.		1912.		1913.	
	Tons.	Values.	Tons.	Values.	Tons.	Values.
Maryland.....	806,354	\$2,305,042	840,488	\$3,559,765	1,076,452	\$3,186,388
New York.....	11,263	32,077	826	3,191	19,336	60,404
Philadelphia.....	984,192	3,039,994	1,229,737	4,072,776	1,393,296	4,809,961
Ohio.....	.....	.....	28,958	50,677	92,672	222,703
All other.....	9,923	35,523	4,567	13,281	13,014	57,363
Total.....	1,811,732	\$5,412,636	2,104,576	\$6,499,690	2,594,770	\$8,336,819

IMPORTS OF IRON ORE BY COUNTRIES, 1911-1913.

Countries. Gross tons.	1911.		1912.		1913.	
	Tons.	Values.	Tons.	Values.	Tons.	Values.
Cuba	1,147,879	\$3,218,485	1,398,593	\$3,969,986	1,635,622	\$4,864,186
Spain.....	194,965	502,453	92,061	222,951	112,580	488,798
Greece.....	13,200	18,888	.....	.....	9,200	12,952
Newfoundland.....	174,853	286,997	145,355	217,087	213,468	325,230
United Kingdom...	1,436	19,725	10,229	20,587	10,431	24,726
Germany.....	2	76	1,729	5,603	1,323	6,223
Canada	50,480	106,038	106,675	201,882	179,860	409,098
Sweden	219,238	1,215,588	333,863	1,781,579	356,074	1,901,988
Russia in Europe.	.....	.....	3,916	16,709	.....	.....
French Africa.....	4,443	13,068	.....	.....	12,950	32,299
Other countries.....	5,236	31,318	12,155	63,307	63,262	271,319
Total	1,811,732	\$5,412,636	2,104,576	\$6,499,690	2,594,770	\$8,336,819

The imports of iron ore from "other countries" in 1913 include 57,225 tons, valued at \$216,852, from Venezuela ; 2,400 tons, valued at \$24,819, from Egypt ; 2,000 tons, valued at \$21,899, from Morocco ; 1,581 tons, valued at \$7,551, from France ; and 56 tons, valued at \$198, from China and Belgium.

IMPORTS AND EXPORTS OF COAL AND COKE.

In 1913, the exports of anthracite coal were 4,154,386 gross tons, against 3,688,789 tons in 1912. The exports of bituminous coal in 1913 amounted to 17,986,757 tons, against 14,459,978 tons in 1912. The total exports of coal in 1913 amounted to 22,141,143 tons, against 18,148,767 tons in 1912. Coal used by vessels engaged in the foreign, coast, and lake trade is not included.

Of the anthracite coal exported in 1913, 4,083,333 gross tons were sent to Canada, 42,284 tons to Cuba, 12,296 tons to Newfoundland, 2,358 tons to Mexico, 5,955 tons to Santo Domingo, 3,165 tons to Bermuda, and 4,995 tons to other countries. Of the bituminous coal exported in 1913, 13,496,190 tons were sent to Canada, 1,275,538 tons to Cuba, 608,762 tons to other islands in the West Indies and to Bermuda, 489,761 tons to Panama, 482,027 tons to Italy, 477,046 tons to Mexico, 279,933 tons to Brazil, 148,979 tons to Chile, 136,778 tons to French Africa, 121,244 tons to Egypt, and 470,499 tons to other countries.

The exports of coke in 1913 amounted to 987,395 net tons, against 912,576 tons in 1912.

The imports of anthracite coal in 1913 amounted to 921 gross tons, against 1,670 tons in 1912. Of the anthracite coal imported in 1913, 801 tons came from China, 114 tons from Canada, 4 tons from Mexico, 1 ton from Peru, and 1 ton from Japan. Our imports of bituminous coal in 1913 amounted to 1,413,857 gross tons, against 1,608,350 tons in 1912. From Canada we imported 1,096,924 tons of bituminous coal in 1913 ; from Australia and Tasmania, 188,613 tons ; from Japan, 117,483 tons ; from the United Kingdom, 6,141 tons ; and from other countries, 4,696 tons.

The imports of coke in 1913 amounted to 104,728 net tons, against 123,589 tons in 1912.

IMPORTS AND EXPORTS OF PIG IRON, SPIEGEL-EISEN, FERRO-MANGANESE, ETC.

The following table gives our imports of pig iron, spiegel-eisen, ferro-manganese, and ferro-silicon from leading countries in calendar years since 1908. Gross tons are used.

Countries. Gross tons.	1908.	1909.	1910.	1911.	1912.	1913.
Austria-Hungary....	248	1,973	6,069	590	400	340
Germany	3,008	3,185	7,417	4,286	5,924	8,358
Netherlands.....	1,226	7,137	15,737	9,719	492	460
United Kingdom...	75,757	151,563	182,082	114,947	110,526	132,906
Canada	1,976	2,844	3,175	4,260	4,998	4,609
China.....	3,194	4,836	13,924	11,857	1,750	3,017
Other countries.....	6,793	4,904	8,829	2,800	5,235	6,745
Total	92,202	176,442	237,233	148,459	129,325	156,435

In addition to the countries named above we imported 2,876 gross tons of pig iron from Sweden in 1913, 806 tons from Switzerland, 552 tons from Belgium, France, and other Europe, and 2,511 tons from Cuba and British India.

EXPORTS OF PIG IRON TO FOREIGN COUNTRIES, 1909-1913.

Countries. Gross tons.	1909.	1910.	1911.	1912.	1913.
Canada	44,758	115,642	98,293	208,581	193,396
Austria-Hungary...	2,000	1,050	.....	14,806	4,601
Italy.....	3,130	3,027	7,710	11,954	24,551
United Kingdom...	5,980	3,994	8,526	25,617	21,394
Australia & Tas....	.....	25	4	.....	14,354
Japan .....	.....	.....	730	.....	2,293
Netherlands.....	.....	.....	10	140	1,516
Argentina.....	.....	.....	.....	.....	792
Germany.....	.....	336	293	2,403	1,723
Belgium	10	189	622	1,698	4,715
France.....	.....	48	202	827	752
Denmark.....	.....	.....	125	168	48
Mexico	406	719	444	804	85
Panama.....	4,907	400	1,079	1,606	3,921
Cuba.....	178	733	1,122	734	646
Brazil.....	75	.....	.....	50	1,305
Chile.....	.....	100	600	1,964	690
Peru.....	310	550	875	835	172
Philippines.....	100	407	.....	259	54
Other countries.....	135	165	164	230	640
Total.....	61,989	127,385	120,799	272,676	277,648

IMPORTS ENTERED FOR CONSUMPTION OF SPIEGELEISEN, FERRO-MANGANESE, FERRO-SILICON, AND PIG IRON, 1911-1913.

Articles. Gross tons.	1911.		1912.		1913.	
	Tons.	Values.	Tons.	Values.	Tons.	Values.
Ferro-manganese.	80,263	\$3,015,062	99,137	\$3,906,920	128,070	\$5,682,915
Spiegeleisen.....	20,970	405,444	1,015	28,094	77	2,173
Ferro-silicon.....	6,659	341,681	7,489	446,456	7,208	449,871
Total.....	107,892	\$3,762,187	107,641	\$4,381,470	135,355	\$6,134,959
Pig iron.....	38,685	586,403	18,386	318,208	22,487	430,339
Grand total...	146,577	\$4,348,590	126,027	\$4,699,678	157,842	\$6,565,298

IMPORTS FOR CONSUMPTION OF SPIEGELEISEN AND FERRO-MANGANESE, 1903-1913.

Calendar years. Gross tons.	Spiegeleisen—Gross tons.			Ferro-manganese—Gross tons.		
	Tons.	Values.	Average value per ton.	Tons.	Values.	Average value per ton.
1903.....	122,016	\$2,709,317	\$22.20	41,518	\$1,699,666	\$40.94
1904.....	4,623	132,461	28.65	21,814	707,037	32.41
1905.....	55,457	1,336,104	24.09	52,841	1,894,651	35.67
1906.....	103,267	2,942,940	28.50	84,359	4,953,644	58.72
1907.....	48,995	1,399,381	28.56	87,400	5,354,656	61.27
1908.....	4,579	125,054	27.31	44,624	1,860,664	41.70
1909.....	16,921	353,447	20.89	88,934	3,396,381	38.19
1910.....	25,383	489,049	19.27	114,278	4,341,071	37.99
1911.....	20,970	405,444	19.33	80,263	3,015,062	37.56
1912.....	1,015	28,094	27.68	99,137	3,906,920	39.41
1913.....	77	2,173	28.22	128,070	5,682,915	44.37

IMPORTS FOR CONSUMPTION OF FERRO-SILICON AND PIG IRON.

Calendar years. Gross tons.	Ferro-silicon—Gross tons.			Bessemer, basic, foundry, forge, etc., pig iron—Gross tons.		
	Tons.	Values.	Average value per ton.	Tons.	Values.	Average value per ton.
1903.....	14,880	\$379,900	\$25.53	414,981	\$6,302,604	\$15.18
1904.....	3,691	184,229	49.91	49,219	730,582	14.84
1905.....	11,044	558,906	50.61	93,124	1,406,123	15.10
1906.....	11,863	788,085	66.43	174,540	2,950,610	16.90
1907.....	14,825	1,049,283	70.78	328,672	5,409,540	16.46
1908.....	5,532	281,590	50.90	32,784	558,796	17.04
1909.....	12,802	504,821	39.43	57,831	910,584	15.75
1910.....	11,391	527,157	46.28	93,740	1,489,710	15.89
1911.....	6,659	341,681	51.31	38,685	586,403	15.16
1912.....	7,489	446,456	59.61	18,386	318,208	17.31
1913.....	7,208	449,871	62.41	22,487	430,339	19.13

IMPORTS AND EXPORTS OF IRON AND STEEL.

IMPORTS OF IRON AND STEEL, CALENDAR YEARS, 1912-1913.

Articles—Gross tons.	1912.		1913.	
	Tons.	Values.	Tons.	Values.
Pig iron, spiegel, ferro-mang., etc...	129,325	\$4,770,730	156,435	\$6,556,332
Scrap and old iron and steel.....	23,612	256,710	44,153	510,707
Bar iron.....	26,112	1,151,853	28,243	1,340,184
Iron and steel rails.....	3,780	101,544	10,408	216,272
Steel ingots, billets, blooms, etc....	18,702	2,941,481	26,675	3,505,463
Sheets and plates.....	3,299	363,141	2,930	382,566
Building forms and all other structural shapes.....	3,120	141,405	11,659	377,122
Tinplates and terne plates.....	2,053	229,891	20,680	1,478,635
Wire rods of iron or steel.....	15,069	726,205	16,098	802,401
Forgings, including anti-friction balls and bearings.....	.....	1,972,389	.....	2,389,275
Wire and articles made from.....	.....	1,103,192	.....	1,167,368
Cutlery.....	.....	2,111,875	.....	2,271,051
Shotgun barrels, in single tubes....	.....	112,246	.....	160,219
Machinery.....	.....	7,610,511	.....	6,105,646
Needles, hand sewing and darning..	.....	505,658	.....	489,067
Other iron and steel manufactures.	.....	5,229,678	.....	5,849,887
Total tons where specified.....	225,072	\$39,328,709	317,281	\$33,602,195

The following table gives our exports of iron and steel and manufactures thereof in the calendar years 1912 and 1913. "Bolts, nuts, rivets, and washers," "horseshoes," and "railroad spikes" are included with "all other manufactures of iron and steel" prior to July 1, 1912. The value of the exports of electrical machinery, which prior to 1912 the Bureau of Foreign and Domestic Commerce had included with the value of our exports of iron and steel, is not included in the total value for either 1912 or 1913.

In 1913 we exported 51,013 tons of steel billets, ingots, and blooms to the United Kingdom, 40,686 tons to Canada, and 148 tons to other countries. Of the wire exported the leading purchasers were Canada, British Oceania, Argentina, Brazil and other South America, British Africa, Cuba, and Mexico. Of the iron ore exported 1,042,129 tons were sent to Canada, as compared with 1,195,739 tons in 1912.

EXPORTS OF IRON AND STEEL, CALENDAR YEARS, 1912-1913.

Articles—Gross tons except where otherwise stated.	1912.		1913.	
	Tons.	Values.	Tons.	Values.
Pig iron.....	272,676	\$3,832,765	277,648	\$4,026,306
Scrap and old iron and steel...	105,965	1,475,412	97,429	1,276,558
Bar iron.....	21,926	841,824	16,615	768,501
Steel wire rods.....	64,978	1,898,986	61,637	1,815,922
Steel bars or rods except wire rods	208,213	7,516,789	211,716	7,554,223
Steel rails.....	446,473	13,053,774	460,553	13,979,549
Billets, ingots, and blooms.....	294,818	6,615,131	91,847	2,200,248
Iron sheets and plates.....	193,719	11,844,767	98,978	6,568,413
Steel sheets and plates.....	352,802	14,508,622	364,448	14,472,711
Structural iron and steel.....	288,164	12,694,804	403,264	17,790,744
Hoop, band, and scroll.....	12,557	539,354	16,841	767,631
Tinplates and terne plates.....	81,694	6,315,763	57,812	4,608,551
Bolts, nuts, rivets, and washers..	9,986	764,562	22,737	1,855,502
Horseshoes.....	510	44,834	1,247	101,985
Wire, barbed.....	96,059	4,932,051	82,051	4,267,476
Wire, all other.....	148,653	6,604,391	108,234	4,970,065
Cut nails and spikes.....	9,311	359,962	3,790	165,068
Railroad spikes.....	6,807	274,112	11,328	483,283
Wire nails and spikes.....	68,319	3,081,567	43,637	2,114,186
All other nails, spikes, & tacks	8,198	620,892	3,969	434,498
Pipes and fittings.....	249,856	14,256,406	301,790	17,999,990
Radiators, etc.....	5,912	457,809	8,064	654,071
Car-wheels.....No.	53,885	390,374	73,402	592,698
Cash registers.....No.	40,511	3,884,560	46,776	4,535,069
Safes.....No.	8,525	484,918	8,437	357,923
Locomotives—steam & elec. No.	520	5,519,627	529	4,726,272
Stationary engines.....No.	21,328	3,682,681	26,281	4,073,422
Traction engines.....No.	3,163	6,094,402	2,565	4,982,798
All other engines and parts of	.....	7,834,026	.....	8,341,745
Castings not elsewhere specified	.....	3,482,065	.....	3,150,544
Cutlery.....	.....	1,196,511	.....	1,178,902
Fire-arms.....	.....	3,904,950	.....	3,920,008
Locks, hinges, etc.....	.....	5,971,262	.....	6,315,468
Saws.....	.....	1,529,613	.....	1,612,349
Tools not elsewhere specified....	.....	10,802,774	.....	10,704,737
Laundry machinery.....	.....	1,233,326	.....	1,121,319
Metal-working machinery.....	.....	14,526,239	.....	15,558,212
Mining machinery.....	.....	8,138,328	.....	10,885,070
Printing presses.....	.....	2,883,269	.....	2,659,663
Pumps and pumping machinery	.....	3,931,353	.....	4,004,225
Sewing machines.....	.....	11,100,254	.....	11,851,020
Shoe machinery.....	.....	1,902,568	.....	1,732,709
Typewriting machines.....	.....	11,917,342	.....	11,054,397
Windmills.....	.....	1,391,889	.....	1,595,778
Wood-working machinery.....	.....	2,448,517	.....	2,351,271
All other machinery.....	.....	33,915,311	.....	38,507,910
Scales and balances.....	.....	1,157,478	.....	1,187,596
Stoves, ranges, and parts of.....	.....	2,113,482	.....	1,992,193
All other mfrs. of iron and steel	.....	25,156,724	.....	26,065,381
Total tons where specified.	2,947,596	\$289,128,420	2,745,635	\$293,934,160

Of the steam locomotives exported in 1913, 154 were sent to Brazil, 127 to Canada, 13 to Mexico, 67 to Cuba, 17 to the Central American States and British Honduras, 3 to Europe, 36 to South American States other than Brazil, 4 to China, 33 to Japan, and 40 to other countries.

In addition to the exports of iron and steel given in the table there were sent to foreign countries in the last six months of 1912 89 gross tons of ferro-vanadium, valued at \$170,895, and 270 tons, valued at \$455,417, in the 12 months of 1913. Similar figures prior to July 1, 1912, are not available.

EXPORTS OF LEADING ARTICLES OF IRON AND STEEL.

The following table gives exports of leading articles in calendar years from 1909 to 1913. Gross tons are used.

Articles—Gross tons.	1909.	1910.	1911.	1912.	1913.
Pig iron.....	61,989	127,385	120,799	272,676	277,648
Scrap and old iron and steel...	25,360	25,825	77,918	105,965	97,429
Bar iron.....	13,536	18,045	17,683	21,926	16,615
Steel wire rods.....	20,142	22,869	22,641	64,978	61,637
Steel bars or rods ex. wire rods	74,495	107,561	123,349	208,213	211,716
Steel rails.....	299,540	353,180	420,874	446,473	460,553
Billets, ingots, and blooms....	104,862	58,230	234,267	294,818	91,847
Iron sheets and plates.....	75,305	102,534	134,949	193,719	98,978
Steel sheets and plates.....	104,742	171,987	237,424	352,802	364,448
Structural iron and steel.....	90,830	146,721	223,493	288,164	403,264
Hoop, band, and scroll.....	3,874	.....	3,731	12,557	16,841
Tinplates and terne plates....	9,327	12,445	61,381	81,694	57,812
Bolts, nuts, rivets, and washers	.....	.....	.....	9,986	22,737
Horseshoes.....	.....	.....	.....	510	1,247
Wire, barbed.....	70,812	79,461	96,754	96,059	82,051
Wire, all other.....	78,529	92,467	133,008	148,653	108,234
Cut nails and spikes.....	9,936	8,129	11,422	9,311	3,790
Railroad spikes.....	.....	.....	.....	6,807	11,328
Wire nails and spikes.....	30,656	42,870	53,614	68,319	43,637
All other nails and spikes, in- cluding tacks.....	7,464	10,202	12,848	8,198	3,969
Pipes and fittings.....	162,185	155,778	197,507	249,856	301,790
Radiators, etc.....	.....	2,254	4,063	5,912	8,064
Total of the above.....	1,243,584	1,537,943	2,187,725	2,947,596	2,745,635
Iron ore.....	455,934	748,875	768,386	1,195,742	1,042,151
Locomotives—st'm & elec. No.	295	354	432	520	529

Exports of "radiators and cast-iron house-heating boilers" were not separately stated prior to July 1, 1910; exports of "hoop, band, and scroll iron or steel" were included with

all other manufactures of iron and steel from July 1, 1910, to June 30, 1911; and exports of "bolts, nuts, rivets, and washers," "horseshoes," and "railroad spikes," as already stated, were not separately stated prior to July 1, 1912.

VALUE OF IMPORTS AND EXPORTS OF IRON AND STEEL.

The following table gives the foreign value of imports and the home value of exports of iron and steel and manufactures thereof, except agricultural implements.

Calendar years.	Imports—Foreign values.	Exports—Home values.	Calendar years.	Imports—Foreign values.	Exports—Home values.
1891.....	\$41,983,626	\$30,736,507	1903.....	\$41,255,864	\$99,035,865
1892.....	33,882,447	27,900,862	1904.....	21,621,970	128,553,613
1893.....	29,656,539	30,159,363	1905.....	26,401,283	142,930,513
1894.....	20,843,576	29,943,729	1906.....	34,827,132	172,555,588
1895.....	25,772,136	35,071,563	1907.....	38,789,851	197,066,781
1896.....	19,506,587	48,670,218	1908.....	19,957,385	151,113,114
1897.....	13,835,950	62,737,250	1909.....	30,571,542	157,674,394
1898.....	12,474,572	82,771,550	1910.....	38,907,119	*194,115,215
1899.....	15,800,579	105,690,047	1911.....	28,995,600	*241,308,887
1900.....	20,443,911	129,633,480	1912.....	29,328,709	*289,128,420
1901.....	20,395,015	102,534,575	1913.....	33,602,195	*293,934,160
1902.....	41,468,826	97,892,036	.....	.....	.....

* The value of our exports of electrical machinery is not included for 1910, 1911, 1912, or 1913. For 1909 and prior years the value is included.

IMPORTS AND EXPORTS OF STEEL RAILS.

The following table gives our exports of steel rails by countries during the last five calendar years, in gross tons. Our imports of steel rails in 1913 amounted to 10,408 gross tons, as compared with 3,780 gross tons in 1912.

Countries—Calendar years.	1909.	1910.	1911.	1912.	1913.
Canada.....	32,988	25,341	88,047	133,351	161,971
Cent. America and Brit. Hond.	22,749	17,927	14,839	15,935	12,418
Mexico.....	65,838	63,082	35,152	32,402	13,907
West Indies and Bermuda.....	26,981	41,029	35,892	47,889	32,954
Argentina.....	101,943	64,370	57,385	13,574	41,181
Brazil.....		18,400	28,601	45,951	41,215
Other South America.....		16,384	41,596	54,465	33,525
Japan.....	9,823	17,977	49,775	54,247	20,820
Other Asia and Oceanica.....	38,325	80,080	57,550	31,387	90,405
Other countries.....	893	8,590	12,037	17,272	12,157
Total.....	299,540	353,180	420,874	446,473	460,553

EXPORTS OF STRUCTURAL SHAPES.

The following table gives our exports of iron and steel structural shapes by countries since 1908, in calendar years :

Countries—Gross tons.	1908.	1909.	1910.	1911.	1912.	1913.
Canada.....	39,253	42,715	74,855	103,054	169,952	275,184
Panama.....	2,083	11,792	7,787	28,881	41,536	28,514
Mexico.....	11,953	8,317	21,723	19,665	3,257	11,282
Cuba.....	10,417	5,849	10,557	16,052	14,587	16,288
South America.....	16,068	6,014	12,681	13,073	13,537	29,543
Japan.....	16,559	5,848	4,007	19,536	17,191	8,981
British Oceania.....	5,479	3,155	5,695	7,135	8,422	10,703
Philippine Islands.....	7,142	3,271	2,179	4,305	1,283	5,873
Other countries.....	7,927	3,869	7,237	11,792	18,399	16,896
Total.....	116,881	90,830	146,721	223,493	288,164	403,264

EXPORTS OF WIRE RODS.

The following table gives the countries to which steel wire rods were exported in the last three calendar years and the pounds and values exported to each country :

Countries. Calendar years.	1911.		1912.		1913.	
	Pounds.	Values.	Pounds.	Values.	Pounds.	Values.
Belgium.....			47,283	\$1,075		
England.....	117,280	\$1,649	1,141,706	16,330	113,060	\$1,475
Canada.....	50,585,647	657,188	143,276,757	1,863,469	137,308,225	1,800,877
Nicaragua.....	292	4	230	5		
Mexico.....			45,660	1,014	15,362	488
Cuba.....	6,801	134			114,544	2,195
Venezuela.....	5,637	91				
China.....			75,420	1,500		
Australia and Tasmania.....	}		964,700	15,593	59,360	1,269
Other countries.....					456,602	9,618
Total.....	50,715,657	\$659,066	145,551,756	\$1,898,986	138,067,153	\$1,815,922

The "other countries" to which wire rods were exported in 1913 were British India, 389,330 pounds; Argentina, 36,245 pounds; Panama, 12,992 pounds; Honduras, 12,600 pounds; and Guatemala, 5,435 pounds.

EXPORTS OF PLATES AND SHEETS.

The following table gives our exports by leading countries of plates and sheets in the calendar year 1913:

Countries.	Iron—Pounds.	Steel—Pounds.	Total—Pounds.
United Kingdom.....	406,500	24,673,388	25,079,888
Canada.....	90,259,172	623,143,615	713,402,787
Panama.....	2,723,649	8,289,341	11,012,990
Mexico.....	11,331,553	9,008,521	20,340,074
Cuba.....	11,101,787	18,396,205	29,497,992
Argentina.....	20,151,554	14,886,880	35,038,434
Brazil.....	3,744,895	1,312,811	5,057,706
Chile.....	4,920,468	31,690,187	36,610,655
Uruguay.....	2,217,833	1,586,436	3,804,269
British India.....	3,272,121	5,163,092	8,435,213
Japan.....	6,365,243	9,876,718	16,241,961
Australia and Tasmania.....	6,193,665	27,061,753	33,255,418
Philippine Islands.....	25,197,337	9,911,375	35,108,712
All other countries.....	33,824,344	31,362,958	65,187,302
Total for 1913.....	221,710,121	816,363,280	1,038,073,401
Total for 1912.....	433,930,243	790,277,425	1,224,207,668
Total for 1911.....	302,285,680	531,828,706	834,114,386

The exports of iron and steel plates and sheets from the United States to leading foreign countries in the last five calendar years are given in pounds in the following table.

Countries.	1909. Pounds.	1910. Pounds.	1911. Pounds.	1912. Pounds.	1913. Pounds.
United King..	17,748,568	10,336,091	10,114,211	39,252,950	25,079,888
Canada.....	223,705,297	370,563,051	435,243,867	655,559,702	713,402,787
Panama.....	7,952,163	7,207,469	14,110,509	9,365,118	11,012,990
Mexico.....	31,265,890	34,447,203	26,253,798	32,181,130	20,340,074
Cuba.....	16,237,922	22,554,689	23,460,492	25,745,864	29,497,992
Argentina.....	25,181,981	42,566,022	57,717,927	58,976,566	35,038,434
Brazil.....	1,481,800	3,445,921	5,607,694	11,816,043	5,057,706
Chile.....	6,136,506	16,789,703	56,133,495	38,647,253	36,610,655
Uruguay.....	905,959	370,024	4,118,208	7,880,711	3,804,269
British India.....	8,517,515	4,718,902	19,337,184	37,429,777	8,435,213
Japan.....	10,629,372	16,630,685	60,995,259	114,274,697	16,241,961
Australia and Tasmania.....	17,986,919	30,323,718	39,545,905	54,615,810	33,255,418
Philippine Islands.....	11,473,930	20,804,370	25,572,936	22,915,201	35,108,712
Other coun- tries.....	24,082,820	34,168,662	55,902,901	115,546,846	65,187,302
Total.....	403,306,642	614,926,510	834,114,386	1,224,207,668	1,038,073,401

EXPORTS OF CUT AND WIRE NAILS.

The following table gives our exports to leading countries of iron and steel cut nails in the last three calendar years :

Countries—Kegs of 100 pounds.	1911.	1912.	1913.
Canada.....	53,763	61,344	304
Panama	17,431	3,222	296
Mexico.....	30,049	18,731	7,037
Cuba.....	40,031	22,055	13,393
Brazil.....	112	11,107	1,734
Chile	80,480	66,786	40,450
Colombia.....	1,246	2,947	462
Santo Domingo	4,025	3,120	1,763
Australia and Tasmania.....	4,963	4,372	3,489
New Zealand.....	1,105	5,131	1,720
All other countries.....	22,649	9,753	14,237
Total	255,854	208,568	84,885

The following table gives our exports to leading countries of steel wire nails in the last three calendar years :

Countries—Kegs of 100 pounds.	1911.	1912.	1913.
England.....	73,871	166,484	99,683
Canada.....	10,158	44,533	34,632
Panama	9,757	25,460	16,822
Cuba.....	38,365	45,994	58,711
China.....	143,338	146,029	155,389
British India.....	58,353	118,723	79,858
Dutch East Indies.....	35,662	89,955	65,934
Japan.....	553,776	535,211	102,913
New Zealand.....	41,933	65,985	57,445
Philippine Islands.....	33,142	56,762	39,942
All other countries	202,602	235,217	266,148
Total.....	1,200,957	1,530,353	977,477

IMPORTS AND EXPORTS OF TINPLATES AND TERNE PLATES.

QUANTITIES AND VALUES OF TINPLATES AND TERNE PLATES
IMPORTED INTO THE UNITED STATES, 1889-1913.

Fiscal years.	United Kingdom.		All other countries.		Total.	
	Pounds.	Values.	Pounds.	Values.	Pounds.	Values.
1889.....	734,211,853	\$21,174,529	1,568,135	\$48,124	735,779,988	\$21,222,653
1890.....	678,933,940	20,891,062	1,126,985	37,088	680,060,925	20,928,150
1891.....	1,033,531,124	35,645,076	2,957,950	101,844	1,036,489,074	35,746,920
1892.....	421,838,482	12,304,233	337,720	11,329	422,176,202	12,315,562
1893.....	628,095,497	17,554,310	330,405	11,330	628,425,902	17,565,640
1894.....	453,880,341	11,961,524	280,485	7,994	454,160,826	11,969,518
1895.....	507,075,599	12,119,083	963,339	24,997	508,038,938	12,144,080
1896.....	383,882,250	8,915,083	1,256,733	35,573	385,138,983	8,950,656
1897.....	229,208,495	5,320,238	865,188	24,400	230,073,683	5,344,638
1898.....	170,872,133	3,786,626	790,212	22,522	171,662,345	3,809,148
1899.....	107,831,639	2,592,106	653,187	21,458	108,484,826	2,613,564
1900.....	147,321,985	4,772,629	641,819	27,167	147,963,804	4,799,796
1901.....	116,829,478	3,733,480	1,050,834	36,582	117,880,312	3,770,062
1902.....	197,232,677	5,995,515	1,763,409	70,109	198,996,086	6,065,624
1903.....	109,605,243	3,195,624	308,050	14,291	109,913,293	3,209,915
1904.....	126,502,829	3,459,124	406,531	14,330	126,909,360	3,473,454
1905.....	160,827,056	4,550,335	239,764	8,540	161,066,820	4,558,875
1906.....	120,627,726	3,402,987	192,006	9,256	120,819,732	3,412,243
1907.....	142,273,310	4,637,211	256,096	14,121	142,529,406	4,651,332
1908.....	140,502,522	4,279,862	237,450	12,091	140,739,972	4,291,953
1909.....	116,860,827	3,202,311	451,347	23,040	117,312,174	3,225,351
1910.....	153,704,447	4,315,459	862,152	39,670	154,566,599	4,355,129
1911.....	94,759,014	2,993,670	560,716	28,782	95,319,730	3,022,452
1912.....	5,954,894	249,626	658,359	37,321	6,613,253	286,947
1913.....	27,993,475	946,538	350,768	25,282	28,344,243	971,820

RE-EXPORTS OF TINPLATES.

Virtually all the tinplates imported in late years have been re-exported, thus obtaining the benefit of the drawback of 99 per cent. of the duty paid. In the fiscal year ended on June 30, 1913, the re-exports of tinplates under the drawback provision amounted to 3,799,549 pounds, in 1912 to 32,227,748 pounds, in 1911 to 122,812,589 pounds, in 1910 to 141,732,141 pounds, in 1909 to 116,829,347 pounds, and in 1908 to 158,911,418 pounds.

EXPORTS OF TINPLATES AND TERNE PLATES.

In the calendar year 1913 our exports of domestic tinplates and terne plates amounted to 57,812 gross tons, valued at \$4,608,551, against 81,694 tons in 1912, valued at

\$6,315,763. In 1911 the exports amounted to 61,381 tons, valued at \$4,776,256; in 1910 to 12,445 tons, valued at \$996,984; and in 1909 to 9,327 tons, valued at \$715,778. Exports reached their maximum in 1912, when over 8.4 per cent. of the total output was sent to foreign countries.

EXPORTS OF TINPLATES AND TERNE PLATES BY COUNTRIES,
CALENDAR YEARS, 1909-1913.

Countries—Pounds.	1909.	1910.	1911.	1912.	1913.
Canada	17,551,473	24,946,514	64,190,650	105,492,978	100,347,505
England	230	1,269	.....	668,310	.....
Mexico	849,782	694,529	4,117,235	5,311,750	2,376,429
Cuba	775,423	401,438	3,190,173	4,563,785	5,590,089
Argentina .....	.....	86,011	5,753,920	9,987,329	2,065,581
Brazil	72,365	132,173	2,775,208	5,986,914	4,453,963
Chile	14,103	129,241	2,537,966	3,252,254	5,680,684
China	501,194	.....	19,705,610	13,166,327	1,928,175
British India .....	.....	8,994	15,531,702	8,737,493	62,591
Hongkong	351,432	.....	7,896,380	7,144,481	894,399
Japan	3,140	.....	6,948,568	6,549,668	509,245
Other countries...	774,226	1,476,911	4,846,829	12,133,630	5,590,642
Total	20,893,368	27,877,080	137,494,241	182,994,919	129,499,303

IMPORTS AND EXPORTS OF AGRICULTURAL
IMPLEMENTS.

The value of the agricultural implements imported for consumption into the United States in the calendar year 1913, including plows, harrows, harvesters, reapers, drills, etc., amounted to \$85,114, as compared with \$86,273 in 1912, \$122,728 in 1911, \$157,843 in 1910, \$49,030 in 1909, \$37,245 in 1908, \$32,656 in 1907, and \$34,605 in 1906.

The value of the agricultural implements exported from this country in calendar years since 1889 was as follows :

Years.	Values.	Years.	Values.	Years.	Values.
1889	\$4,246,079	1898	\$9,073,384	1907	\$25,597,272
1890	3,264,995	1899	13,594,524	1908	25,264,939
1891	3,310,183	1900	15,979,909	1909	27,327,428
1892	4,210,684	1901	16,714,308	1910	31,291,351
1893	5,191,223	1902	17,981,597	1911	36,241,683
1894	4,765,793	1903	22,951,805	1912	41,436,327
1895	5,319,885	1904	21,654,892	1913	35,453,643
1896	4,643,729	1905	22,124,312	.....	.....
1897	5,302,807	1906	24,744,762	.....	.....

AVERAGE MONTHLY AND YEARLY PRICES.

DOMESTIC PRICES OF IRON AND STEEL.

AVERAGE YEARLY PRICES OF IRON AND STEEL.

The following table gives the average yearly domestic prices of leading articles of iron and steel from 1909 to 1913. These prices are per ton of 2,240 pounds, except for bar iron, bar steel, beams and channels, and cut and wire nails, which are quoted by the 100 pounds and 100-pound kegs respectively.

Articles.	1909.	1910.	1911.	1912.	1913.
Old iron T rails at Philadelphia.....	\$19.42	\$19.09	\$16.90	\$16.74	\$17.57
No. 1 foundry pig iron at Philadelphia	17.81	17.36	15.71	16.56	17.07
No. 2 foundry pig iron at Philadelphia	17.31	16.86	15.21	16.06	16.57
No. 2 foundry pig iron at Birmingham	12.75	11.90	10.41	11.55	11.69
No. 2 foundry pig iron at Cincinnati....	16.12	15.16	13.67	14.93	14.91
Lake Sup. charcoal pig iron, Chicago..	19.50	18.66	16.94	16.74	16.50
Low-phosphorus at Philadelphia.....	21.05	22.72	20.56	20.70	23.38
Gray forge pig iron at Philadelphia...	16.13	15.72	14.43	15.39	15.69
Gray forge pig iron at Pittsburgh.....	15.55	15.24	13.97	14.54	15.25
Bessemer pig iron at Pittsburgh.....	17.41	17.19	15.71	15.94	17.13
Basic pig iron at Philadelphia.....	16.80	16.35	14.63	15.80	16.13
Basic pig iron at Pittsburgh.....	16.40	15.66	13.98	14.80	15.62
Spiegeleisen at Pittsburgh.....	28.51	25.34	23.34	22.80	25.51
Ferro-manganese at Pittsburgh.....	44.49	42.77	39.06	55.47	60.11
Ferro-silicon, (50 per cent.,) Pittsburgh	62.41	58.57	56.00	70.39	72.94
Ferro-silicon, (10 per cent.,) Pittsburgh	24.87	23.80	24.35	22.77	25.90
Bessemer steel billets, mills, Pittsburgh	24.62	25.38	21.46	22.38	25.79
Bessemer steel rails at mills in Pa..	28.00	28.00	28.00	28.00	28.00
Steel ship plates at Pittsburgh.....	31.70	32.97	29.25	29.03	31.19
Beams and channels at Pittsburgh.....	1.41	1.47	1.31	1.29	1.39
Best bar iron from store, Philadelphia	1.76	1.85	1.64	1.75	1.92
Best bar iron at mills at Pittsburgh...	1.62	1.65	1.41	1.44	1.69
Bar steel at mills at Pittsburgh.....	1.32	1.44	1.26	1.26	1.38
Cut nails from store at Philadelphia....	2.05	2.10	2.02	1.92	1.99
Wire nails, base price, at Chicago.....	2.00	1.96	1.89	1.82	1.89

AVERAGE MONTHLY PRICES OF IRON AND STEEL.

In the following table we give the average monthly prices of iron and steel in Pennsylvania in 1911, 1912, 1913, and the first nine months of 1914. The prices, which have been obtained from authoritative sources, are averaged from weekly quotations and are per gross ton, except for bar iron and steel, which are quoted by the 100 pounds.

Months.	Old iron T rails at Philadelphia.	No. 1 foundry pig iron at Philadelphia.	Gray forge pig iron at Philadelphia.	Gray forge pig iron at Pittsburgh.	Bessemer pig iron at Pittsburgh.	Bessemer steel rails at mills in Pa.	Bessemer steel billets at mills at Pitts.	Best refined bar iron from store, Phila.	Best refined bar iron at mills, Pittsburgh.	Bar steel at mills at Pittsburgh.
January, 1911	\$17.00	\$16.00	\$14.25	\$14.09	\$15.90	\$28.00	\$23.00	\$1.67	\$1.50	\$1.40
February	17.37	16.00	14.25	14.27	15.90	28.00	23.00	1.67	1.50	1.40
March.....	18.50	16.00	14.60	14.40	15.90	28.00	23.00	1.67	1.45	1.40
April.....	17.50	16.00	14.75	14.40	15.90	28.00	23.00	1.67	1.45	1.40
May.....	16.75	16.00	14.75	14.27	15.90	28.00	23.00	1.69	1.40	1.34
June.....	16.60	15.75	14.55	14.00	15.90	28.00	21.00	1.62	1.40	1.25
July	17.06	15.50	14.50	13.90	15.90	28.00	21.00	1.62	1.40	1.23
August.....	17.40	15.50	14.30	13.90	15.90	28.00	21.00	1.62	1.40	1.20
September....	17.00	15.50	14.44	13.84	15.90	28.00	20.75	1.62	1.35	1.18
October	16.37	15.50	14.25	13.65	15.44	28.00	20.00	1.62	1.35	1.11
November.....	15.50	15.45	14.25	13.47	15.00	28.00	19.50	1.62	1.35	1.10
December.....	15.75	15.35	14.25	13.40	15.02	28.00	19.25	1.62	1.35	1.12
Average	16.90	15.71	14.43	13.97	15.71	28.00	21.46	1.64	1.41	1.26
January, 1912	16.37	15.35	14.25	13.40	15.09	28.00	20.00	1.62	1.35	1.15
February.....	15.80	15.35	14.25	13.40	14.90	28.00	20.00	1.62	1.35	1.11
March.....	15.50	15.42	14.25	13.44	15.09	28.00	19.75	1.62	1.35	1.10
April.....	15.87	15.50	14.44	13.65	15.15	28.00	20.00	1.62	1.35	1.14
May.....	16.50	15.72	14.50	13.82	15.15	28.00	20.80	1.64	1.35	1.20
June.....	16.50	15.81	14.56	13.90	15.15	28.00	20.87	1.67	1.35	1.21
July.....	16.50	16.19	14.94	13.90	15.15	28.00	21.50	1.71	1.40	1.25
August.....	16.50	16.35	15.35	14.25	15.45	28.00	22.00	1.71	1.40	1.30
September....	16.87	17.09	15.87	14.65	16.15	28.00	23.62	1.81	1.45	1.35
October.....	17.60	18.10	16.90	16.27	17.80	28.00	26.00	1.96	1.50	1.39
November.....	18.75	18.81	17.62	16.67	18.02	28.00	27.00	1.96	1.65	1.42
December.....	18.12	19.00	17.75	17.15	18.15	28.00	27.00	2.06	1.75	1.45
Average	16.74	16.56	15.39	14.54	15.94	28.00	22.38	1.75	1.44	1.26
January, 1913	18.00	19.00	17.65	17.15	18.15	28.00	28.30	2.06	1.75	1.45
February.....	18.00	18.75	17.31	17.15	18.15	28.00	28.50	2.06	1.75	1.42
March.....	18.00	18.27	16.87	16.92	18.15	28.00	28.50	2.06	1.75	1.40
April.....	18.12	18.00	16.56	16.30	17.90	28.00	28.50	1.96	1.75	1.40
May.....	18.00	17.30	15.85	15.20	17.74	28.00	27.50	1.96	1.75	1.40
June.....	17.62	16.69	15.37	14.71	17.11	28.00	26.50	1.96	1.75	1.40
July.....	17.50	16.10	14.95	14.55	16.70	28.00	26.70	1.96	1.75	1.40
August.....	17.50	16.10	14.62	14.25	16.52	28.00	26.00	1.96	1.70	1.40
September....	17.50	16.34	14.81	14.25	16.65	28.00	24.87	1.86	1.70	1.40
October.....	17.50	16.45	15.00	14.36	16.60	28.00	23.10	1.76	1.70	1.40
November.....	17.25	16.06	14.75	14.25	16.02	28.00	21.00	1.76	1.50	1.33
December.....	15.87	15.75	14.56	13.96	15.90	28.00	20.00	1.66	1.40	1.21
Average	17.57	17.07	15.69	15.25	17.13	28.00	25.79	1.92	1.69	1.38
January, 1914	15.60	15.22	14.05	13.65	15.00	28.00	20.10	1.66	1.40	1.19
February.....	16.50	15.44	14.00	13.65	15.09	28.00	21.00	1.66	1.35	1.25
March.....	16.50	15.50	14.00	13.65	15.09	28.00	21.00	1.66	1.35	1.22
April.....	15.70	15.50	14.00	13.65	14.90	28.00	20.80	1.57	1.35	1.16
May.....	15.25	15.31	13.81	13.65	14.90	28.00	20.00	1.57	1.30	1.14
June.....	15.00	15.25	13.75	13.65	14.90	28.00	19.50	1.57	1.30	1.10
July	14.60	15.25	13.75	13.65	14.90	28.00	19.00	1.57	1.30	1.10
August.....	14.00	15.25	13.75	13.65	14.90	28.00	20.25	1.66	1.30	1.16
September....	14.00	15.25	13.75	13.65	14.90	28.00	21.00	1.66	1.30	1.20

AVERAGE MONTHLY PRICES OF BESSEMER PIG IRON.

The following table gives the average monthly and yearly prices of Bessemer pig iron at Pittsburgh from 1904 to 1913, compiled from weekly quotations in the *Iron Age* :

Months.	1904.	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912.	1913.
January.....	\$13.90	\$16.72	\$18.35	\$23.35	\$19.00	\$17.34	\$19.90	\$15.90	\$15.09	\$18.15
February.....	13.66	16.20	18.35	23.25	17.90	16.77	19.34	15.90	14.90	18.15
March	14.03	16.35	18.35	22.95	17.86	16.34	18.60	15.90	15.09	18.15
April.....	14.19	16.35	18.19	23.55	17.49	15.80	18.34	15.90	15.15	17.90
May.....	13.60	16.16	18.10	24.05	16.96	15.84	17.52	15.90	15.15	17.74
June.....	12.81	15.65	18.47	24.50	16.90	16.02	16.62	15.90	15.15	17.11
July	12.46	14.97	18.60	23.80	16.83	16.40	16.40	15.90	15.15	16.70
August.....	12.76	15.25	19.10	22.95	16.26	17.02	16.09	15.90	15.45	16.52
September	12.69	15.87	19.66	22.85	15.90	18.05	15.90	15.90	16.15	16.65
October.....	13.10	16.54	20.51	22.90	15.75	19.52	15.90	15.44	17.80	16.60
November.....	15.15	17.90	23.00	20.35	16.59	19.90	15.80	15.00	18.02	16.02
December.....	16.72	18.35	23.85	19.60	17.40	19.90	15.90	15.02	18.15	15.90
Average	\$13.76	\$16.36	\$19.54	\$22.84	\$17.07	\$17.41	\$17.19	\$15.71	\$15.94	\$17.13

AVERAGE MONTHLY PRICES OF BASIC PIG IRON.

The following table, which has been compiled from weekly quotations in the *Iron Age*, gives the average monthly and yearly prices of basic pig iron at Philadelphia and Pittsburgh from 1909 to 1913, per gross ton of 2,240 pounds :

Months.	Average prices at Philadelphia.					Average prices at Pittsburgh.				
	1909.	1910.	1911.	1912.	1913.	1909.	1910.	1911.	1912.	1913.
January	\$16.75	\$18.75	\$14.50	\$14.25	\$18.10	\$16.40	\$17.77	\$14.15	\$13.27	\$17.31
Feb.....	16.56	18.50	14.44	14.25	18.00	16.09	17.21	14.52	13.15	17.20
March ...	15.75	18.25	15.20	14.37	17.69	15.84	16.90	14.65	13.64	17.01
April	15.00	17.56	15.19	14.87	16.75	15.05	16.84	14.65	13.90	16.77
May.....	15.12	16.69	14.75	15.15	16.50	15.02	16.09	14.30	13.90	16.22
June.....	15.50	16.10	14.50	15.25	15.94	15.59	15.60	13.96	14.02	15.40
July.....	15.80	15.69	14.37	15.50	15.20	15.95	15.40	14.02	14.27	15.29
August....	17.06	15.12	14.65	15.95	15.19	16.15	15.02	13.90	14.75	14.96
Sept.....	18.10	15.00	14.69	16.25	15.12	16.80	14.60	13.70	15.27	14.90
Oct.....	18.37	15.00	14.50	17.43	15.30	17.84	14.05	13.42	16.78	14.80
Nov.....	18.81	14.75	14.50	18.12	15.00	18.15	14.15	13.29	17.27	13.99
Dec	18.75	14.75	14.31	18.25	14.81	17.95	14.30	13.15	17.36	13.65
Average	\$16.80	\$16.35	\$14.63	\$15.80	\$16.13	\$16.40	\$15.66	\$13.98	\$14.80	\$15.62

AVERAGE PRICES OF LAKE SUPERIOR CHARCOAL PIG IRON.

The following table, which has been compiled from weekly quotations in the *Iron Age*, gives the average monthly and

yearly prices of Lake Superior charcoal pig iron at Chicago during the last twenty-five years, per gross ton :

Years.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Average.
	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
1889.....	20 00	19 50	19 50	19 25	18 75	18 50	18 50	18 50	18 75	19 50	20 00	22 00	19 40
1890.....	23 00	23 00	22 50	21 50	21 00	20 50	20 00	20 25	20 25	19 75	19 25	18 75	20 81
1891.....	18 50	18 25	18 00	18 00	17 00	16 75	17 00	17 00	17 25	17 00	17 00	16 75	17 37
1892.....	17 25	17 00	17 00	16 75	16 50	16 50	16 50	16 50	16 50	16 75	16 50	16 50	16 69
1893.....	16 50	16 50	16 50	16 50	16 50	16 00	16 00	16 00	16 00	16 00	15 75	15 50	16 15
1894.....	15 50	15 40	15 25	15 25	15 25	15 25	15 00	14 50	14 25	14 00	13 50	13 00	14 68
1895.....	13 00	13 00	13 00	12 75	13 00	13 00	13 50	13 50	14 50	15 50	15 50	16 00	13 85
1896.....	14 50	14 00	13 50	13 50	13 50	13 50	13 50	13 50	13 50	13 50	13 50	13 50	13 62
1897.....	13 50	13 50	13 50	13 50	13 00	13 00	13 00	13 00	12 50	12 50	12 50	12 50	13 00
1898.....	12 50	11 50	11 50	11 50	11 50	11 50	11 50	11 50	11 50	11 50	11 50	11 50	11 58
1899.....	11 50	12 50	15 75	17 00	17 25	19 50	21 50	22 50	24 25	25 00	25 50	25 50	19 81
1900.....	25 50	25 50	25 50	25 50	24 50	23 00	22 00	20 00	18 50	18 00	17 00	18 25	21 94
1901.....	19 00	17 50	17 50	18 00	17 50	17 00	17 00	17 00	17 00	17 00	17 50	18 00	17 50
1902.....	19 25	20 25	20 65	21 50	22 80	23 50	25 00	25 75	26 00	26 00	26 00	25 25	23 50
1903.....	25 60	26 50	26 50	25 30	24 12	24 00	22 20	20 62	19 00	18 10	17 12	16 50	22 13
1904.....	16 62	15 87	15 00	15 19	15 00	14 70	14 50	14 87	14 75	15 31	16 37	17 80	15 50
1905.....	18 50	18 50	18 50	18 50	17 75	17 00	16 50	16 40	16 87	18 25	19 20	20 00	18 00
1906.....	20 40	20 13	19 75	19 44	19 05	19 00	19 06	19 35	20 13	21 50	24 63	26 13	20 71
1907.....	26 80	27 00	26 75	26 50	27 40	27 50	27 00	27 20	27 00	26 20	25 12	24 25	26 56
1908.....	22 50	21 38	21 25	20 30	20 00	20 00	20 00	19 50	19 50	19 50	19 50	19 50	20 24
1909.....	19 50	19 50	19 50	19 50	19 50	19 50	19 50	19 50	19 50	19 50	19 50	19 50	19 50
1910.....	19 50	19 50	19 30	19 00	18 62	18 50	18 50	18 50	18 40	18 12	18 00	18 00	18 66
1911.....	17 87	17 50	17 50	17 50	17 25	16 80	16 50	16 50	16 50	16 50	16 50	16 37	16 94
1912.....	16 00	15 95	15 75	15 75	15 75	16 25	16 25	16 25	17 12	18 45	18 62	18 75	16 74
1913.....	18 15	18 00	18 00	18 00	18 00	16 81	15 65	14 81	14 87	15 25	15 25	15 25	16 50

AVERAGE PRICES OF FOUNDRY PIG IRON AT CINCINNATI.

The following table, for which we are also indebted to the *Iron Age*, gives the average monthly and yearly prices of Southern No. 2 foundry pig iron at Cincinnati in the ten years from 1904 to 1913, per gross ton of 2,240 pounds :

Months.	1904.	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912.	1913.
January...	\$12.37	\$16.25	\$16.75	\$26.00	\$16.15	\$16.25	\$17.25	\$14.25	\$13.25	\$16.95
February..	12.12	16.25	16.75	26.00	15.75	16.13	17.06	14.25	13.31	16.69
March.....	12.10	16.25	16.65	26.00	15.50	15.05	16.30	14.25	13.50	16.31
April.....	12.50	16.25	16.63	25.06	15.20	14.25	15.37	14.25	13.75	15.65
May.....	12.25	15.81	16.75	24.25	14.75	14.50	15.00	13.95	14.15	14.94
June.....	11.80	14.65	16.44	24.10	15.25	14.70	14.85	13.44	14.25	14.06
July	11.81	13.94	16.06	23.85	15.00	15.75	14.75	13.25	14.70	13.75
August.....	12.00	14.40	17.30	23.00	15.25	16.38	14.31	13.45	15.06	14.06
September	12.00	14.37	18.69	21.50	15.65	17.35	14.25	13.31	15.87	14.25
October....	12.81	15.31	20.00	20.95	15.75	17.88	14.25	13.25	16.80	14.35
November	15.19	16.60	23.38	19.50	16.00	17.75	14.25	13.20	17.25	13.87
December.	15.85	16.75	25.00	17.00	16.25	17.45	14.25	13.19	17.25	14.00
Average.	\$12.73	\$15.57	\$18.37	\$23.10	\$15.54	\$16.12	\$15.16	\$13.67	\$14.93	\$14.91

AVERAGE MONTHLY PRICES OF FORGE PIG IRON.

The following table gives the average monthly and yearly prices of forge pig iron at Pittsburgh since 1904, per gross ton, compiled from weekly quotations in the *Iron Age* :

Months.	1904.	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912.	1913.
January.....	\$12.81	\$16.11	\$17.30	\$22.58	\$17.00	\$15.40	\$17.40	\$14.09	\$13.40	\$17.15
February.....	12.75	15.99	17.29	22.20	15.99	15.09	17.02	14.27	13.40	17.15
March.....	13.17	16.00	16.91	21.76	15.90	14.65	16.15	14.40	13.44	16.92
April.....	13.09	15.77	16.66	21.72	15.45	14.40	16.09	14.40	13.65	16.30
May.....	12.62	15.57	16.49	22.88	14.90	14.40	15.90	14.27	13.82	15.20
June.....	12.27	15.18	16.35	23.15	14.90	14.77	15.20	14.00	13.90	14.71
July.....	11.92	14.55	16.41	22.96	14.90	14.85	14.52	13.90	13.90	14.55
August.....	11.89	14.36	17.75	21.90	14.71	15.21	14.30	13.90	14.25	14.25
September.....	11.75	14.72	18.35	21.15	14.46	16.15	14.15	13.84	14.65	14.25
October.....	12.30	15.66	19.47	20.40	14.40	17.02	14.15	13.65	16.27	14.36
November.....	14.25	16.58	22.45	19.17	14.90	17.27	14.09	13.47	16.67	14.25
December.....	15.85	16.97	22.85	18.40	15.25	17.40	13.90	13.40	17.15	13.96
Average.....	\$12.89	\$15.62	\$18.19	\$21.52	\$15.23	\$15.55	\$15.24	\$13.97	\$14.54	\$15.25

AVERAGE MONTHLY PRICES OF PIG IRON AT BIRMINGHAM.

The following table, for which we are indebted to the *Iron Trade Review*, gives the average monthly prices of No. 2 foundry pig iron at Birmingham, Alabama, since 1905 :

Months.	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912.	1913.
January.....	\$13.50	\$14.00	\$23.00	\$12.80	\$13.00	\$14.00	\$11.00	\$10.00	\$13.70
February.....	13.50	14.00	23.00	12.50	12.70	13.88	11.00	10.00	13.50
March.....	13.50	13.70	22.75	12.12	11.75	13.00	11.00	10.06	13.00
April.....	13.25	13.65	22.00	11.90	11.00	12.12	11.00	10.50	12.50
May.....	12.75	13.75	21.40	11.50	11.00	11.81	10.75	10.95	11.75
June.....	11.85	13.50	21.25	12.00	11.31	11.60	10.25	11.00	10.60
July.....	11.00	13.00	20.50	11.60	12.30	11.38	10.00	11.25	10.50
August.....	11.65	14.15	19.80	12.06	13.00	11.00	10.05	11.65	11.00
September.....	11.75	16.00	18.12	12.50	14.00	11.00	10.10	12.50	11.00
October.....	12.50	17.15	17.65	12.50	14.50	11.00	10.00	13.45	11.00
November.....	14.00	21.25	16.00	12.50	14.50	11.00	9.75	13.75	10.75
December.....	14.00	22.00	14.91	13.00	14.00	11.00	10.00	13.50	11.00
Average.....	\$12.77	\$15.51	\$20.03	\$12.25	\$12.75	\$11.90	\$10.41	\$11.55	\$11.69

In January and in February, 1914, the average monthly price of No. 2 foundry pig iron at Birmingham was \$11; in March, \$10.75; in April and May, \$10.50; in June, \$10.31; in July, \$10.15; and in August and September, \$10.

PRICES OF NO. 2 FOUNDRY AND LOW-PHOSPHORUS PIG IRON.

The following table gives the average monthly and yearly prices at Philadelphia of No. 2 foundry and low-phosphorus pig iron from 1909 to 1913, compiled from weekly quotations in the *Iron Age*, per gross ton of 2,240 pounds :

Months.	No. 2 foundry at Philadelphia.					Low-phosphorus at Philadelphia.				
	1909.	1910.	1911.	1912.	1913.	1909.	1910.	1911.	1912.	1913.
January.	\$17.25	\$19.00	\$15.50	\$14.85	\$18.50	\$21.50	\$22.81	\$21.75	\$19.19	\$24.50
Feb.....	17.00	18.69	15.50	14.85	18.25	21.50	22.94	21.25	19.00	24.50
March....	16.37	18.00	15.50	14.92	17.77	21.37	23.00	21.35	19.00	24.50
April.....	16.20	17.75	15.50	15.00	17.50	20.70	23.00	21.50	19.44	23.62
May.....	16.06	17.00	15.50	15.22	16.80	19.56	23.00	21.00	19.55	23.50
June.....	16.44	16.65	15.25	15.31	16.19	19.50	22.90	20.60	19.75	23.50
July.....	16.55	16.25	15.00	15.69	15.60	19.50	22.56	20.50	20.00	23.40
August...	17.06	16.00	15.00	15.85	15.60	20.25	22.50	20.00	20.65	23.00
Sept.....	18.05	16.00	15.00	16.59	15.84	21.00	22.50	20.00	21.50	23.00
October...	18.69	15.81	15.00	17.60	15.95	22.25	22.50	20.00	22.60	23.00
Nov.....	19.00	15.69	14.95	18.31	15.56	22.75	22.50	19.55	23.75	22.31
Dec.....	19.00	15.50	14.85	18.50	15.25	22.75	22.40	19.25	24.00	21.75
Average..	\$17.31	\$16.86	\$15.21	\$16.06	\$16.57	\$21.05	\$22.72	\$20.56	\$20.70	\$23.38

AVERAGE MONTHLY PRICES OF SPIEGELEISEN AND FERRO-MANGANESE AT PITTSBURGH FROM 1909 TO 1913.

The following table gives the average monthly prices of spiegeleisen and ferro-manganese at Pittsburgh from 1909 to 1913. The prices for spiegeleisen have been compiled from weekly quotations in the *Industrial World*, of Pittsburgh, and for ferro-manganese from the *Iron Age* :

Months.	Spiegeleisen—Gross tons.					Ferro-manganese—Gross tons.				
	1909.	1910.	1911.	1912.	1913.	1909.	1910.	1911.	1912.	1913.
January.	\$31.00	\$26.25	\$23.90	\$21.50	\$26.65	\$46.30	\$47.55	\$40.45	\$42.95	\$72.85
Feb.....	30.00	26.50	23.90	21.50	25.90	45.24	46.17	39.70	42.85	66.45
March...	29.62	26.50	23.90	21.50	25.90	43.36	46.05	39.45	43.71	65.87
April.....	29.50	26.50	23.90	21.50	25.90	43.87	44.09	38.55	44.95	63.15
May.....	29.50	26.50	23.90	22.50	25.90	42.49	42.07	38.20	53.85	62.70
June.....	29.50	26.50	23.90	22.50	25.90	42.32	41.70	37.95	52.95	61.16
July.....	29.50	25.46	23.90	22.50	25.00	43.25	41.15	38.55	51.20	60.16
August...	29.50	24.30	23.00	22.50	25.00	43.45	41.57	38.82	53.75	57.28
Sept.....	27.50	23.90	23.50	22.50	25.00	44.70	41.26	38.55	58.45	57.76
Oct.....	25.50	23.90	23.25	22.50	25.00	45.15	40.85	38.87	67.85	52.66
Nov.....	25.50	23.90	21.50	25.70	25.00	46.70	40.45	39.57	76.45	52.16
Dec.....	25.50	23.90	21.50	26.90	25.00	47.02	40.35	40.05	76.70	49.16
Average..	\$28.51	\$25.34	\$23.34	\$22.80	\$25.51	\$44.49	\$42.77	\$39.06	\$55.47	\$60.11

AVERAGE PRICES OF FERRO-SILICON AT PITTSBURGH.

The following table, compiled from quotations in the *Industrial World*, gives the average monthly and yearly prices of 10 and 50 per cent. ferro-silicon at Pittsburgh since 1909 :

Months— Gross tons.	50 per cent. ferro-silicon.					10 per cent. ferro-silicon.				
	1909.	1910.	1911.	1912.	1913.	1909.	1910.	1911.	1912.	1913.
January.....	\$63.80	\$62.37	\$54.50	\$69.50	\$73.00	\$26.00	\$23.00	\$24.90	\$22.65	\$25.90
February.....	61.50	62.00	54.75	68.00	71.46	26.00	23.00	24.40	21.90	25.90
March.....	59.62	62.00	54.37	68.60	71.98	25.62	23.00	23.90	21.90	25.90
April.....	59.25	61.20	54.50	68.70	74.50	25.50	23.36	23.90	21.90	25.90
May.....	61.20	59.25	53.00	70.00	73.40	25.20	24.15	23.90	21.90	25.90
June.....	61.25	58.50	52.00	69.00	73.00	24.00	24.40	24.90	21.90	25.90
July.....	63.40	57.50	52.10	70.25	73.00	23.90	24.50	24.90	22.15	25.90
August.....	64.62	57.50	52.87	70.50	73.00	23.87	24.40	24.90	21.90	25.90
September.....	64.00	57.50	55.00	70.75	73.00	24.00	23.90	24.90	21.90	25.90
October.....	64.00	55.40	58.12	71.12	73.00	25.00	23.90	24.15	23.40	25.90
November.....	63.75	54.75	63.25	74.00	73.00	24.97	23.90	23.90	25.90	25.90
December.....	62.50	54.90	67.60	74.25	73.00	24.34	24.10	23.50	25.90	25.90
Average.....	\$62.41	\$58.57	\$56.00	\$70.39	\$72.94	\$24.87	\$23.80	\$24.35	\$22.77	\$25.90

AVERAGE MONTHLY PRICES OF BESSEMER STEEL BILLETS.

The following table, which has been compiled from weekly quotations in the *Iron Age*, gives the average monthly and yearly prices of Bessemer steel billets at mills at Pittsburgh from 1903 to 1913, per gross ton of 2,240 pounds :

Months.	1903.	1904.	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912.	1913.
January..	\$29.60	\$23.00	\$22.50	\$26.25	\$29.40	\$28.00	\$25.00	\$27.50	\$23.00	\$20.00	\$28.30
February	30.00	23.00	23.37	26.75	29.50	28.00	25.00	27.50	23.00	20.00	28.50
March.....	30.62	23.00	23.70	26.80	29.00	28.00	23.00	27.50	23.00	19.75	28.50
April.....	30.20	23.00	23.75	27.00	30.25	28.00	23.00	26.75	23.00	20.00	28.50
May.....	30.25	23.00	23.50	26.40	30.30	28.00	23.00	26.12	23.00	20.80	27.50
June.....	28.87	23.00	22.40	26.62	29.62	25.75	23.00	25.30	21.00	20.87	26.50
July.....	27.40	23.00	22.50	27.25	30.00	25.00	23.40	24.87	21.00	21.50	26.70
August.....	27.00	23.00	24.00	27.80	29.40	25.00	24.12	24.50	21.00	22.00	26.00
Sept.....	27.00	21.25	25.00	28.00	29.37	25.00	25.00	24.40	20.75	23.62	24.87
October...	27.00	19.50	25.62	28.00	28.20	25.00	26.25	23.75	20.00	26.00	23.10
Nov.....	24.00	20.40	26.00	29.00	28.00	25.00	27.12	23.37	19.50	27.00	21.00
Dec.....	23.00	21.00	26.00	29.50	28.00	25.00	27.50	23.00	19.25	27.00	20.00
Average	\$27.91	\$22.18	\$24.03	\$27.45	\$29.25	\$26.31	\$24.62	\$25.38	\$21.46	\$22.38	\$25.79

The average monthly price of Bessemer steel billets at Pittsburgh was \$20.10 in January, 1914 ; \$21 in February and March ; \$20.80 in April ; \$20 in May ; \$19.50 in June ; \$19 in July ; \$20.25 in August ; and \$21 in September.

AVERAGE MONTHLY PRICES OF BESSEMER STEEL RAILS.

The following table, which has been compiled from weekly quotations in the *Iron Age*, gives the average monthly and yearly prices of standard sections of Bessemer steel rails at mills in Pennsylvania from 1903 to 1913, per gross ton :

Months.	1903.	1904.	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912.	1913.
January..	\$28.00	\$28.00	\$28.00	\$28.00	\$28.00	\$28.00	\$28.00	\$28.00	\$28.00	\$28.00	\$28.00
February	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00
March....	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00
April.....	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00
May.....	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00
June.....	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00
July.....	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00
August...	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00
Sept.....	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00
October...	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00
Nov.....	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00
Dec.....	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00
Average..	\$28.00	\$28.00	\$28.00	\$28.00	\$28.00	\$28.00	\$28.00	\$28.00	\$28.00	\$28.00	\$28.00

AVERAGE QUARTERLY PRICES OF BEAMS AND CHANNELS.

The following table, compiled by one of the leading manufacturers of structural shapes in Western Pennsylvania, gives the average quarterly prices of steel beams and channels at Pittsburgh from 1894 to September 30, 1914 :

Years.	Average price per 100 pounds.					Years.	Average price per 100 pounds.				
	First quarter.	Second quarter.	Third quarter.	Fourth quarter.	Average.		First quarter.	Second quarter.	Third quarter.	Fourth quarter.	Average.
1894...	\$1.21	\$1.20	\$1.27	\$1.25	\$1.23	1905...	\$1.55	\$1.60	\$1.63	\$1.70	\$1.62
1895...	1.21	1.25	1.56	1.58	1.40	1906...	1.70	1.70	1.70	1.70	1.70
1896...	1.44	1.49	1.55	1.50	1.49	1907...	1.70	1.70	1.70	1.70	1.70
1897...	1.55	1.33	.98	1.09	1.24	1908...	1.70	1.68	1.60	1.60	1.64
1898...	1.15	1.15	1.19	1.20	1.17	1909...	1.45	1.25	1.40	1.53	1.41
1899...	1.35	1.60	2.12	2.25	1.83	1910...	1.55	1.53	1.41	1.40	1.47
1900...	2.25	2.21	1.68	1.50	1.91	1911...	1.40	1.38	1.30	1.16	1.31
1901...	1.51	1.60	1.60	1.60	1.58	1912...	1.15	1.24	1.34	1.45	1.29
1902...	1.60	1.60	1.60	1.60	1.60	1913...	1.45	1.45	1.39	1.27	1.39
1903...	1.60	1.60	1.60	1.60	1.60	1914...	1.19	1.13	1.17	.....	.....
1904...	1.60	1.60	1.55	1.41	1.54	.....	.....	.....	.....	.....	.....

During the above period the lowest quarterly price was in the third quarter of 1897. The highest quarterly price was in the last quarter of 1899 and the first quarter of 1900.

AVERAGE PRICES OF STEEL WIRE RODS AT PITTSBURGH.

The following table, for which we are indebted to the *Iron Age*, gives the average monthly and yearly prices of Bessemer steel wire rods at Pittsburgh, per gross ton, since 1904 :

Months.	1904.	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912.	1913.
January	\$30.00	\$31.00	\$33.75	\$37.00	\$34.30	\$33.00	\$33.00	\$28.00	\$24.37	\$30.00
February.....	30.00	31.00	34.00	37.00	35.00	33.00	33.00	28.75	25.00	30.00
March.....	30.80	31.70	34.00	37.00	35.00	33.00	33.00	29.00	25.00	30.00
April.....	31.00	34.00	34.12	37.00	35.00	29.00	32.50	29.00	25.00	30.00
May.....	30.50	34.00	34.40	37.00	35.00	27.50	32.00	29.00	25.00	30.00
June.....	29.20	33.30	34.00	37.12	33.50	27.50	30.80	28.25	25.00	29.50
July.....	28.00	31.87	34.00	36.50	33.00	29.40	29.25	27.00	25.00	28.30
August.....	28.00	32.10	34.00	36.10	33.25	31.00	28.25	27.00	25.80	28.00
September.....	27.00	31.12	34.00	36.00	33.00	31.50	28.00	27.00	27.00	27.37
October.....	26.00	31.75	34.50	35.40	33.00	31.87	28.50	26.00	28.50	26.60
November.....	26.75	32.10	35.50	34.00	33.00	32.50	28.12	25.30	29.75	25.87
December.....	29.80	32.50	37.00	34.00	33.00	33.00	28.00	24.50	30.00	25.17
Average....	\$28.92	\$32.20	\$34.44	\$36.18	\$33.84	\$31.02	\$30.37	\$27.40	\$26.28	\$28.40

AVERAGE MONTHLY PRICES OF STEEL SHIP PLATES.

The following table, compiled by one of leading manufacturers of steel plates in Western Pennsylvania, gives the average monthly prices of steel ship plates, per gross ton, free on board at Pittsburgh, from January, 1904, to December, 1913. In 1901 the average annual price per gross ton was \$34.87 and in 1902 and 1903 it was \$35.84.

Months.	1904.	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912.	1913.
January.....	\$35.84	\$33.60	\$35.84	\$38.08	\$38.08	\$35.84	\$34.72	\$31.36	\$25.85	\$32.48
February.....	35.84	35.35	35.84	38.08	38.08	32.48	34.72	31.36	25.33	32.48
March.....	35.84	35.84	35.84	38.08	38.08	29.12	34.72	31.36	26.23	32.48
April.....	35.84	35.84	35.84	38.08	38.08	28.67	34.72	31.36	27.22	32.48
May.....	35.84	35.84	35.84	38.08	38.08	28.22	34.72	31.36	28.00	32.48
June.....	35.84	35.84	35.84	38.08	36.59	29.12	33.38	30.24	28.22	32.48
July.....	35.84	35.84	35.84	38.08	35.84	30.02	31.85	29.57	29.14	32.48
August.....	35.84	35.84	35.84	38.08	35.84	31.36	31.36	29.12	30.24	32.48
September.....	32.48	35.84	35.84	38.08	35.84	32.93	31.36	28.54	30.91	30.24
October.....	31.36	35.84	35.84	38.08	35.84	33.60	31.36	25.70	32.26	29.79
November.....	31.36	35.84	35.84	38.08	35.84	34.34	31.36	24.47	32.48	27.55
December.....	32.37	35.84	35.84	38.08	35.84	34.72	31.36	26.57	32.48	26.88
Average.....	\$34.52	\$35.61	\$35.84	\$38.08	\$36.84	\$31.70	\$32.97	\$29.25	\$29.03	\$31.19

In the first nine months of 1914 the average monthly price of steel ship plates at Pittsburgh was \$26.11.

AVERAGE MONTHLY PRICES OF STEEL BARS AT PITTSBURGH.

The following table, compiled from quotations in the *American Manufacturer* and the *Industrial World*, gives the average monthly prices of steel bars, per 100 pounds, at mills in Pittsburgh from 1903 to 1913. In April, May, June, and July, 1898, steel bars sold at Pittsburgh for 95 cents per 100 pounds, the lowest price recorded.

Months.	1903.	1904.	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912.	1913.
January...	\$1.64	\$1.30	\$1.45	\$2.00	\$1.60	\$1.60	\$1.40	\$1.50	\$1.40	\$1.15	\$1.45
February...	1.60	1.30	1.45	1.75	1.60	1.60	1.35	1.50	1.40	1.11	1.42
March.....	1.60	1.33	1.50	1.50	1.60	1.60	1.20	1.50	1.40	1.10	1.40
April.....	1.60	1.35	1.50	1.50	1.60	1.60	1.17	1.50	1.40	1.14	1.40
May.....	1.60	1.32	1.50	1.50	1.60	1.60	1.18	1.47	1.34	1.20	1.40
June.....	1.60	1.30	1.50	1.50	1.60	1.40	1.20	1.45	1.25	1.21	1.40
July.....	1.60	1.30	1.50	1.50	1.60	1.40	1.23	1.45	1.23	1.25	1.40
August.....	1.60	1.31	1.50	1.50	1.60	1.40	1.32	1.36	1.20	1.30	1.40
September	1.60	1.33	1.62	1.50	1.60	1.40	1.37	1.40	1.18	1.35	1.40
October....	1.60	1.30	1.70	1.50	1.60	1.40	1.45	1.40	1.11	1.39	1.40
November	1.37	1.32	1.80	1.56	1.60	1.40	1.46	1.40	1.10	1.42	1.33
December.	1.30	1.38	1.97	1.60	1.60	1.40	1.50	1.40	1.12	1.45	1.21
Average	\$1.56	\$1.32	\$1.58	\$1.58	\$1.60	\$1.48	\$1.32	\$1.44	\$1.26	\$1.26	\$1.38

PRICES OF BEST REFINED BAR IRON AT PITTSBURGH.

The following table, for which we are indebted to a leading Pittsburgh iron manufacturer, gives the average monthly and yearly prices of best refined bar iron at mills at Pittsburgh from 1903 to 1913, in lots of 100 pounds :

Months.	1903.	1904.	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912.	1913.
January.....	\$2.00	\$1.30	\$1.80	\$2.20	\$1.90	\$1.70	\$1.55	\$1.75	\$1.50	\$1.35	\$1.75
February.....	2.00	1.31	1.80	2.15	1.90	1.70	1.55	1.75	1.50	1.35	1.75
March.....	2.00	1.38	1.90	2.10	1.90	1.70	1.55	1.75	1.45	1.35	1.75
April.....	2.00	1.50	1.82	1.80	1.90	1.70	1.55	1.70	1.45	1.35	1.75
May.....	2.00	1.50	1.80	1.80	2.00	1.70	1.60	1.70	1.40	1.35	1.75
June.....	1.77	1.50	1.80	1.85	2.00	1.65	1.60	1.65	1.40	1.35	1.75
July.....	1.70	1.50	1.80	1.85	2.00	1.50	1.60	1.65	1.40	1.40	1.75
August.....	1.70	1.50	1.80	1.85	2.00	1.50	1.60	1.60	1.40	1.40	1.70
September.....	1.70	1.50	1.84	1.85	2.00	1.50	1.70	1.60	1.35	1.45	1.70
October.....	1.70	1.50	1.85	1.90	1.90	1.50	1.70	1.55	1.35	1.50	1.70
November.....	1.34	1.52	2.03	1.90	1.90	1.50	1.75	1.55	1.35	1.65	1.50
December.....	1.30	1.76	2.20	1.90	1.90	1.50	1.75	1.50	1.35	1.75	1.40
Average.....	\$1.77	\$1.48	\$1.87	\$1.93	\$1.94	\$1.60	\$1.62	\$1.65	\$1.41	\$1.44	\$1.69

PRICES OF BAR IRON FROM STORE AT PHILADELPHIA.

The following table gives the average monthly and yearly prices from store at Philadelphia of best refined bar iron from 1903 to 1913, in lots of 100 pounds. These prices have been furnished by Mr. Walter W. Cook, Secretary of the Iron Merchants' Association, of Philadelphia.

Months.	1903.	1904.	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912.	1913.
January.....	\$2.20	\$1.71	\$1.91	\$1.96	\$2.08	\$1.76	\$1.74	\$1.96	\$1.67	\$1.62	\$2.06
February.....	2.20	1.71	1.91	1.96	2.16	1.76	1.73	1.96	1.67	1.62	2.06
March.....	2.20	1.71	1.91	1.96	2.16	1.76	1.62	1.96	1.67	1.62	2.06
April.....	2.20	1.71	1.91	1.96	2.16	1.76	1.62	1.90	1.67	1.62	1.96
May.....	2.16	1.71	1.91	1.96	2.16	1.76	1.62	1.86	1.69	1.64	1.96
June.....	2.08	1.71	1.91	1.96	2.16	1.66	1.67	1.86	1.62	1.67	1.96
July.....	2.01	1.71	1.91	1.96	2.16	1.66	1.67	1.86	1.62	1.71	1.96
August.....	1.93	1.71	1.91	1.96	2.16	1.66	1.76	1.76	1.62	1.71	1.96
September.....	1.81	1.71	1.91	1.96	2.16	1.66	1.81	1.76	1.62	1.81	1.86
October.....	1.81	1.71	1.91	1.96	2.06	1.66	1.91	1.76	1.62	1.96	1.76
November.....	1.71	1.71	1.96	2.06	1.96	1.66	1.96	1.76	1.62	1.96	1.76
December.....	1.71	1.81	1.96	2.06	1.96	1.66	1.96	1.76	1.62	2.06	1.66
Average.....	\$2.00	\$1.72	\$1.92	\$1.98	\$2.11	\$1.70	\$1.76	\$1.85	\$1.64	\$1.75	\$1.92

AVERAGE MONTHLY PRICES OF CUT NAILS AT PHILADELPHIA.

The following table gives the average monthly base prices of iron and steel cut nails, per keg of 100 pounds, from store at Philadelphia, as reported by the Duncannon Iron Company from 1903 to 1907, by the Williamsport Iron and Nail Company from 1908 to 1910, and by Edward L. Hand & Co., 616 Market street, Philadelphia, from 1911 to 1913:

Months.	1903.	1904.	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912.	1913.
January.....	\$2.33	\$2.05	\$2.05	\$2.05	\$2.30	\$2.35	\$2.00	\$2.15	\$2.00	\$1.90	\$2.00
February...	2.36	2.00	2.10	2.10	2.35	2.35	2.00	2.15	2.05	1.90	2.00
March.....	2.36	2.00	2.10	2.10	2.35	2.35	2.00	2.15	2.05	1.90	2.00
April.....	2.41	2.05	2.10	2.10	2.35	2.35	2.00	2.15	2.05	1.90	2.00
May.....	2.41	2.05	2.10	2.10	2.35	2.25	2.05	2.15	2.05	1.90	2.00
June.....	2.41	2.05	2.00	2.10	2.35	2.15	2.05	2.15	2.05	1.90	2.00
July.....	2.41	2.05	1.95	2.10	2.40	2.15	2.05	2.15	2.05	1.90	2.05
August.....	2.41	2.00	1.90	2.10	2.40	2.15	2.10	2.10	2.00	1.90	2.00
September..	2.41	1.95	1.87	2.15	2.40	2.15	2.10	2.05	2.00	1.95	2.00
October.....	2.41	1.90	1.92	2.20	2.40	2.10	2.10	2.05	2.00	1.95	2.00
November..	2.20	2.00	1.95	2.20	2.35	2.05	2.10	2.00	1.95	1.95	1.95
December...	2.20	2.05	2.01	2.30	2.35	2.00	2.10	1.90	1.95	2.00	1.90
Average..	\$2.36	\$2.01	\$2.00	\$2.13	\$2.36	\$2.20	\$2.05	\$2.10	\$2.02	\$1.92	\$1.99

AVERAGE MONTHLY PRICES OF WIRE NAILS AT PITTSBURGH.

The following table, for which we are indebted to the *Iron Age*, gives the average monthly and yearly prices of wire nails, per keg of 100 pounds, at Pittsburgh, from 1904 to 1913 :

Months.	1904.	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912.	1913.
January.....	\$1.89	\$1.75	\$1.85	\$2.00	\$2.05	\$1.95	\$1.85	\$1.71	\$1.57	\$1.75
February.....	1.90	1.80	1.85	2.00	2.05	1.95	1.85	1.75	1.60	1.75
March.....	1.91	1.80	1.85	2.00	2.05	1.95	1.85	1.79	1.60	1.76
April.....	1.90	1.80	1.85	2.00	2.05	1.87	1.85	1.80	1.60	1.80
May.....	1.90	1.80	1.85	2.00	2.05	1.65	1.82	1.80	1.60	1.80
June.....	1.90	1.74	1.85	2.00	1.97	1.70	1.80	1.75	1.60	1.80
July.....	1.89	1.70	1.84	2.00	1.95	1.72	1.75	1.70	1.62	1.70
August.....	1.71	1.70	1.82	2.00	1.95	1.80	1.70	1.69	1.66	1.65
September...	1.60	1.74	1.86	2.05	1.95	1.80	1.70	1.65	1.70	1.65
October.....	1.60	1.80	1.85	2.05	1.95	1.80	1.70	1.64	1.70	1.63
November...	1.62	1.80	1.88	2.05	1.95	1.80	1.70	1.55	1.70	1.59
December....	1.73	1.80	2.00	2.05	1.95	1.85	1.70	1.53	1.72	1.55
Average..	\$1.80	\$1.77	\$1.86	\$2.02	\$1.99	\$1.82	\$1.77	\$1.70	\$1.64	\$1.70

AVERAGE MONTHLY PRICES OF WIRE NAILS AT CHICAGO.

The following table, compiled from quotations in the *Iron Age* and *Hardware Age*, gives the average monthly base prices of standard sizes of wire nails, per keg of 100 pounds, in car-load lots, free on board at Chicago, from 1903 to 1913 :

Months.	1903.	1904.	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912.	1913.
January.....	\$2.08	\$2.04	\$1.90	\$1.94	\$2.15	\$2.23	\$2.13	\$2.03	\$1.89	\$1.74	\$1.93
February...	2.12	2.05	1.95	1.95	2.15	2.23	2.13	2.03	1.93	1.78	1.93
March.....	2.20	2.09	1.95	1.95	2.15	2.23	2.13	2.03	1.97	1.78	1.93
April.....	2.15	2.10	1.95	1.95	2.15	2.23	2.13	2.03	1.98	1.78	1.98
May.....	2.15	2.10	1.95	1.95	2.15	2.23	1.83	2.03	1.98	1.78	1.98
June.....	2.15	2.07	1.95	1.95	2.18	2.13	1.88	2.03	1.94	1.78	1.98
July.....	2.15	2.05	1.95	1.95	2.18	2.13	1.90	1.94	1.88	1.78	1.98
August.....	2.15	1.90	1.87	1.95	2.18	2.13	1.98	1.88	1.88	1.84	1.86
September..	2.15	1.75	1.87	1.96	2.23	2.13	1.98	1.88	1.88	1.88	1.83
October.....	2.15	1.75	1.95	2.00	2.23	2.13	1.98	1.88	1.87	1.88	1.82
November..	2.15	1.77	1.95	2.04	2.23	2.13	1.98	1.88	1.80	1.88	1.77
December...	2.00	1.88	1.95	2.15	2.23	2.13	2.00	1.88	1.73	1.90	1.73
Average..	\$2.13	\$1.96	\$1.93	\$1.98	\$2.18	\$2.17	\$2.00	\$1.96	\$1.89	\$1.82	\$1.89

The average monthly price of wire nails at Chicago in 1914 was \$1.71 in January, \$1.78 in February, March, and April, \$1.75 in May, \$1.70 in June and July, \$1.74 in August, and \$1.78 in September.

AVERAGE WHOLESALE MONTHLY PRICES OF TINPLATES.

The following table, compiled from weekly quotations in the *Industrial World*, gives the average monthly and yearly prices of domestic coke tinplates, 14 by 20, per box of 100 pounds, at tinplate mills in Pennsylvania, since 1903 :

Months.	1903.	1904.	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912.	1913.
January.....	\$3.60	\$3.56	\$3.55	\$3.47	\$3.90	\$3.74	\$3.70	\$3.60	\$3.60	\$3.40	\$3.60
February...	3.60	3.45	3.55	3.50	3.90	3.70	3.70	3.60	3.67	3.40	3.60
March.....	3.80	3.45	3.55	3.50	3.90	3.70	3.53	3.60	3.70	3.40	3.60
April.....	3.80	3.45	3.55	3.57	3.90	3.70	3.40	3.60	3.70	3.40	3.60
May	3.80	3.45	3.55	3.66	3.90	3.70	3.40	3.60	3.70	3.42	3.60
June.....	3.80	3.45	3.55	3.75	3.90	3.70	3.40	3.60	3.70	3.50	3.60
July	3.80	3.41	3.55	3.75	3.90	3.70	3.40	3.60	3.70	3.50	3.60
August	3.80	3.30	3.55	3.75	3.90	3.70	3.40	3.60	3.70	3.50	3.60
September..	3.80	3.30	3.55	3.75	3.90	3.70	3.40	3.60	3.67	3.58	3.60
October.....	3.80	3.30	3.36	3.75	3.90	3.70	3.50	3.60	3.52	3.60	3.60
November..	3.65	3.39	3.34	3.90	3.90	3.70	3.56	3.60	3.40	3.60	3.60
December...	3.60	3.47	3.40	3.90	3.90	3.70	3.60	3.60	3.40	3.60	3.60
Average..	\$3.74	\$3.41	\$3.50	\$3.69	\$3.90	\$3.70	\$3.50	\$3.60	\$3.62	\$3.49	\$3.60

ENGLISH PRICES OF PIG IRON AND RAILS.

AVERAGE MONTHLY AND YEARLY PRICES OF BESSEMER PIG IRON IN ENGLAND.

The following table, which we have compiled from quotations in the British Blue Book and in the London *Iron and Coal Trades Review*, gives the average monthly and yearly prices of Bessemer pig iron in the northwest of England from 1904 to 1913. The prices are per gross ton.

Months.	1904.	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912.	1913.
January...	\$13.25	\$13.52	\$17.63	\$19.95	\$15.97	\$14.23	\$15.79	\$16.60	\$16.28	\$21.02
February.	13.19	14.17	17.15	19.77	14.49	13.94	16.20	16.58	16.28	20.99
March.....	13.13	14.19	16.54	19.32	15.02	13.86	16.52	16.26	16.28	20.83
April.....	13.46	14.23	16.26	18.77	15.08	14.08	17.07	15.99	16.83	20.65
May.....	13.50	14.19	16.34	19.95	15.04	14.25	16.66	15.81	17.45	20.30
June.....	13.40	13.88	16.42	19.85	14.80	14.23	16.46	15.57	17.68	19.65
July.....	13.19	13.86	16.18	19.95	14.35	14.23	16.12	15.33	18.62	18.88
August.....	13.03	13.94	16.14	19.81	14.13	14.41	16.16	15.43	19.05	18.13
September	13.01	14.82	16.62	19.03	14.66	15.06	16.46	15.57	19.93	17.52
October ...	13.01	16.93	16.91	18.24	14.80	15.18	16.36	15.39	20.65	17.11
November	13.01	17.31	17.37	17.13	14.55	15.14	16.18	15.20	20.73	16.46
December	13.78	17.43	20.13	16.58	14.25	15.24	16.08	15.75	21.02	15.64
Average	\$13.25	\$14.87	\$16.97	\$19.03	\$14.76	\$14.49	\$16.34	\$15.79	\$18.40	\$18.93

In the first nine months of 1914 the average monthly prices of Bessemer pig iron in the northwest of England were as follows: January, \$15.67; February, \$15.88; March, \$15.91; April, \$15.73; May, \$15.60; June and July, \$15.55; August, \$17.15; and September, \$18.12.

AVERAGE PRICES OF NO. 3 CLEVELAND PIG IRON.

The following table, which we have compiled from quotations in the British Blue Book and in the London *Iron and Coal Trades Review*, gives the average monthly and yearly prices of No. 3 Cleveland pig iron, at Cleveland, England, during the last ten years, per gross ton of 2,240 pounds:

Months.	1904.	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912.	1913.
January...	\$10.36	\$11.88	\$13.09	\$14.70	\$11.78	\$11.88	\$12.65	\$12.14	\$12.16	\$16.27
February.	10.40	11.53	12.30	13.74	12.00	11.70	12.54	11.96	12.00	15.48
March	10.50	11.88	11.88	13.33	12.56	11.39	12.56	11.78	12.39	15.72
April	10.86	11.90	11.98	13.68	12.58	11.63	12.42	11.43	12.95	16.32
May	10.76	11.90	12.28	14.94	12.54	11.76	12.18	11.29	13.21	16.10
June	10.46	11.07	12.30	14.13	12.44	11.84	12.02	11.33	13.33	13.80
July	10.42	11.05	12.34	14.04	12.32	11.80	11.96	11.41	13.99	13.67
August	10.50	11.35	12.95	14.00	12.48	12.28	12.12	11.51	14.83	13.54
September	10.46	11.82	13.35	13.52	12.62	12.50	12.02	11.43	16.13	13.44
October	10.56	12.83	13.84	13.31	12.04	12.60	12.08	11.35	16.20	12.89
November	11.05	12.81	14.33	12.32	12.00	12.40	12.08	11.57	16.38	12.05
December	11.65	12.95	15.24	12.12	11.94	12.34	12.14	12.08	16.42	12.21
Average	\$10.66	\$11.91	\$12.99	\$13.65	\$12.27	\$12.01	\$12.23	\$11.61	\$14.17	\$14.20

In the first nine months of 1914 the average monthly prices of No. 3 Cleveland pig iron, at Cleveland, England, were as follows: January, \$12.38; February, \$12.51; March, \$12.41; April, \$12.50; May and June, \$12.51; July, \$12.49; August, \$12.70; and September, \$12.49.

AVERAGE MONTHLY PRICES OF ENGLISH STEEL RAILS.

The following table gives the average monthly and yearly prices of steel rails in England from 1904 to 1913, per gross ton. The averages have been compiled from weekly quotations in the *London Iron and Coal Trades Review*.

Months.	1904.	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912.	1913.
January	\$23.47	\$22.14	\$29.35	\$32.23	\$29.80	\$26.91	\$26.15	\$27.21	\$27.52	\$32.84
February	22.50	24.57	29.95	32.84	29.80	26.76	26.15	27.97	27.97	32.84
March	22.50	24.57	30.41	32.84	29.35	26.61	26.15	27.97	27.97	32.84
April	22.50	26.15	30.41	32.84	28.82	26.15	26.30	27.97	28.12	32.39
May	22.50	26.15	30.89	32.84	28.58	26.15	26.76	27.67	29.56	32.23
June	22.50	26.15	31.02	32.84	28.58	26.15	26.76	27.37	30.71	32.23
July	22.50	26.15	31.02	32.84	28.58	26.15	26.76	27.37	31.02	32.23
August	22.50	26.15	31.02	33.45	28.28	26.15	26.76	27.37	31.14	32.23
September	22.26	26.15	31.02	32.84	27.98	26.15	26.76	27.37	31.78	32.07
October	22.21	26.15	31.02	32.84	27.97	26.15	26.76	27.37	32.23	31.63
November	22.21	28.82	31.02	31.63	27.82	26.15	26.76	27.37	32.23	31.63
December	22.21	29.44	31.63	31.02	27.37	26.15	26.76	27.37	32.53	31.63
Average	\$22.49	\$26.05	\$30.73	\$32.59	\$28.58	\$26.30	\$26.57	\$27.53	\$30.23	\$32.23

In 1914 the average monthly prices of English steel rails were as follows: January and February, \$31.63; March, \$31.16; April, \$30.41; May, \$29.95; June, \$29.80; July, \$28.58; August, \$30.25; and September, \$32.84.

DOMESTIC PRICES OF LAKE SUPERIOR IRON ORE AND CONNELLSVILLE COKE.

PRICES OF LAKE SUPERIOR IRON ORE FROM 1903 TO 1914.

[From The Iron Trade Review.]

Years.	Old range Besse- mer.	Old range non- Besse- mer.	Mesabi Besse- mer.	Mesabi non- Besse- mer.	Years.	Old range Besse- mer.	Old range non- Besse- mer.	Mesabi Besse- mer.	Mesabi non- Besse- mer.
1903..	\$4.50	\$3.60	\$4.00	\$3.20	1909..	\$4.50	\$3.70	\$4.25	\$3.50
1904..	3.25	2.75	3.00	2.50	1910..	5.00	4.20	4.75	4.00
1905..	3.75	3.20	3.50	3.00	1911..	4.50	3.70	4.25	3.50
1906..	4.25	3.70	4.00	3.50	1912..	3.75	3.00	3.50	2.85
1907..	5.00	4.20	4.75	4.00	1913..	4.40	3.60	4.15	3.40
1908..	4.50	3.70	4.25	3.50	1914..	3.75	3.00	3.50	2.85

The above classification of iron ores conforms to that adopted by the Lake Superior Iron Ore Association. Down to 1907 the base for old range Bessemer iron ores was a hypothetical ore containing 63 per cent. of metallic iron, 0.045 per cent. of phosphorus, and 10 per cent. of moisture, giving a natural iron content of 56.70 per cent. The base for the non-Bessemer ores up to 1907 was an ore supposed to contain 60 per cent. of metallic iron and 12 per cent. of moisture, giving a natural iron content of 52.80 per cent., except for Mesabi non-Bessemer for 1905 and 1906, when the natural iron content was 53 per cent. Before the sales for delivery in 1907 were made the natural iron content for the base was changed to 55 per cent. for the old range and Mesabi Bessemer and 51.50 per cent. for the old range and Mesabi non-Bessemer. The prices given in the above table for 1907 and for all subsequent years relate to the new base schedule.

AVERAGE PRICES OF CONNELLSVILLE COKE.

The following table gives the average monthly prices per net ton of 2,000 pounds of prompt Connellsville furnace and foundry coke at ovens in the last five years. The prices for furnace coke were compiled by the *Courier*; for foundry coke they have been compiled from weekly quotations in the *Iron Age*.

Months.	Furnace coke—Per net ton.					Foundry coke—Per net ton.				
	1909.	1910.	1911.	1912.	1913.	1909.	1910.	1911.	1912.	1913.
January....	\$1.70	\$2.60	\$1.40	\$1.88	\$3.85	\$2.10	\$3.05	\$2.00	\$1.97	\$4.35
February..	1.65	2.25	1.47	1.84	2.60	2.00	2.75	2.10	2.06	3.25
March.....	1.55	2.00	1.57	2.04	2.47	2.00	2.60	2.15	2.41	3.00
April.....	1.43	1.80	1.58	2.53	2.20	1.90	2.40	2.10	2.71	3.00
May	1.45	1.70	1.50	2.32	2.15	1.85	2.25	2.00	2.58	2.87
June.....	1.50	1.65	1.45	2.21	2.20	1.85	2.20	1.95	2.42	2.75
July.....	1.55	1.65	1.45	2.34	2.50	1.85	2.15	1.90	2.40	2.75
August.....	1.75	1.65	1.53	2.25	2.50	2.00	2.15	1.90	2.40	2.90
September	2.30	1.60	1.50	2.42	2.37	2.50	2.15	1.85	2.57	2.90
October....	2.80	1.55	1.50	3.46	2.10	2.75	2.10	1.85	3.45	2.80
November	2.85	1.45	1.50	3.95	1.88	3.00	2.00	1.90	4.06	2.60
December.	2.85	1.50	1.68	4.00	1.80	3.10	2.00	1.95	4.44	2.50
Average	\$1.95	\$1.78	\$1.51	\$2.60	\$2.39	\$2.24	\$2.32	\$1.97	\$2.79	\$2.97

The average price of all coke shipped from the Connells-ville region in 1913, both furnace and foundry, was \$2.95 per net ton, as compared with \$1.92 in 1912.

In 1914 the average monthly price of furnace coke at ovens for spot shipment was as follows: In January, \$1.88 per net ton; in February, \$1.90; in March, \$1.92; in April, \$1.90; in May, \$1.83; in June, \$1.80; in July, \$1.75; in August, \$1.74; and in September, \$1.70. The average monthly price of prompt foundry coke at ovens was \$2.50 per net ton in January and February; \$2.47 in March; \$2.41 in April; \$2.40 in May; \$2.33 in June; \$2.27 in July; \$2.21 in August; and \$2.09 in September.

STATISTICS OF RAILWAYS AND SHIP-BUILDING.

RAILWAY STATISTICS.

ANNUAL MILEAGE OF NEW STEAM RAILROAD MAIN TRACK.

The following table gives the length of new steam railroad constructed in the United States in calendar years since 1880, double tracks and sidings not considered. The figures are taken from *Poor's Manual* and the *Railway Age Gazette*.

Years.	Miles.	Years.	Miles.	Years.	Miles.	Years.	Miles.
1880.....	7,174	1889.....	5,700	1898.....	3,199	1907.....	5,499
1881.....	9,779	1890.....	5,657	1899.....	4,513	1908.....	3,654
1882.....	11,599	1891.....	4,620	1900.....	4,157	1909.....	3,476
1883.....	6,819	1892.....	4,584	1901.....	4,912	1910.....	3,918
1884.....	3,974	1893.....	2,789	1902.....	5,076	1911.....	3,066
1885.....	3,131	1894.....	2,264	1903.....	4,675	1912.....	2,997
1886.....	8,128	1895.....	1,938	1904.....	5,003	1913.....	3,071
1887.....	12,984	1896.....	2,068	1905.....	5,050	.....	.....
1888.....	7,066	1897.....	2,161	1906.....	5,643	.....	.....

In addition to the new main line track laid in 1913 the *Railway Age Gazette* says there were 1,396 miles of second, third, fourth, or more tracks laid in the same year, as compared with 1,215 miles of similar track laid in 1912. Yard and siding track are not included for either year.

MILEAGE OF STEAM RAILROAD TRACK OPERATED, 1900-1912. [From Reports of the Interstate Commerce Commission.]

Year ended June 30.	Single track. Miles.	Second track. Miles.	Third track. Miles.	Fourth track. Miles.	Yard track and sidings. Miles.	Total. Miles.
1900.....	192,556.03	12,151.48	1,094.48	829.29	52,153.02	258,784.30
1901.....	195,561.92	12,845.42	1,153.96	876.13	54,914.86	265,352.29
1902.....	200,154.56	13,720.72	1,204.04	895.11	58,220.93	274,195.36
1903.....	205,313.54	14,681.03	1,303.53	963.36	61,560.06	283,821.52
1904.....	212,243.20	15,824.04	1,467.14	1,046.50	66,492.46	297,073.34
1905.....	216,973.61	17,056.30	1,609.63	1,215.53	69,941.67	306,796.74
1906.....	222,340.30	17,936.25	1,766.07	1,279.66	73,760.91	317,083.19
1907.....	227,454.83	19,420.82	1,960.42	1,389.73	77,749.46	327,975.26
1908*	230,494.02	20,209.05	2,081.16	1,408.99	79,452.64	333,645.86
1909*	235,402.09	20,949.41	2,169.55	1,453.56	82,376.63	342,351.24
1910*	240,830.75	21,658.74	2,206.39	1,488.78	85,581.93	351,766.59
1911*	246,238.02	23,451.26	2,414.16	1,747.10	88,973.95	362,824.49
1912*	249,852.06	24,951.65	2,511.76	1,903.32	92,019.13	371,237.92

* Excludes mileage of switching and terminal companies.

MILEAGE OF ELECTRIC AND STREET RAILWAYS.

The *Electric Railway Journal* estimates that the new electric railway mileage built in the United States in 1913 aggregated about 1,000 miles, computed as single track.

The *Journal* also estimates that, on December 31, 1913, there were 45,004 miles in the United States of completed street, elevated, and electric interurban railways. The total number of cars operated in the United States in 1913 is estimated by the editor as amounting to 97,721, including electric sweepers and locomotives, as compared with 93,946 cars, sweepers, and locomotives in 1912. The mileage of cable, steam-dummy, and horse-car railways is not separated from the mileage of electric railways, but the combined mileage is very small.

CARS AND LOCOMOTIVES BUILT IN 1912 AND 1913.

According to the *Railway Age Gazette* the number of railroad cars built in the United States and Canada in 1913 was 210,980, as compared with 155,489 in 1912, an increase of 55,491 cars, or over 35.6 per cent. Of the total in 1913, 207,684 were freight cars and 3,296 were passenger cars, against 152,429 freight cars and 3,060 passenger cars in 1912. Cars built in railroad shops and subway and elevated cars are included for both years, but not street railroad and interurban cars.

Of the cars built in the United States and Canada in 1913, 198,066 were freight cars for domestic service, 9,618 were freight cars for export, 3,076 were passenger cars for domestic service, and 220 were passenger cars for export. Of the freight cars 179,241 were built of steel or had steel underframes and of the passenger cars 2,529 were built of steel or had steel underframes.

Returns received by the *Gazette* from the leading locomotive builders and from railroad shops show that 5,332 new locomotives were built in the United States and Canada in 1913, as compared with 4,915 in 1912. Of the total in 1913, 4,561 were for domestic use and 771 were for export, as compared with 4,403 for domestic use and 512 for export in 1912. Electric locomotives built for any other purpose than for use on steam railroads are not included.

SHIPBUILDING STATISTICS.

NUMBER AND TONNAGE OF STEEL VESSELS AND BARGES BUILT
IN THE UNITED STATES IN THE CALENDAR YEAR 1913.

[Furnished by the Commissioner of Navigation.]

Ports. Calendar year 1913.	Sailing.		Steam.		Barges.		Total.	
	No.	Gross tons.	No.	Gross tons.	No.	Gross tons.	No.	Gross tons.
Bath, Maine.....	1	652	...	.....	1	652
Boston, Mass.....	7	7,792	...	.....	7	7,792
Providence, R. I.....	1	178	1	60	...	.....	2	238
New York, N. Y.....	12	6,817	1	952	13	7,769
Philadelphia, Pa.....	14	50,774	4	2,230	18	53,004
Wilmington, Del.....	7	12,403	...	.....	7	12,403
Baltimore, Md.....	7	24,255	1	251	8	24,506
Newport News, Va.....	6	33,124	1	632	7	33,756
Jacksonville, Fla.....	2	766	...	.....	2	766
New Orleans, La.....	3	1,248	...	.....	3	1,248
Galveston, Texas.....	1	775	...	.....	...	.....	1	775
Vicksburg, Miss.....	1	8	...	.....	1	8
St. Louis, Mo.....	2	17	...	.....	2	17
St. Paul, Minn.....	2	442	2	442
Evansville, Ind.....	1	7	...	.....	1	7
Pittsburgh, Pa.....	5	1,710	5	1,710
Buffalo, N. Y.....	3	199	...	.....	3	199
Cleveland, Ohio.....	3	7,332	12	38,832	2	827	17	46,981
Toledo, Ohio.....	2	2,649	...	.....	2	2,649
Detroit, Mich.....	6	17,011	2	967	8	17,978
Milwaukee, Wis.....	3	1,575	4	3,628	7	5,203
Duluth, Minn.....	1	187	...	.....	1	187
Los Angeles, Cal.....	2	3,848	...	.....	2	3,848
San Francisco, Cal.....	12	10,423	...	.....	12	10,423
Portland, Oregon.....	1	242	...	.....	1	242
Seattle, Wash.....	5	3,075	...	.....	5	3,075
Total.....	5	8,275	111	215,964	22	11,639	138	235,878
First 6 mos., 1914....	5	1,762	51	96,594	13	5,975	69	104,331

The tonnage of vessels built for the United States Navy is not included. The term, "gross ton" expresses in units of 100 cubic feet the entire cubical capacity of the vessel, including the space occupied by the crew and the engines, boilers, and bunker coal.

Practically all the vessels enumerated above were built of steel. Of the 138 vessels and barges launched in 1913 three sailing vessels, 27 steam vessels, and 8 barges were built at ports on the Great Lakes, their total tonnage

amounting to 73,197 tons, against 38 vessels and 65,559 tons in 1912. One yacht of 178 tons is included in the sailing and 10 yachts of 2,760 tons are included in the steam vessels.

In the calendar year 1912 the total number of iron and steel vessels built in the United States was 129 and the total tonnage was 170,515 tons, an increase in 1913 of 9 vessels and 65,363 tons.

NUMBER AND TONNAGE OF IRON AND STEEL VESSELS AND BARGES BUILT IN THE UNITED STATES, 1888-1913.

[From Reports of the Commissioner of Navigation. Fiscal years ended on June 30.]

Year ended June 30—	Sailing.		Steam.		Barges.		Total.	
	No.	Gross tons.	No.	Gross tons.	No.	Gross tons.	No.	Gross tons.
1888.....	3	317	43	37,921	1	428	47	38,666
1889.....	2	95	52	62,261	...	.....	54	62,356
1890.....	2	184	61	79,342	5	5,133	68	84,659
1891.....	4	251	81	102,630	6	6,305	91	109,146
1892.....	5	415	52	45,896	4	4,958	61	51,269
1893.....	8	2,012	61	82,933	9	11,717	78	96,662
1894.....	2	4,647	38	46,889	...	.....	40	51,536
1895.....	3	5,267	37	43,335	5	704	45	49,306
1896.....	6	15,800	47	82,311	7	3,487	60	101,598
1897.....	10	31,424	48	83,140	13	11,521	71	126,085
1898.....	2	6,724	52	48,560	10	7,041	64	62,325
1899.....	5	16,152	83	112,781	4	2,823	92	131,756
1900.....	11	29,168	81	167,957	...	.....	92	197,125
1901.....	12	21,746	102	236,159	7	4,825	121	262,730
1902.....	3	8,406	102	270,932	2	1,024	107	280,362
1903.....	4	12,184	100	240,107	4	5,928	108	258,219
1904.....	4	15,290	88	222,307	6	3,483	98	241,080
1905.....	5	3,225	68	170,304	16	9,111	89	182,640
1906.....	4	3,077	100	289,094	11	5,199	115	297,370
1907.....	4	5,655	108	333,516	17	9,384	129	348,555
1908.....	...	.....	132	442,625	17	7,392	149	450,017
1909.....	9	7,985	67	123,142	13	5,796	89	136,923
1910.....	6	3,699	94	234,988	19	11,937	119	250,624
1911.....	1	1,290	112	195,964	13	4,719	126	201,973
1912.....	5	6,097	81	119,181	18	10,603	104	135,881
1913.....	6	13,000	104	205,675	22	12,987	132	231,662

NUMBER AND GROSS TONNAGE OF MERCHANT VESSELS LAUNCHED IN THE UNITED KINGDOM
AND IN ALL OTHER COUNTRIES FROM 1892 TO 1913, NOT INCLUDING WAR VESSELS.
From Lloyd's Register of British and Foreign Shipping.

Years.	UNITED KINGDOM.						ALL OTHER COUNTRIES.					
	Steam.		Sail.		Total.		Steam.		Sail.		Total.	
	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.
1892.....	512	841,356	169	268,594	681	1,109,950	147	126,210	223	121,885	370	248,095
1893.....	488	718,277	98	118,106	586	836,383	135	121,606	175	68,752	310	190,358
1894.....	549	964,926	65	81,582	614	1,046,508	148	203,279	170	73,751	318	277,030
1895.....	526	904,991	53	45,976	579	950,967	190	209,300	111	57,893	301	267,193
1896.....	628	1,113,831	68	45,920	696	1,159,751	260	299,421	157	108,710	417	408,131
1897.....	545	924,382	46	28,104	591	952,486	253	278,443	146	100,995	399	379,438
1898.....	744	1,363,318	17	4,252	761	1,367,570	371	415,907	158	109,866	529	525,773
1899.....	714	1,414,774	12	2,017	726	1,416,791	292	530,945	251	174,002	543	704,947
1900.....	684	1,432,600	28	9,871	692	1,442,471	347	602,989	325	258,703	672	861,692
1901.....	591	1,501,078	48	23,661	639	1,524,739	446	800,849	453	291,951	899	1,092,800
1902.....	622	1,378,206	72	49,352	694	1,427,558	487	747,945	469	327,252	956	1,075,197
1903.....	632	1,165,503	65	25,115	697	1,190,618	549	798,205	404	156,808	953	955,013
1904.....	613	1,171,375	99	33,787	712	1,205,162	570	626,190	361	156,583	931	782,773
1905.....	737	1,604,796	58	18,372	795	1,623,168	525	801,705	256	90,049	781	891,754
1906.....	815	1,809,433	71	18,910	886	1,828,343	642	984,613	308	106,807	950	1,091,420
1907.....	752	1,581,521	89	26,869	841	1,607,890	681	1,070,913	266	99,285	947	1,170,198
1908.....	454	914,570	69	15,099	523	929,669	550	791,609	332	112,008	882	903,617
1909.....	465	972,799	61	18,267	526	991,066	348	564,771	189	46,220	537	610,991
1910.....	473	1,137,738	27	5,431	500	1,143,169	453	719,903	324	94,781	777	814,684
1911.....	700	1,782,908	72	20,936	772	1,803,844	537	748,515	290	97,781	827	846,296
1912.....	643	1,720,957	69	17,557	712	1,738,514	720	1,074,911	287	88,344	1007	1,163,255
1913.....	641	1,919,578	47	12,575	688	1,932,153	639	1,269,000	423	131,729	1062	1,400,729

In late years considerably over 95 per cent. of the vessels launched in each year were built of iron or steel.

TONNAGE OF MERCHANT VESSELS OF 100 TONS GROSS AND UPWARD LAUNCHED BY LEADING COUNTRIES FROM 1892 TO 1913, NOT INCLUDING WAR VESSELS.

From the Annual Report of the Commissioner of Navigation, Washington, D. C.

Years.	United Kingdom.		Austria-Hungary.		British Colonies.		Denmark.		France.		Germany.		Holland.		Italy.		Japan.		Norway.		United States.		Other countries.		Total.	
	Tons.		Tons.		Tons.		Tons.		Tons.		Tons.		Tons.		Tons.		Tons.		Tons.		Tons.		Tons.		Tons.	
1892.....	1,109,950		2,302		19,792		12,707		17,228		64,888		14,368		13,888		.....		24,572		62,588		15,762		1,358,045	
1893.....	836,383		7,435		17,089		10,719		20,337		60,167		1,339		10,626		1,132		16,552		27,174		17,788		1,026,741	
1894.....	1,046,508		1,703		6,803		7,300		19,636		119,702		15,360		5,396		3,173		17,169		66,894		13,894		1,323,558	
1895.....	950,967		7,371		10,381		10,982		28,851		87,786		8,292		5,603		2,296		12,873		84,877		7,881		1,218,160	
1896.....	1,159,751		6,246		11,124		11,814		44,565		103,295		12,405		6,779		7,849		12,039		184,175		7,820		1,567,882	
1897.....	952,486		6,601		12,431		13,539		49,341		139,728		20,351		12,910		6,740		17,248		86,838		13,711		1,331,924	
1898.....	1,367,570		5,432		25,021		12,703		67,160		153,147		19,468		26,530		11,424		22,670		173,250		8,968		1,893,343	
1899.....	1,416,791		9,248		8,464		26,613		89,794		211,684		34,384		49,472		6,775		27,853		224,278		16,382		2,121,738	
1900.....	1,442,471		14,889		9,563		11,060		116,858		204,731		45,074		67,522		4,543		32,751		333,527		21,174		2,304,163	
1901.....	1,524,739		20,013		28,134		22,856		177,543		213,961		69,101		60,526		37,208		37,875		433,235		28,890		2,617,539	
1902.....	1,427,558		15,192		28,819		27,148		192,196		213,961		69,101		46,270		27,181		37,878		379,174		38,277		2,502,755	
1903.....	1,190,618		11,328		34,690		28,609		92,768		181,494		59,174		50,089		34,514		41,599		381,820		35,928		2,145,631	
1904.....	1,205,162		16,645		30,965		15,859		81,245		202,197		55,636		30,016		32,969		50,489		238,518		28,254		1,987,935	
1905.....	1,623,168		16,402		10,798		17,357		73,124		255,423		44,135		61,629		31,725		52,580		302,827		25,554		2,514,922	
1906.....	1,828,343		18,590		26,042		24,712		35,214		318,230		66,809		30,560		42,489		60,774		441,087		26,913		2,919,763	
1907.....	1,607,890		8,717		46,443		28,819		61,635		275,003		68,623		44,666		66,251		57,556		474,675		37,807		2,778,088	
1908.....	929,669		23,502		34,181		19,172		83,429		207,777		58,604		26,864		59,725		52,839		304,543		32,981		1,833,286	
1909.....	991,066		25,006		7,461		7,508		42,197		128,696		59,106		31,217		52,319		28,601		209,604		19,276		1,602,057	
1910.....	1,143,169		14,304		26,343		12,154		80,751		159,303		70,945		23,019		30,215		36,931		331,318		29,401		1,957,853	
1911.....	1,803,844		37,836		19,662		18,689		125,472		255,532		93,050		17,401		44,359		35,435		171,569		27,291		2,650,140	
1912.....	1,738,514		38,821		34,790		26,103		110,734		375,317		99,439		25,196		57,755		50,255		284,223		60,622		2,901,769	
1913.....	1,932,153		61,757		48,339		40,932		176,095		465,226		104,296		50,356		64,664		50,637		276,448		61,979		3,332,882	

NUMBER AND DISPLACEMENT OF WAR VESSELS OF 100 TONS AND UPWARD LAUNCHED FOR THE
NAVIES OF LEADING COUNTRIES FROM 1892 TO 1913.

From the Annual Report of the Commissioner of Navigation, Washington, D. C.

Years.	United Kingdom.		United States.		Austria-Hungary.		France.		Germany.		Italy.		Japan.		Russia.		Other countries.		Total.	
	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.
1892.....	22	137,271	9	31,102	2	996	5	25,465	9	34,400	6	8,920	1	4,158	8	27,364	21	39,225	83	308,901
1893.....	16	40,278	5	40,200	3	7,940	10	52,055	2	8,100	3	5,785	.....	.....	6	18,505	6	6,670	51	179,533
1894.....	29	32,088	.....	.....	.....	.....	6	28,690	2	5,070	2	3,290	1	868	4	34,850	13	15,150	57	120,006
1895.....	44	139,145	3	12,034	2	11,100	7	42,071	2	5,490	1	6,500	1	2,800	4	4,114	18	25,471	82	248,725
1896.....	34	117,445	5	16,302	2	6,060	8	57,110	1	11,100	1	6,500	2	24,780	6	30,281	33	62,213	92	331,791
1897.....	33	66,740	3	3,000	1	2,250	5	15,185	6	44,214	6	35,906	5	18,070	6	2,200	25	41,335	90	228,900
1898.....	28	140,120	6	57,900	3	6,380	4	25,096	6	10,648	2	2,836	8	45,275	6	28,650	28	49,968	91	366,873
1899.....	18	121,140	8	6,400	3	2,580	11	52,912	6	29,240	7	18,120	13	61,656	13	37,230	12	15,482	91	344,760
1900.....	20	35,050	13	12,330	2	10,600	19	40,730	15	45,330	4	1,280	5	26,210	9	61,840	12	27,094	99	290,464
1901.....	33	209,774	17	47,903	1	7,400	14	40,663	14	59,400	5	27,833	3	1,125	21	54,680	15	18,769	123	467,547
1902.....	19	92,840	27	20,449	1	8,169	13	44,139	12	32,324	4	8,724	6	8,350	14	48,485	6	14,626	102	278,106
1903.....	38	147,813	13	66,140	2	17,520	15	30,760	16	60,590	.....	.....	17	13,917	9	38,430	9	15,930	119	391,100
1904.....	33	126,375	14	170,185	3	11,480	9	43,600	11	44,970	4	25,932	4	608	5	1,750	19	10,106	102	435,006
1905.....	23	96,505	7	98,200	3	11,020	7	28,611	6	36,487	10	14,490	17	50,633	37	15,721	8	11,544	118	363,211
1906.....	23	85,700	5	45,443	10	2,760	6	15,183	17	62,678	14	3,039	24	41,277	19	82,204	30	24,688	148	362,972
1907.....	33	133,405	5	11,590	7	1,594	17	33,594	17	14,800	12	25,154	10	57,200	17	35,317	24	8,557	142	321,211
1908.....	26	49,560	8	52,850	8	16,153	22	21,600	16	97,660	5	29,490	4	2,245	11	8,800	27	31,421	127	309,689
1909.....	35	98,790	15	48,639	23	22,217	19	95,740	27	99,116	8	2,088	1	375	2	1,246	21	36,264	151	404,475
1910.....	43	133,525	13	30,287	8	14,993	12	24,063	21	49,024	4	19,374	3	23,100	.....	.....	18	16,488	122	310,854
1911.....	41	221,430	13	57,526	2	20,269	15	53,995	28	128,340	15	75,018	6	37,071	5	93,260	44	81,960	169	768,869
1912.....	28	163,087	15	62,673	7	49,361	21	55,965	30	99,810	35	14,839	4	56,035	1	492	33	32,267	174	534,629
1913.....	42	187,566	15	10,752	11	9,922	12	75,401	25	148,100	22	52,628	3	55,490	7	27,564	43	109,486	180	676,909

STATISTICS FOR CANADA.

THE Bureau of Statistics of the American Iron and Steel Institute has received directly from the manufacturers statistics of the production of pig iron, steel ingots and castings, and finished rolled iron and steel in Canada in the calendar year 1913. It was found necessary to estimate the output of a small steel casting plant and a small rolling mill. The statistics for 1912 were also compiled by the Bureau of Statistics, but for 1911 and previous years they were compiled by the American Iron and Steel Association.

PIG IRON.

PRODUCTION OF PIG IRON BY PROVINCES, 1908-1913.

Provinces—Gross tons.	1908.	1909.	1910.	1911.	1912.	1913.
Ontario.....	242,917	364,454	424,708	475,328	533,404	586,459
Nova Scotia & Quebec	320,755	312,636	315,502	349,040	379,474	428,659
Total.....	563,672	677,090	740,210	824,368	912,878	1,015,118

PRODUCTION OF PIG IRON BY GRADES, 1900-1913.

Years—Gross tons.	Basic pig iron.	Bessemer pig iron.	Foundry, ferro-silicon, etc.	Forge, etc., including ferro-alloys.	Total. Gross tons.
1900	9,720	3,781	72,589		86,090
1901.....	22,665	29,577	184,795	7,939	244,976
1902.....	107,315	9,253	165,466	37,523	319,557
1903.....	126,892	600	113,717	24,209	265,418
1904.....	70,133	26,016	155,035	19,758	270,942
1905.....	172,102	149,203	139,528	7,170	468,003
1906.....	246,228	165,609	124,361	5,759	541,957
1907.....	341,257	154,910	78,901	6,078	581,146
1908.....	335,410	112,811	109,471	5,980	563,672
1909	357,965	169,545	108,608	40,972	677,090
1910.....	365,090	221,494	143,986	9,640	740,210
1911.....	413,303	186,274	190,324	34,467	824,368
1912.....	489,799	228,742	194,208	129	912,878
1913.....	558,524	227,662	225,231	3,701	1,015,118

PRODUCTION OF PIG IRON BY FUELS, 1894-1913.

Years.	Coke.	Charcoal.	Total.	Years.	Coke.	Charcoal.*	Total.
1894....	35,380	9,411	44,791	1904....	251,671	19,271	270,942
1895....	31,348	6,481	37,829	1905....	432,870	35,133	468,003
1896....	54,123	5,907	60,030	1906....	525,716	16,241	541,957
1897....	45,410	8,386	53,796	1907....	572,025	9,121	581,146
1898....	62,384	6,371	68,755	1908....	556,671	7,001	563,672
1899....	76,281	17,796	94,077	1909....	660,856	16,234	677,090
1900....	70,349	15,741	86,090	1910....	724,174	16,036	740,210
1901....	228,893	16,083	244,976	1911....	799,716	24,652	824,368
1902....	302,712	16,845	319,557	1912....	886,506	26,372	912,878
1903....	247,905	17,513	265,418	1913....	986,848	28,270	1,015,118

* Includes pig iron made with electricity.

PIG IRON MADE FOR SALE OR FOR CONSUMPTION OF MAKERS.

Provinces—Gross tons.	Pig iron made for sale.	Pig iron made for consumption of makers.	Total. Gross tons.
Ontario.....	182,841	403,618	586,459
Nova Scotia and Quebec.....	34,364	394,295	428,659
Total, 1913.....	217,205	797,913	1,015,118

METHODS BY WHICH PIG IRON WAS CAST OR DELIVERED.

Of the 1,015,118 tons of pig iron made in 1913, 672,065 tons were delivered to mixers, open-hearth furnaces, etc., in a molten condition, against 551,262 tons in 1912; 215,541 tons were sand cast, against 232,509 tons in 1912; 127,477 tons were machine cast, against 129,003 tons in 1912; and 35 tons were direct furnace castings, against 104 tons in 1912.

HALF-YEARLY PRODUCTION OF PIG IRON, 1913.

Provinces. Gross tons.	Blast furnaces.				Production—Gross tons. (Includes ferro-silicon, ferro-phosphorus, ferro-titanium, etc.)		
	In blast June 30, 1913.	December 31, 1913.			First half of 1913.	Second half of 1913.	Total for 1913.
		In.	Out.	Total.			
Ontario.....	7	6	5	11	335,978	250,481	586,459
Nova Scotia....	6	4	4	8	210,003	218,656	428,659
Quebec.....	0	0	3	3			
Total.....	13	10	12	22	545,981	469,137	1,015,118

CONSUMPTION OF IRON ORE, MILL CINDER, SCALE, SCRAP,
LIMESTONE, COKE, CHARCOAL, ETC.

In 1913 the Canadian furnaces consumed in the manufacture of pig iron 2,010,773 tons of iron ore and 35,007 tons of mill cinder, pyrites cinder, scale, scrap, etc., as compared with a consumption in 1912 of 1,877,341 tons of iron ore and 37,824 tons of mill cinder, scale, scrap, etc. In addition 705,483 tons of limestone were consumed by blast furnaces for fluxing purposes in 1913, against 666,214 tons in 1912.

In 1913 there were also consumed for smelting purposes 1,413,111 net tons of coke and 2,206,191 bushels of charcoal, as compared with a consumption of 1,275,349 net tons of coke and 1,886,748 bushels of charcoal in 1912. In 1913 the average consumption of coke per ton of bituminous pig iron made, including a small quantity of pig iron produced with electricity and coke and electricity, was 2,843.3 pounds, while the average consumption of charcoal per ton of pig iron made was 104.2 bushels, against an average in 1912 of 2,854.6 pounds of coke and 97.3 bushels of charcoal.

ACTIVE AND IDLE BLAST FURNACES.

On December 31, 1913, Canada had 22 completed blast furnaces, of which 10 were in blast and 12 were idle. One of the idle furnaces was being rebuilt. Of the completed furnaces 17 usually use coke for fuel and 5 use charcoal. In 1913 two plants made ferro-alloys in electric furnaces.

ANNUAL CAPACITY OF BLAST FURNACES.

The annual capacity of the 22 completed furnaces on December 31, 1913, was 1,552,550 gross tons. Of the total 1,479,750 tons represented the capacity of the coke furnaces and 72,800 tons the capacity of the charcoal furnaces.

PRODUCTION AND CAPACITY OF ACTIVE BLAST FURNACES.

Provinces—Gross tons.	Number of active furnaces.	Production in 1913. Gross tons.	Annual capacity of active furnaces.	Capacity of active furnaces over production.
Ontario.....	10	586,459	857,250	270,791
Nova Scotia and Quebec.....	7	428,659	620,500	191,841
Total	17	1,015,118	1,477,750	462,632

Of the 17 furnaces which were active in 1913, 15, with an annual capacity of 1,419,750 tons, used coke for fuel, and 2, with an annual capacity of 58,000 tons, used charcoal. Of the 5 furnaces which were idle during 1913, two, with an annual capacity of 60,000 tons, last used coke for fuel, and 3, with an annual capacity of 14,800 tons, last used charcoal.

NEW BLAST FURNACES BUILT IN 1913.

In 1913 one charcoal and two coke stacks were built in Canada—one in Nova Scotia and two in Ontario. No new blast furnaces were being built at the close of 1913.

STEEL INGOTS AND CASTINGS.

PRODUCTION OF STEEL INGOTS AND CASTINGS, 1894-1913.

Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.
1894.....	25,685	1901.....	26,084	1908.....	509,957
1895.....	17,000	1902.....	182,037	1909.....	678,751
1896.....	16,000	1903.....	181,514	1910.....	741,924
1897.....	18,400	1904.....	148,784	1911.....	790,871
1898.....	21,540	1905.....	403,449	1912.....	853,031
1899.....	22,000	1906.....	570,889	1913.....	1,042,503
1900.....	23,577	1907.....	646,754	.....	.....

PRODUCTION OF STEEL INGOTS AND CASTINGS, 1904-1913.

Years.	Ingots.	Castings.	Total.	Years.	Ingots.	Castings.	Total.
1904.....	142,279	6,505	148,784	1909.....	664,789	13,962	678,751
1905.....	394,055	9,394	403,449	1910.....	723,002	18,922	741,924
1906.....	555,913	14,976	570,889	1911.....	768,559	22,312	790,871
1907.....	629,026	17,728	646,754	1912.....	820,792	32,239	853,031
1908.....	500,300	9,657	509,957	1913.....	1,006,149	36,354	1,042,503

PRODUCTION OF STEEL INGOTS AND CASTINGS BY PROVINCES.

Provinces—Gross tons.	1909.	1910.	1911.	1912.	1913.
Nova Scotia.....	354,140	371,196	398,781	416,313	424,121
Ontario.....	315,939	359,253	378,158	417,634	596,555
Quebec and British Columbia...	8,672	11,475	13,932	19,084	21,827
Total.....	678,751	741,924	790,871	853,031	1,042,503

PRODUCTION OF STEEL INGOTS AND CASTINGS BY PROCESSES.

Years.	Bessemer.	Open-hearth.	Other kinds.	Total.
1904.....	42,738	106,046	.....	148,784
1905.....	164,488	238,681	280	403,449
1906.....	219,791	347,778	3,320	570,889
1907.....	202,268	440,936	3,550	646,754
1908.....	108,433	401,119	405	509,957
1909.....	182,304	496,142	305	678,751
1910.....	199,570	542,354	.....	741,924
1911.....	189,797	601,074	.....	790,871
1912.....	207,569	645,062	400	853,031
1913.....	273,391	768,663	449	1,042,503

The total for 1913 includes about 1,852 tons of alloy-treated steel, against about 1,294 tons in 1912.

The total production of all kinds of steel castings in 1913, omitting steel ingots, amounted to 36,354 tons, against 32,239 tons in 1912, an increase of 4,115 tons. Of the total output in 1913 about 3,809 tons were made by the Bessemer process, against about 3,838 tons in 1912; about 32,101 tons were made by the open-hearth process, against about 28,001 tons in 1912; and about 444 tons were made by special processes, against about 400 tons in 1912.

ACTIVE AND IDLE STEEL WORKS.

In 1913, 16 works made steel ingots or castings, against 14 works in 1912. The number of idle steel works in 1913 was 4, as compared with 3 in 1912.

In 1913, 6 works made ingots and 13 made castings. In the same year 7 plants made Bessemer steel ingots or castings, 8 plants made open-hearth steel, 2 plants made electric steel, and one plant made special steel. In 1913, 2 plants made both Bessemer and open-hearth steel. One plant made steel by the duplex process.

NUMBER AND CAPACITY OF METAL MIXERS, DECEMBER 31, 1913.

Provinces.	Number of mixers.					Total capacity.	
	150 tons.	200 tons.	300 tons.	350 tons.	500 tons.	Total.	Gross tons.
Nova Scotia	0	1	1	0	2	4	1,500
Ontario	1	1	0	1	0	3	700
Total	1	2	1	1	2	7	2,200

FINISHED ROLLED IRON AND STEEL.

PRODUCTION OF FINISHED ROLLED PRODUCTS, 1895-1909.

Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.
1895.....	66,402	1900.....	100,690	1905.....	385,826
1896.....	75,043	1901.....	112,007	1906.....	571,742
1897.....	77,021	1902.....	161,485	1907.....	600,179
1898.....	90,303	1903.....	129,516	1908.....	496,517
1899.....	110,642	1904.....	180,038	1909.....	662,741

PRODUCTION OF FINISHED ROLLED PRODUCTS BY PROVINCES.

Provinces—Gross tons.	1909.	1910.	1911.	1912.	1913.
Nova Scotia	286,121	310,460	336,520	337,466	380,488
Quebec.....	63,592	62,605	65,378	88,172	72,439
Ontario	306,469	356,645	367,768	418,346	504,900
New Bruns., Alberta, and Man..	6,559	10,101	12,258	17,240	9,270
Total.....	662,741	739,811	781,924	861,224	967,097

PRODUCTION OF FINISHED ROLLED FORMS BY LEADING PRODUCTS.

Products—Gross tons.	1909.	1910.	1911.	1912.	1913.
Rails.....	344,830	366,465	360,547	423,885	506,709
Structural shapes and wire rods.....	74,136	80,993	76,617	64,082	68,048
Plates and sheets, nail plate, merchant bars, tie-plate bars, etc.	243,775	292,353	344,760	373,257	392,340
Total.....	662,741	739,811	781,924	861,224	967,097

PRODUCTION OF FINISHED ROLLED FORMS, IRON AND STEEL.

Products—Gross tons.	Iron.	Steel.	Total.
Rails.....	.....	506,709	506,709
Structural shapes and wire rods.....	.....	68,048	68,048
Plates and sheets, nail plate, merchant bars, tie-plate bars, etc.....	95,881	296,459	392,340
Total for 1913.....	95,881	871,216	967,097
Total for 1912.....	109,012	752,212	861,224
Total for 1911.....	86,383	695,541	781,924
Total for 1910.....	83,918	655,893	739,811
Total for 1909.....	79,636	583,105	662,741
Total for 1908.....	65,505	431,012	496,517
Total for 1907.....	81,093	519,086	600,179
Total for 1906.....	78,898	492,344	571,742
Total for 1905.....	67,421	318,405	385,826
Total for 1904.....	53,188	126,850	180,038

PRODUCTION OF STEEL RAILS, 1895-1913.

Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.
1895.....	600	1900....	700	1905....	178,885	1910....	366,465
1896.....	600	1901....	891	1906....	312,877	1911....	360,547
1897.....	500	1902....	33,950	1907....	311,461	1912....	423,885
1898.....	600	1903....	1,243	1908....	268,692	1913....	506,709
1899.....	*835	1904....	36,216	1909....	344,830	.....	.....

* Includes a few tons of iron rails.

In 1913 the output of steel rails amounted to 52.3 per cent. of the total finished rolled production, against 49.2 per cent. in 1912 and 46.1 per cent. in 1911.

ROLLING MILLS AND STEEL WORKS.

In 1913 there were 33 works in 6 Provinces which made steel ingots or castings or rolled iron or steel into finished forms, against 31 works in 7 Provinces in 1912, a gain of 2 works. Of the total in 1913 there were 21 works which rolled finished forms of iron or steel and 12 which made steel ingots or castings but did not roll finished forms. In 1912 there were also 21 works which rolled iron or steel into finished forms and 10 works which made steel ingots or castings but did not roll finished forms.

In 1913 there were 5 idle rolling mills and steel works—1 in Nova Scotia, 1 in Quebec, and 3 in Ontario. In 1912 there were 4 idle plants—1 in Quebec and 3 in Ontario.

Of the 33 active rolling mills and steel works in 1913, 5 were in Nova Scotia, 9 in Quebec, 15 in Ontario, 2 in Alberta, and 1 each in New Brunswick and British Columbia.

In 1913 three new steel plants were built in Canada—2 in Ontario and 1 in Quebec. All 3 plants are equipped to make steel castings but not hot-rolled iron or steel products. One plant produced a few tons of ingots for tool steel in 1913. At the close of 1913 three new steel plants were being built in Canada—1 in Quebec and 2 in Ontario. All 3 plants will make steel castings but will not manufacture hot-rolled iron or steel products.

The plant of the Manitoba Rolling Mill Company, Limited, at Winnipeg, Manitoba, which was destroyed by fire on January 1, 1913, was being rebuilt at Selkirk, Manitoba, on December 31, 1913.

MISCELLANEOUS IRON AND STEEL STATISTICS.

TOTAL PRODUCTION OF CUT AND WIRE NAILS.

We estimate the total production of iron and steel cut and wire nails in Canada in 1913 as amounting to 1,520,000 kegs of 100 pounds, as compared with an estimated production in 1912 of 1,490,000 kegs, an increase of 30,000 kegs, or over 2 per cent.

Cut or wire nails were made by 16 works in 6 Provinces in 1913, as follows: Nova Scotia, 1; New Brunswick, 2; Quebec, 3; Ontario, 8; Alberta, 1; and British Columbia, 1. All the works made wire nails and 2 works made both cut and wire nails. In 1912 there were 16 works in Canada which made iron or steel cut or wire nails.

PRODUCTION OF FINISHED ANGLE SPLICE BARS, ETC.

The production of finished angle splice bars, tie plates, fish plates, and other rail joints and fastenings in Canada by rolling mills and steel works in 1913, all steel, not including spikes, bolts, nuts, and similar fastenings, amounted to 54,839 gross tons, as compared with 52,157 tons in 1912. Similar statistics for 1911 and prior years were not collected by this Bureau or by the American Iron and Steel Association.

PRODUCTION OF FORGED IRON AND STEEL.

The total production of forged iron and steel by rolling mills and steel works in Canada in 1913 amounted to about 23,405 tons, of which about 2,578 tons were iron and about 20,827 tons were steel, as compared with about 22,415 tons in 1912, of which about 867 tons were iron and about 21,548 tons were steel.

The following table gives the production of iron and steel forgings by rolling mills in Canada from 1906 to 1913.

Years.	Production—Gross tons.			Years.	Production—Gross tons.		
	Iron.	Steel.	Total.		Iron.	Steel.	Total.
1906.....	579	7,831	8,410	1910.....	1,258	16,907	18,165
1907.....	12,511	20,553	33,064	1911.....	787	18,045	18,832
1908.....	2,300	12,438	14,738	1912.....	867	21,548	22,415
1909.....	2,650	13,876	16,526	1913.....	2,578	20,827	23,405

PRODUCTION OF COAL, COKE, IRON ORE, ETC.

PRODUCTION, IMPORTS, AND EXPORTS OF COAL, 1900-1913.

Calendar years. Net tons.	Production.	Imports.	* Exports.	Calendar years. Net tons.	Production.	Imports.	* Exports.
1900.....	5,777,319	4,361,563	1,787,777	1907.....	10,511,426	10,549,503	1,894,074
1901.....	6,486,325	4,810,213	1,573,661	1908.....	10,886,311	10,195,424	1,729,833
1902.....	7,466,681	5,165,938	2,090,268	1909.....	10,501,475	9,711,826	1,588,099
1903.....	7,960,364	5,491,870	1,954,629	1910.....	12,909,152	10,438,123	2,377,049
1904.....	8,254,595	6,909,651	1,557,412	1911.....	11,323,388	14,424,949	1,500,639
1905.....	8,667,948	7,343,880	1,635,287	1912.....	14,512,829	14,595,810	2,127,133
1906.....	9,762,601	7,398,906	1,835,041	1913.....	15,012,178	18,201,953	1,562,020

* Exports of Canadian coal only.

PRODUCTION, IMPORTS, AND EXPORTS OF COKE, 1900-1913.

Calendar years. Net tons.	Production.	* Imports.	Exports.	Calendar years. Net tons.	Production.	* Imports.	Exports.
1900.....	157,134	187,878	41,529	1907.....	842,003	†400,536	70,617
1901.....	365,531	308,786	57,505	1908.....	858,257	619,269	58,708
1902.....	502,043	267,142	62,568	1909.....	862,011	661,425	74,067
1903.....	561,318	256,723	32,608	1910.....	902,715	737,088	57,971
1904.....	554,083	221,050	102,463	1911.....	935,651	751,389	9,852
1905.....	700,488	371,593	116,071	1912.....	1,406,028	628,174	57,744
1906.....	782,055	480,222	37,003	1913.....	1,517,133	723,906	68,235

* Fiscal years from 1900 to 1908; calendar years from 1909 to 1913. † For 9 months only.

SHIPMENTS, IMPORTS, AND EXPORTS OF IRON ORE, 1900-1913.

Calendar years. Net tons.	Shipments.	* Imported ore consumed.	Exports.	Calendar years. Net tons.	Shipments.	* Imported ore consumed.	Exports.
1900.....	122,000	112,042	5,527	1907.....	312,856	1,117,260	25,901
1901.....	313,646	361,010	†	1908.....	238,082	1,051,445	†
1902.....	404,003	559,381	†	1909.....	268,043	1,235,000	21,956
1903.....	264,294	485,911	†	1910.....	259,418	1,377,035	114,499
1904.....	219,046	454,671	†	1911.....	210,344	1,628,368	37,686
1905.....	291,097	861,847	†	1912.....	215,883	2,019,165	118,129
1906.....	248,831	982,740	74,778	1913.....	307,634	2,110,828	126,124

* Imported iron ore consumed by Canadian blast furnaces.

† Not available.

‡ Exports for these years, though available, are incorrect, owing to duplication of entries.

Imports and Exports of Pig Iron, Ferro-manganese, etc.—
In 1913 the imports of pig iron, ferro-manganese, etc., into Canada amounted to 267,124 net tons, against 292,490 tons in 1912. In 1913 the exports amounted to 6,326 net tons, against 6,976 tons in 1912.

SHIPMENTS OF IRON ORE FROM CUBA.

Iron Ore.—Of the total shipments in 1913 by the Spanish-American Iron Company 491,713 tons were shipped from the Mayari district on the northern coast of Cuba, against 446,176 tons in 1912. In 1911 the shipments from this district by the same company amounted to 387,792 tons, in 1910 to 302,505 tons, and in 1909, when ore was first shipped, to 5,196 tons.

The total shipments of Cuban iron ore to all countries by companies from the opening of the mines in 1884 to the close of 1913 were as follows. With the exception of 92,351 tons all the ore was shipped to the United States.

Years. Gross tons.	Juragua Iron Company.	Spanish- American Iron Co.	Sigua Iron Company.	Cuban Steel Ore Company.	Ponupo Manganese Company.	Total. Gross tons.
1884.....	25,295	.....	.....	.....	.....	25,295
1885.....	80,716	.....	.....	.....	.....	80,716
1886.....	112,074	.....	.....	.....	.....	112,074
1887.....	94,240	.....	.....	.....	.....	94,240
1888.....	206,061	.....	.....	.....	.....	206,061
1889.....	260,291	.....	.....	.....	.....	260,291
1890.....	363,842	.....	.....	.....	.....	363,842
1891.....	264,262	.....	.....	.....	.....	264,262
1892.....	335,236	.....	6,418	.....	.....	341,654
1893.....	337,155	.....	14,020	.....	.....	351,175
1894.....	156,826	.....	.....	.....	.....	156,826
1895.....	307,503	74,991	.....	.....	.....	382,494
1896.....	298,885	114,111	.....	.....	.....	412,996
1897.....	248,256	206,029	.....	.....	.....	454,285
1898.....	83,696	80,225	.....	.....	.....	163,921
1899.....	161,783	211,441	.....	.....	.....	373,224
1900.....	154,871	293,185	.....	.....	.....	448,056
1901.....	199,764	334,974	.....	17,651	.....	552,389
1902.....	221,039	455,106	.....	23,590	.....	699,735
1903.....	157,230	467,629	.....	.....	.....	624,859
1904.....	31,162	356,111	.....	.....	.....	387,273
1905.....	139,828	421,331	.....	.....	.....	561,159
1906.....	142,226	507,195	.....	.....	.....	649,421
1907.....	183,250	489,111	.....	.....	.....	672,361
1908.....	329,606	254,256	.....	.....	.....	583,862
1909.....	389,926	524,949	.....	.....	53,983	968,858
1910.....	296,448	973,480	.....	.....	159,420	1,429,348
1911.....	352,805	640,509	.....	.....	169,472	1,162,786
1912.....	354,514	909,708	.....	.....	127,989	1,392,211
1913.....	364,761	1,083,035	.....	.....	130,183	1,577,979
Total.....	6,653,551	8,397,376	20,438	41,241	641,047	15,753,653

ANNUAL STATISTICAL REPORT

OF THE

American Iron and Steel Institute

For 1914



BUREAU OF STATISTICS
AMERICAN IRON AND STEEL INSTITUTE

261 South Fourth Street, Philadelphia

1915

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LETTER OF TRANSMITTAL.

HON. ELBERT H. GARY, PRESIDENT,

American Iron and Steel Institute, New York City.

DEAR SIR: Herewith is submitted the Third Annual Statistical Report of the American Iron and Steel Institute, containing the statistics of the iron and steel and allied industries of the United States and Canada for the year 1914 and preceding years.

These three Reports of the Institute are the successors of a series of forty issues covering the forty years preceding 1912, published by the American Iron and Steel Association under the supervision of the late Mr. James M. Swank, of Philadelphia. The material for this Report was collected by Mr. Wm. G. Gray, Chief of the statistical staff of the Philadelphia office of the Institute.

Concerning this Report Mr. Gray says:

In 1915 six Special Statistical Bulletins were issued for the United States and Canada as promptly as complete statistics were received from iron and steel manufacturers, as follows:

No. 1—Production of pig iron in the United States in 1914; issued on February 25, 1915.

No. 2—Production of rails in the United States in 1914; issued on March 26, 1915.

No. 3—Production of light and heavy structural shapes, wire rods, wire nails, and cut nails in the United States in 1914; issued on June 4, 1915.

No. 4—Production of steel ingots and castings and finished forms of rolled iron and steel in the United States in 1914; also statistics of the production of tinplates and terne plates, galvanized sheets and galvanized formed products, pipes and tubes (including wrought iron and steel pipe and boiler tubes, seamless hot-finished and cold-drawn steel tubes, and cast-iron gas and water and soil and plumbers' pipe); also statistics of the production of finished angle splice bars, tie plates, fish plates, and other rail fastenings and forged iron and steel products by rolling mills and steel works; also statistics of the output of hammered charcoal iron blooms, billets, etc.; issued on July 31, 1915.

No. 5—Production of pig iron, steel ingots and castings, and finished rolled forms of iron and steel in Canada in 1914; also statistics of the production of finished angle splice bars and other rail fastenings and forged iron and steel products by rolling mills and steel works; also cut and wire nail and cast iron pipe statistics; also statistics of the production of pig iron in Canada in the first half of 1915; issued on July 31, 1915.

No. 6—Production of pig iron in the United States in the first six months of 1915; issued on August 5, 1915.

For domestic statistical information I am indebted to Hon. E. E. Pratt, Chief of the Bureau of Foreign and Domestic Commerce of the Department of Commerce; E. F. Burchard, H. D. McCaskey, C. E. Leshar, and D. F. Hewett, of the United States Geological Survey; A. H. Arm-

strong, Chief of the Bureau of Anthracite Coal Statistics; E. T. Dixon, Auditor of the Cumberland and Pennsylvania Railroad Company; Lieut.-Col. Francis R. Shunk, of the United States Army, Corps of Engineers, stationed at Pittsburgh; E. H. Alden, Secretary of the Norfolk and Western Railway Company; Col. H. P. Snyder, editor of the *Connellsville Courier*; the editors of the *Railway Age Gazette*, *Electric Railway Journal*, *Iron Age*, *Hardware Age*, *Poor's Manual*, *Iron Trade Review*, *American Metal Market*, *Industrial World*, and *Steel and Iron*; the Juragua Iron Company, the Spanish-American Iron Company, and the Ponupo Manganese Company; Walter W. Cook, Secretary of the Iron Merchants' Association, and Edward L. Hand & Co., of Philadelphia; W. I. Miller, Secretary of the Pittsburgh Forge and Iron Company; and the Commissioner of Navigation and the Statistician of the Interstate Commerce Commission, at Washington.

For Canadian statistics of coal, coke, and iron ore I am under obligations to Hon. John McLeish, Chief of the Division of Mineral Resources and Statistics, Department of Mines, Ottawa. For average monthly and yearly prices of iron and steel in England I am indebted to the *Iron and Coal Trades Review*.

The arrangement of this Report by subjects and chapters and the very valuable table of contents, which greatly facilitate the finding of any desired piece of information in the Report, initiated in the Report for 1913, are the work of Mr. Howard H. Cook, Assistant Secretary of the Institute.

JAMES T. McCLEARY,

NEW YORK, OCTOBER 20, 1915.

Secretary.

SUMMARY OF IRON AND STEEL PRODUCTION.

PRODUCTION OF LEADING ARTICLES OF IRON AND STEEL, GROSS TONS, 1913-1914.

Products.	1913.	1914.	Decrease.	Per cent.
Pig iron.				
Basic.....	12,536,693	9,670,687	2,866,006	22.86
Bessemer and low-phos.....	11,590,113	7,859,127	3,730,986	32.19
Foundry and ferro-silicon...	5,220,343	4,533,254	687,089	13.16
Malleable.....	993,736	671,771	321,965	32.40
Forge.....	324,407	361,651	*37,244	*11.48
Spiegeleisen.....	110,338	79,935	30,403	27.55
Ferro-manganese.....	119,495	106,083	13,412	11.22
White, mottled, ferro-tit., etc.	71,027	49,736	21,291	29.98
Total pig iron. Gross tons.	30,966,152	23,332,244	7,633,908	24.65
Steel ingots and castings.				
Open-hearth.....	21,599,931	17,174,684	4,425,247	20.48
Bessemer.....	9,545,706	6,220,846	3,324,860	34.83
Crucible.....	121,226	89,869	31,357	25.87
Electric and all other steel..	34,011	27,631	6,380	18.75
Total steel.... Gross tons.	31,300,874	23,513,030	7,787,844	24.88
Rolled iron and steel.				
Rails.....	3,502,780	1,945,095	1,557,685	44.47
Plates and sheets.....	5,751,037	4,719,246	1,031,791	17.94
Nail and spike plate.....	37,503	38,573	*1,070	*2.85
Wire rods.....	2,464,807	2,431,714	33,093	1.34
Structural shapes.....	3,004,972	2,031,124	973,848	32.40
Merchant bars.....	3,957,609	2,523,631	1,433,978	36.23
Bars for concrete work.....	319,670	288,471	31,199	9.75
Skelp, flue, etc.....	2,501,964	1,982,431	519,533	20.76
Long angle splice bars, etc..	686,390	423,052	263,338	38.36
Hoops.....	280,886	211,028	69,858	24.87
Bands and cotton-ties.....	499,660	345,919	153,741	30.76
Rolled sheet piling.....	46,289	35,314	10,975	23.70
Railroad ties.....	44,244	33,249	10,995	24.85
Rolled forging billets.....	537,210	331,524	205,686	38.28
Blooms, billets, etc., export.	88,778	91,907	*3,129	*3.52
All other finished rolled....	1,067,444	937,918	129,526	12.13
Total..... Gross tons.	24,791,243	18,370,196	6,421,047	25.90

* Increase.

**PRODUCTION OF MISCELLANEOUS IRON AND STEEL PRODUCTS,
1913-1914.**

Products.	1913.	1914.	Decrease.	Per cent.
Tin and terne plates..Pounds.	1,845,130,000	2,085,980,000	*240,850,000	13.05
Galvanized sheets....Pounds.	†1,975,053,845	†1,939,270,738	†35,783,107	1.81
†Rail joints and fastenings....	627,478	372,542	254,936	40.62
Cut nails—kegs of 100 lbs...	842,038	769,665	72,373	8.59
Wire nails—kegs of 100 lbs..	13,559,727	13,132,814	426,913	3.14
†Wrought pipe.....	2,245,532	1,737,704	507,828	22.61
†Seamless steel tubes.....	108,567	90,595	17,972	16.55
Cast iron pipe.....Net tons.	1,266,245	1,160,780	105,465	8.32
†Hammered charcoal blooms..	59,393	41,425	17,968	30.25
†Forged iron and steel.....	407,983	341,421	66,562	16.31

* Increase. † Includes articles formed or stamped from iron or steel black plates or black sheets and galvanized after the completion of the forming process. ‡ Gross tons.

SUMMARY OF MISCELLANEOUS STATISTICS.

Products.	1913.	1914.	Decrease.	Per cent.
Iron ore shipments from L. Sup.	†49,947,116	†32,729,726	†17,217,390	34.47
Production of iron ore.....	†61,980,437	†41,439,761	†20,540,676	33.14
Imports of iron ore.....	†2,594,770	†1,351,368	†1,243,402	47.91
Exports of iron ore.....	†1,042,151	†551,618	†490,533	47.06
Shipments Penna. anth. coal..	†69,069,628	†68,342,601	†727,027	1.05
Shipments Cumberland coal..	†6,921,330	†6,046,901	†874,429	12.63
Production of bituminous coal.	†478,435,297	†422,703,970	†55,731,327	11.64
Production of Penna. anth....	†91,524,922	†90,821,507	†703,415	.76
Production of all kinds of coal.	†569,960,219	†513,525,477	†56,434,742	9.90
Imports of coal.....	†1,414,778	†1,394,663	†20,115	1.42
Exports of domestic coal....	†22,141,143	†17,632,094	†4,509,049	20.36
Shipments Connellsville coke..	†20,097,901	†14,075,638	†6,022,263	29.96
Shipments Pocahontas coke...	†1,280,638	†789,800	†490,838	38.32
Production of coke.....	†46,299,530	†34,555,914	†11,743,616	25.36
Imports iron and steel and mfrs.	\$33,601,985	\$28,615,344	\$4,986,641	14.84
Exports iron and steel and mfrs.	\$293,934,160	\$199,861,684	\$94,072,476	32.00
Miles new steam R. R. built..	3,071	1,532	1,539	50.11
Tonnage metal vessels built...	235,878	169,711	66,167	28.05

† Gross tons.

‡ Net tons.

PIG IRON.

Classification.—All pig iron and ferro-alloys are included, whether made in blast furnaces or in electric furnaces. Pig iron made with bituminous coal is included under coke pig iron. Pig iron made with mixed anthracite and coke is included in anthracite pig iron. Pig iron made with coke and electricity is included in coke pig iron: that made with charcoal and electricity is included in charcoal pig iron. Low-phosphorus pig iron, that is, iron running under 0.04 in phosphorus, is included in Bessemer pig iron. Pig iron containing from 0.04 to 0.10 per cent. of phosphorus is classified as Bessemer. The figures for 1913 and 1914 include under basic iron a small quantity of charcoal iron of basic grade. In 1912 and prior years charcoal pig iron of basic quality was not included in the basic production. Nearly all the charcoal iron is classed as foundry pig iron. Ferro-silicon is included in foundry pig iron. Pig iron containing 7 per cent. or over of silicon is classified as ferro-silicon. Under "all other grades" are included white and mottled iron, direct castings, and miscellaneous ferro-alloys. Where not separately stated ferro-manganese and spiegeleisen are included in "all other."

PRODUCTION OF ALL KINDS OF PIG IRON.

TOTAL PRODUCTION OF PIG IRON, 1885-1914.

Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.
1885.....	4,044,526	1895.....	9,446,308	1905.....	22,992,380
1886.....	5,683,329	1896.....	8,623,127	1906.....	25,307,191
1887.....	6,417,148	1897.....	9,652,680	1907.....	25,781,361
1888.....	6,489,738	1898.....	11,773,934	1908.....	15,936,018
1889.....	7,603,642	1899.....	13,620,703	1909.....	25,795,471
1890.....	9,202,703	1900.....	13,789,242	1910.....	27,303,567
1891.....	8,279,870	1901.....	15,878,354	1911.....	23,649,547
1892.....	9,157,000	1902.....	17,821,307	1912.....	29,726,937
1893.....	7,124,502	1903.....	18,009,252	1913.....	30,966,152
1894.....	6,657,388	1904.....	16,497,033	1914.....	23,332,244

PRODUCTION OF PIG IRON BY STATES, 1910-1914.

States.	1910.	1911.	1912.	1913.	1914.
Mass., Conn.....	16,582	9,649	17,366	12,810	6,594
New York.....	1,938,407	1,562,756	1,939,231	2,187,620	1,559,864
New Jersey.....	264,781	40,663	36,876		
Pennsylvania.....	11,272,323	9,807,073	12,552,131	12,954,936	9,733,369
Maryland.....	326,214	255,816	219,546	289,959	195,594
Virginia.....	444,976	293,642	256,167	341,815	271,228
Georgia.....	14,725	1,200	.....	.....	.....
Alabama.....	1,939,147	1,712,211	1,862,681	2,057,911	1,826,929
West Virginia.....	174,661	291,472	274,360	315,731	236,393
Kentucky.....	100,509	95,202	68,760		
Mississippi.....	.....	.....	.....	.....	.....
Tennessee.....	397,569	324,648	338,238	280,541	216,738
Ohio.....	5,752,112	5,310,506	6,802,493	7,129,525	5,283,426
Illinois.....	2,675,646	2,108,002	2,887,359	2,927,832	1,847,451
Indiana, Michigan..	1,250,103	1,163,932	1,770,628	1,775,883	1,557,355
Wisconsin, Minn. . .	307,200	276,807	303,370	367,326	329,526
Mo., Col., Wash., Cal.	428,612	395,968	397,731	324,263	267,777
Total.....	27,303,567	23,649,547	29,726,937	30,966,152	23,332,244

Georgia, Texas, Oregon, and Washington were the only States having one or more blast furnaces that did not make pig iron in 1914. California, which does not have a blast furnace, produced a small tonnage of pig iron and ferro-manganese by electricity. Georgia last made pig iron in 1911, Washington in 1910, Texas in 1909, and Oregon in 1894.

PRODUCTION OF PIG IRON BY STATES, 1913-1914.

States.	Production—Gross tons.				Decrease.	Per cent.
	1914.	Per cent.	1913.	Per cent.		
Pennsylvania....	9,733,369	41.72	12,954,936	41.84	3,221,567	24.87
Ohio.....	5,283,426	22.64	7,129,525	23.02	1,846,099	25.89
Illinois.....	1,847,451	7.92	2,927,832	9.45	1,080,381	36.90
Alabama.....	1,826,929	7.83	2,057,911	6.65	230,982	11.22
New York, N. J.	1,559,864	6.69	2,187,620	7.06	627,756	28.70
Ind., Michigan..	1,557,355	6.67	1,775,883	5.73	218,528	12.31
Wis., Minn.....	329,526	1.41	367,326	1.19	37,800	10.29
Virginia.....	271,228	1.16	341,815	1.10	70,587	20.65
Mo., Col., Cal..	267,777	1.15	324,263	1.05	56,486	17.42
W. Va., Ky., Miss.	236,393	1.01	315,731	1.02	79,338	25.13
Tennessee.....	216,738	.93	280,541	.91	63,803	22.74
Maryland.....	195,594	.84	289,959	.94	94,365	32.54
Mass., Conn....	6,594	.03	12,810	.04	6,216	48.52
Total.....	23,332,244	100.00	30,966,152	100.00	7,633,908	24.65

HALF-YEARLY PRODUCTION OF PIG IRON, 1902-1914.

Years.	First half.	Second half.	Total. Gross tons.	Increase.	Decrease.
1902.....	8,808,574	9,012,733	17,821,307	204,159	.....
1903.....	9,707,367	8,301,885	18,009,252	.....	1,405,482
1904.....	8,173,438	8,323,595	16,497,033	150,157	.....
1905.....	11,163,175	11,829,205	22,992,380	666,030	.....
1906.....	12,582,250	12,724,941	25,307,191	142,691	.....
1907.....	13,478,044	12,303,317	25,781,361	.....	1,174,727
1908.....	6,918,004	9,018,014	15,936,018	2,100,010	.....
1909.....	11,022,346	14,773,125	25,795,471	3,750,779	.....
1910.....	14,978,738	12,324,829	27,303,567	.....	2,653,909
1911.....	11,666,996	11,982,551	23,649,547	315,555	.....
1912.....	14,072,274	15,654,663	29,726,937	1,582,389	.....
1913.....	16,488,602	14,477,550	30,966,152	.....	2,011,052
1914.....	12,536,094	10,796,150	23,332,244	.....	1,739,944

HALF-YEARLY PRODUCTION OF PIG IRON BY STATES IN 1914.

States.	Blast furnaces.			Production—Gross tons. (Includes spiegeleisen, ferro-mang., ferro-silicon, ferro-phosphorus, etc.)		
	In blast June 30, 1914.	December 31, 1914.			First half of 1914.	Second half of 1914.
		In.	Out.	Total.		
Massachusetts	0	1	1	2	4,292	2,302
Connecticut..	1	1	2	3		
New York....	13	12	15	27	818,425	741,439
New Jersey...	2	1	5	6		
Pennsylvania.	76	63	96	159	5,207,051	4,526,318
Maryland....	2	2	3	5	101,605	93,989
Virginia.....	8	3	19	22	164,796	106,432
Georgia.....	0	0	4	4	.....	.....
Texas.....	0	0	3	3	.....	.....
Alabama.....	20	18	30	48	902,186	924,743
West Virginia.	1	1	3	4	136,742	99,651
Kentucky....	1	1	5	6		
Mississippi...	0	0	1	1	113,137	103,601
Tennessee....	6	4	14	18		
Ohio.....	43	31	43	74	2,865,367	2,418,059
Illinois.....	12	7	19	26	1,045,905	801,546
Indiana.....	8	4	6	10	851,700	705,655
Michigan....	8	9	5	14		
Wisconsin....	3	3	5	8	195,991	133,535
Minnesota....	1	0	1	1		
Missouri.....	1	1	1	2	128,897	138,880
Colorado.....	2	2	4	6		
Oregon.....	0	0	1	1	128,897	138,880
Washington..	0	0	1	1		
California....	0	0	0	0	.....	.....
Total....	208	164	287	451	12,536,094	10,796,150
						23,332,244

In the second half of 1914 the production shows a decrease of 1,739,944 tons, or 13.8 per cent., as compared with the production in the first half of the year. In Pennsylvania the decrease in the second half of the year amounted to 680,733 tons, in Ohio to 447,308 tons, in Illinois to 244,359 tons, in Indiana and Michigan to 146,045 tons, and in New York and New Jersey to 76,986 tons. In Alabama there was an increase of 22,557 tons.

PIG IRON MADE FOR SALE OR FOR USE OF MAKERS.

States.	For sale.	For own use.	Total. Gross tons.
Massachusetts, Connecticut.....	5,494	1,100	6,594
New York, New Jersey, Maryland...	1,112,289	643,169	1,755,458
Pennsylvania.....	1,752,798	7,980,571	9,733,369
Virginia, West Virginia, Alabama....	1,608,037	628,135	2,236,172
Kentucky, Tennessee, Mississippi....	299,987	15,129	315,116
Ohio.....	1,366,463	3,916,963	5,283,426
Indiana, Illinois.....	507,830	2,535,940	3,043,770
Mich., Wis., Minn., Mo., Col., Cal...	710,082	248,257	958,339
Total for 1914.....Gross tons.	7,362,980	15,969,264	23,332,244
Total for 1913.....Gross tons.	9,523,885	21,442,267	30,966,152

Similar information was not collected by the American Iron and Steel Institute prior to 1913.

In 1914, 31.6 per cent. was made for sale and 68.4 per cent. for the use of the makers, as compared with 30.8 per cent. for sale and 69.2 per cent. for the use of the makers in 1913.

PIG IRON MADE FOR SALE BY GRADES IN 1913-1914.

States.	Bessemer.	Basic.	Forge.	Foundry.	Malleable.	All other.	Total. Gross tons.
Mass., Conn.....				5,494			5,494
N. Y., N. J., Md..	56,115	162,104	10,163	676,296	205,479	2,132	1,112,289
Pennsylvania.....	384,623	432,720	106,522	715,134	57,518	56,281	1,752,798
Va., W. Va., Ala..		138,800	42,319	1,407,305		19,613	1,608,037
Ky., Tenn., Miss..	33,021		3,186	246,901	7,915	8,964	299,987
Ohio.....	33,874	519,296	33,868	610,494	167,904	1,027	1,366,463
Indiana, Illinois..	20,272	175,954		169,739	138,473	3,392	507,830
Mich., Wis., Minn., Mo., Cal.....		50,847		561,726	94,482	3,027	710,082
Total for 1914	527,905	1,479,721	196,058	4,393,089	671,771	94,436	7,362,980
Total for 1913	1,203,680	1,909,279	238,361	5,084,952	989,241	98,372	9,523,885

PRODUCTION OF PIG IRON BY GRADES.

PRODUCTION OF PIG IRON BY GRADES, 1900-1914.

Years	Basic.*	Bessemer.	Foundry.	Malleable.	Forge.	All other.	Total. Gross tons.
1900.	1,072,376	7,979,327	3,376,445	173,413	793,092	394,589	13,789,242
1901.	1,448,850	9,596,793	3,548,718	256,532	639,454	388,007	15,878,354
1902.	2,038,590	10,393,168	3,851,276	311,458	833,093	393,722	17,821,307
1903.	2,040,726	9,989,908	4,409,023	473,781	783,016	312,798	18,009,252
1904.	2,483,104	9,098,659	3,827,229	263,529	550,836	273,676	16,497,033
1905.	4,105,179	12,407,116	4,758,038	635,236	727,817	358,994	22,992,380
1906.	5,018,674	13,840,518	4,773,011	699,701	597,420	377,867	25,307,191
1907.	5,375,219	13,231,620	5,151,209	920,290	683,167	419,856	25,781,361
1908.	4,010,144	7,216,976	3,637,622	414,957	457,164	199,155	15,936,018
1909.	8,250,225	10,557,370	5,322,415	658,048	725,624	281,789	25,795,471
1910.	9,084,608	11,245,642	5,260,447	843,123	564,157	305,590	27,303,567
1911.	8,520,020	9,409,303	4,468,940	612,533	408,841	229,910	23,649,547
1912.	11,417,886	11,664,015	5,073,873	825,643	469,183	276,337	29,726,937
1913.	12,536,693	11,590,113	5,220,343	993,736	324,407	300,860	30,966,152
1914.	9,670,687	7,859,127	4,533,254	671,771	361,651	235,754	23,332,244

* Small quantities of basic iron made with charcoal as fuel are not included from 1900 to 1912. For 1913 and 1914 small tonnages of charcoal basic iron are included.

PRODUCTION OF PIG IRON BY GRADES, 1913-1914, SHOWING INCREASE OR DECREASE BY GRADES.

Grades.	1914.	Per cent.	1913.	Per cent.	Decrease.	Per cent.
Basic.....	9,670,687	41.45	12,536,693	40.48	2,866,006	22.86
Bessemer.....	7,859,127	33.68	11,590,113	37.43	3,730,986	32.19
Foundry.....	4,533,254	19.43	5,220,343	16.86	687,089	13.16
Malleable.....	671,771	2.88	993,736	3.21	321,965	32.40
Forge.....	361,651	1.55	324,407	1.05	*37,244	*11.48
Spiegeleisen.....	79,935	.34	110,338	.36	30,403	27.55
Ferro-manganese.....	106,083	.46	119,495	.38	13,412	11.22
All other.....	49,736	.21	71,027	.23	21,291	29.98
Total .Gross tons.	23,332,244	100.00	30,966,152	100.00	7,633,908	24.65

* Increase.

PRODUCTION OF BASIC PIG IRON BY STATES, 1910-1914.

States.	1910.	1911.	1912.	1913.	1914.
New York, New Jersey..	414,228	321,765	386,457	564,352	389,187
Pennsylvania.....	5,247,065	5,168,762	6,490,096	6,934,995	5,266,804
Virginia, Alabama.....	697,377	445,892	671,478	831,188	543,152
Ohio.....	1,155,434	1,111,741	1,557,955	1,775,225	1,508,273
Indiana, Illinois.....	1,281,904	1,224,254	2,035,910	2,167,373	1,679,168
Michigan, Mo., Colorado.	288,600	247,606	275,990	263,560	284,103
Total .Gross tons.	9,084,608	8,520,020	11,417,886	12,536,693	9,670,687

Ten States made basic pig iron in 1914, as compared with 11 States in 1913, 1912, and 1911, and 10 States in 1910.

PRODUCTION OF BESSEMER PIG IRON BY STATES, 1910-1914.

States.	1910.	1911.	1912.	1913.	1914.
Pennsylvania.....	4,393,905	3,461,265	4,402,291	4,478,837	3,303,254
Ohio.....	3,460,736	3,283,970	4,174,226	4,184,102	2,905,465
Illinois.....	1,826,407	1,455,865	1,823,655	1,694,947	1,024,026
New York.....	834,632	449,841	621,891	565,760	249,002
West Va., Tenn., Ky.....	267,577	367,436	316,817	293,845	182,036
Maryland, Virginia.....	326,614	258,236	218,603	289,959	195,344
Mich., Wis., Minn., Colorado, California..	135,771	132,690	106,532	82,663	.....
Total... Gross tons.	11,245,642	9,409,303	11,664,015	11,590,113	7,859,127
Total Bessemer.....	10,986,565	9,126,843	11,381,656	11,273,295	7,552,558
Total low-phosphorus.	259,077	282,460	282,359	316,818	306,569

Eight States made either Bessemer or low-phosphorus pig iron in 1914, against 11 States in 1913, 1912, and 1911, and 14 States in 1910.

PRODUCTION OF FOUNDRY PIG IRON, GROSS TONS, 1910-1914.

States.	1910.	1911.	1912.	1913.	1914.
Massachusetts, Conn...	16,582	9,649	17,366	12,810	6,594
New York, New Jersey..	694,055	642,416	794,332	790,937	702,892
Pennsylvania.....	1,123,679	771,303	1,180,096	1,038,900	731,625
Maryland, Va., W. Va...	380,041	247,557	229,796	293,599	264,037
Kentucky, Mississippi..	25,106	50,722	50,361	43,931	70,313
Tennessee.....	308,749	275,091	299,529	247,165	176,717
Georgia.....	14,725	1,200	.....	.....	.....
Alabama.....	1,200,346	1,240,808	1,075,564	1,184,302	1,223,109
Ohio.....	781,404	616,904	666,659	787,184	610,494
Indiana, Illinois.....	101,811	99,115	119,103	173,256	174,487
Michigan.....	352,053	258,851	347,781	331,666	286,693
Wisconsin.....	185,265	160,231	213,045	220,853	205,339
Minnesota.....	44,796	71,850	44,232	71,869	59,848
Mo., Col., Wash., Cal...	31,835	23,243	36,009	23,871	21,106
Total.....	5,260,447	4,468,940	5,073,873	5,220,343	4,533,254

Included in the 4,533,254 tons of foundry pig iron reported for 1914 are 136,514 tons of ferro-silicon, Bessemer ferro-silicon, silico-spiegel, and electrolytic ferro-silicon, made in New York, Pennsylvania, Virginia, West Virginia, Kentucky, Tennessee, Ohio, and Illinois; in 1913, 105,715 tons were made, as compared with 104,017 tons in 1912.

PRODUCTION OF FORGE FIG IRON, GROSS TONS, 1910-1914.

States.	1910.	1911.	1912.	1913.	1914.
New York, New Jersey.....	69,580	35,163	.....	18,308	10,163
Pennsylvania.....	294,647	198,956	234,558	175,965	220,814
Virginia, West Virginia.....	29,200	22,524	21,421	26,560	11,189
Kentucky.....	4,341	.....	.....	.....	.....
Tennessee.....	52,258	6,089	2,579	2,469	3,186
Alabama.....	58,321	38,715	115,303	45,767	31,132
Ohio.....	55,810	107,394	95,322	55,338	85,167
Total.....	564,157	408,841	469,183	324,407	361,651

PRODUCTION OF MALLEABLE FIG IRON, GROSS TONS, 1910-1914.

States.	1910.	1911.	1912.	1913.	1914.
New York.....	177,753	145,868	166,604	239,449	205,479
Pennsylvania.....	29,502	45,934	37,141	102,797	57,518
Kentucky.....	2,465	.....	550	360	7,915
Ohio.....	294,493	189,245	301,346	311,869	167,904
Illinois.....	227,546	142,580	208,185	210,967	138,473
Michigan, Wisconsin.....	111,364	88,906	111,817	128,294	94,482
Total.....	843,123	612,533	825,643	993,736	671,771

PRODUCTION OF MISCELLANEOUS GRADES OF FIG IRON.

States.	1910.	1911.	1912.	1913.	1914.
New York, New Jersey.....	12,940	8,366	6,823	8,814	3,141
Pennsylvania.....	26,926	14,041	20,335	19,073	7,150
Virginia.....	1,435	5,297	3,189	3,599	252
Tennessee, Alabama.....	29,246	14,624	14,562	23,213	29,003
Ohio.....	4,235	1,252	6,985	15,807	6,123
Indiana, Illinois.....	1,084	435	2,169	521	1,055
Michigan, Wisconsin.....	5,293	1,177	550	.....	3,012
Total..... Gross tons.	81,159	45,192	54,613	71,027	49,736

PRODUCTION OF SPIEGELEISEN, GROSS TONS, 1910-1914.

States.	1910.	1911.	1912.	1913.	1914.
Pennsylvania.....	87,037	72,330	66,591	90,408	66,702
Alabama, Illinois, Colorado.....	66,018	37,906	29,755	19,930	13,233
Total.....	153,055	110,236	96,346	110,338	79,935

PRODUCTION OF FERRO-MANGANESE, GROSS TONS, 1910-1914.

States.	1910.	1911.	1912.	1913.	1914.
Pennsylvania.....	69,562	74,482	121,023	113,961	79,502
Alabama, Illinois, California....	1,814	.....	4,355	5,534	26,581
Total.....	71,376	74,482	125,378	119,495	106,083

PRODUCTION OF SPIEGELEISEN AND FERRO-MANGANESE.

TOTAL PRODUCTION OF SPIEGELEISEN AND FERRO-MANGANESE,
CALENDAR YEARS, 1889-1914.

Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.
1889.....	76,628	1898.....	213,769	1907.....	339,348
1890.....	133,180	1899.....	219,768	1908.....	152,018
1891.....	127,766	1900.....	255,977	1909.....	225,040
1892.....	179,131	1901.....	291,461	1910.....	224,431
1893.....	81,118	1902.....	212,934	1911.....	184,718
1894.....	120,180	1903.....	192,661	1912.....	221,724
1895.....	171,724	1904.....	219,446	1913.....	229,833
1896.....	131,940	1905.....	289,983	1914.....	186,018
1897.....	173,695	1906.....	300,500	.....	.....

CONSUMPTION OF SPIEGELEISEN AND FERRO-MANGANESE FROM 1901 TO 1914.

Calendar years.	Spiegeleisen—Gross tons.			Ferro-manganese—Gross tons.		
	Production.	Add imports.	Approximate consumption.	Production.	Add imports.	Approximate consumption.
1901.....	231,822	26,827	258,649	59,639	20,750	80,389
1902.....	168,408	62,813	231,221	44,526	50,388	94,914
1903.....	156,700	122,016	278,716	35,961	41,518	77,479
1904.....	162,370	4,623	166,993	57,076	21,814	78,890
1905.....	227,797	55,457	283,254	62,186	52,841	115,027
1906.....	244,980	103,267	348,247	55,520	84,359	139,879
1907.....	283,430	48,995	332,425	55,918	87,400	143,318
1908.....	111,376	4,579	115,955	40,642	44,624	85,266
1909.....	142,831	16,921	159,752	82,209	88,934	171,143
1910.....	153,055	25,383	178,438	71,376	114,278	185,654
1911.....	110,236	20,970	131,206	74,482	80,263	154,745
1912.....	96,346	1,015	97,361	125,378	99,137	224,515
1913.....	110,338	77	110,415	119,495	128,070	247,565
1914.....	79,935	2,870	82,805	106,083	82,217	188,300

PRODUCTION OF PIG IRON BY FUELS.

In 1914, about 98.4 per cent. of the pig iron produced in the United States was made with bituminous fuel, a little over 1 per cent. with charcoal, and less than one-half of 1 per cent. with anthracite coal alone and with anthracite coal and coke mixed.

In the following table pig iron made with mixed anthracite and coke is included in the anthracite column, pig iron made with both raw coal and coke or with coke and electricity, etc., is included in the bituminous column, and pig iron made with mixed charcoal and coke or with charcoal and electricity is included in the charcoal column.

PRODUCTION OF PIG IRON BY FUELS, GROSS TONS, 1854-1914.

Years.	Anthracite.	Charcoal.	Bituminous.	Total.
1854.....	303,067	305,623	48,647	657,337
1855*.....	340,952	303,502	55,705	700,159
1856.....	395,637	330,777	62,101	788,515
1857.....	348,558	294,929	69,153	712,640
1858.....	322,705	254,744	52,099	629,548
1859.....	421,201	253,608	75,751	750,560
1860.....	463,581	248,510	109,132	821,223
1861.....	365,383	174,355	113,426	653,164
1862.....	419,924	166,661	116,685	703,270
1863.....	515,748	189,290	141,037	846,075
1864.....	610,730	215,940	187,612	1,014,282
1865.....	428,177	234,234	169,359	831,770
1866.....	669,078	296,946	239,639	1,205,663
1867.....	713,070	307,447	284,506	1,305,023
1868.....	797,322	330,357	303,571	1,431,250
1869†.....	867,098	350,134	494,055	1,711,287
1870.....	830,357	325,893	508,929	1,665,179
1871.....	854,114	343,750	508,929	1,706,793
1872.....	1,223,047	446,953	878,713	2,548,713
1873.....	1,172,102	515,732	873,129	2,560,963
1874.....	1,073,343	514,783	813,136	2,401,262
1875‡.....	810,755	366,956	846,022	2,023,733
1876.....	709,445	275,579	883,937	1,868,961
1877.....	834,640	283,789	948,165	2,066,594
1878.....	975,777	261,963	1,063,475	2,301,215
1879.....	1,136,629	320,422	1,284,802	2,741,853

* Anthracite passes charcoal. † Bituminous passes charcoal. ‡ Bituminous passes anthracite.

Years.	Anthracite.	Charcoal.	Bituminous.	Total.
1880.....	1,613,974	479,963	1,741,254	3,835,191
1881.....	1,548,627	570,391	2,025,236	4,144,254
1882.....	1,823,338	623,130	2,176,855	4,623,323
1883.....	1,683,568	510,469	2,401,473	4,595,510
1884.....	1,416,476	409,301	2,272,091	4,097,868
1885.....	1,298,562	357,004	2,388,960	4,044,526
1886.....	1,874,640	410,319	3,398,370	5,683,329
1887.....	2,087,847	516,234	3,813,067	6,417,148
1888.....	1,719,401	534,633	4,235,704	6,489,738
1889.....	1,714,602	575,268	5,313,772	7,603,642
1890.....	2,186,411	628,145	6,388,147	9,202,703
1891.....	1,866,108	576,964	5,836,798	8,279,870
1892.....	1,797,113	537,621	6,822,266	9,157,000
1893.....	1,347,529	386,789	5,390,184	7,124,502
1894.....	914,742	222,422	5,520,224	6,657,388
1895.....	1,270,899	225,341	7,950,068	9,446,308
1896.....	1,146,412	310,244	7,166,471	8,623,127
1897.....	932,777	255,211	8,464,692	9,652,680
1898.....	1,203,273	296,750	10,273,911	11,773,934
1899.....	1,599,552	284,766	11,736,385	13,620,703
1900.....	1,677,048	384,482	11,727,712	13,789,242
1901.....	1,712,527	383,441	13,782,386	15,878,354
1902.....	1,115,247	390,169	16,315,891	17,821,307
1903.....	1,911,347	505,684	15,592,221	18,009,252
1904.....	1,228,140	337,529	14,931,364	16,497,033
1905.....	1,674,515	352,928	20,964,937	22,992,380
1906.....	1,560,686	433,007	23,313,498	25,307,191
1907.....	1,371,554	437,397	23,972,410	25,781,361
1908.....	355,009	249,146	15,331,863	15,936,018
1909.....	698,431	376,003	24,721,037	25,795,471
1910.....	649,082	396,507	26,257,978	27,303,567
1911.....	229,575	278,676	23,141,296	23,649,547
1912.....	247,179	347,025	29,132,733	29,726,937
1913.....	300,041	339,981	30,326,130	30,966,152
1914.....	91,464	263,924	22,976,856	23,332,244

PRODUCTION OF PIG IRON ACCORDING TO FUEL USED, 1910-1914.

Fuel used.	1910.	1911.	1912.	1913.	1914.
Bituminous, chiefly coke	26,257,978	23,141,296	29,132,733	30,326,130	22,976,856
Anthracite and coke.	628,579	212,548	236,467	277,595	89,569
Anthracite alone.....	20,503	17,027	10,712	22,446	1,895
Charcoal.....	396,507	278,676	347,025	339,981	263,924
Total... Gross tons.	27,303,567	23,649,547	29,726,937	30,966,152	23,332,244

Small quantities of pig iron made with charcoal and electricity are included in the charcoal figures. The totals for each of the five years also include small tonnages of ferro-alloys made with electricity, coke and electricity, etc.

PRODUCTION OF COKE PIG IRON BY STATES, 1910-1914.

States.	1910.	1911.	1912.	1913.	1914.
New York.....	1,938,357	1,562,756	1,939,231	2,187,620	1,559,852
New Jersey.....	262,669	40,663	36,876		
Pennsylvania....	10,621,081	9,573,985	12,301,120	12,650,216	9,638,679
Maryland.....	325,614	255,186	218,603	289,959	195,344
Virginia, Ga....	452,342	292,147	253,921	338,575	267,759
Alabama.....	1,903,443	1,679,654	1,828,648	2,025,461	1,806,771
West Virginia...	174,661	291,472	342,940	315,728	236,251
Kentucky.....	98,951	93,574			
Tennessee.....	394,078	320,942	335,552	278,206	214,664
Ohio.....	5,751,052	5,308,604	6,800,568	7,127,524	5,282,248
Illinois.....	2,675,646	2,108,002	2,887,359	2,927,832	1,847,451
Ind., Mich., Wis..	1,193,796	1,166,237	1,765,941	1,807,660	1,619,554
Minn., Mo., Col., Wash., Cal....	466,288	448,074	421,974	377,349	308,283
Total.....	*26,257,978	*23,141,296	*29,132,733	*30,326,130	*22,976,856

* Includes ferro-alloys made with coke and electricity, coal and electricity, etc.

Of the total bituminous output in 1914, 22,842,480 tons were made with coke alone and 134,376 tons with bituminous coal and coke mixed. The States making pig iron with the mixed fuel were Pennsylvania, Kentucky, Ohio, and Illinois.

PRODUCTION OF ANTHRACITE AND MIXED ANTHRACITE AND COKE PIG IRON BY STATES, 1910-1914.

States.	1910.	1911.	1912.	1913.	1914.
Pennsylvania, New Jersey.....	649,082	229,575	247,179	300,041	91,464
Total..... Gross tons.	649,082	229,575	247,179	300,041	91,464

PRODUCTION OF CHARCOAL PIG IRON BY STATES, 1910-1914.

States.	1910.	1911.	1912.	1913.	1914.
Mass., Conn., N. Y., N. J.....	*16,632	9,649	17,366	12,810	6,606
Pennsylvania.....	4,272	3,513	3,832	4,679	3,226
Maryland, Virginia.....	1,555	3,325	3,189	3,240	3,719
Alabama.....	35,704	32,557	34,033	32,450	20,158
Ga., Ky., Tenn., Mississippi....	11,453	5,334	2,866	2,338	3,394
Ohio.....	1,060	1,902	1,925	2,001	
Michigan.....	260,805	160,884	231,169	224,079	194,699
Wisconsin, Missouri, California.	*65,026	*61,512	*52,645	*58,384	*32,122
Total..... Gross tons.	*396,507	*278,676	*347,025	*339,981	*263,924

* Small quantities of pig iron and ferro-alloys made with charcoal and electricity.

Michigan, the leading producer, made over 73.7 per cent. of the total production of charcoal pig iron in 1914, against

over 65.9 per cent. in 1913. Alabama was the next largest maker in 1914, followed by Missouri, Wisconsin, and Connecticut. For the first time in many years New Jersey appears among the charcoal pig iron makers. Pig iron has not been made in recent years with mixed charcoal and coke as fuel.

PRODUCTION OF COLD AND HOT AND WARM BLAST CHARCOAL
PIG IRON, 1910-1914.

Kinds of iron.	1910.	1911.	1912.	1913.	1914.
Cold blast.....	10,276	10,930	8,864	10,222	9,294
Hot and warm blast*.....	386,231	267,746	338,161	329,759	254,630
Total.....Gross tons.	396,507	278,676	347,025	339,981	263,924

* Includes iron made with charcoal and electricity.

METHODS BY WHICH ALL PIG IRON WAS CAST OR DELIVERED,
GROSS TONS, 1912-1914.

States.	Molten condition.	Sand cast.	Machine cast.	Chill cast.	Direct castings.	Total. Gross tons.
Mass., Conn.....		6,594				6,594
N. Y., N. J., Md..	557,501	777,563	293,541	126,244	609	1,755,458
Pennsylvania.....	5,730,713	1,115,829	2,568,019	315,025	3,783	9,733,369
Va., W. Va., Ala..	449,523	1,423,011	280,629	80,228	2,781	2,236,172
Ky. and Miss.....		98,378				98,378
Tennessee.....		208,122		8,616		216,738
Ohio.....	2,807,761	655,795	1,606,869	207,905	5,096	5,283,426
Ind., Ill., Mich., Col.	2,365,749	249,427	1,036,773		1,079	3,653,028
Wis., Minn., Mo., Cal.		280,240	68,830		11	349,081
Total for 1914..	11,911,247	4,814,959	5,854,661	738,018	13,359	23,332,244
Total for 1913..	16,738,708	6,689,680	6,522,171	1,000,171	15,422	30,966,152
Total for 1912..	16,466,722	6,309,495	6,214,121	726,017	10,582	29,726,937

Similar details for 1911 and previous years were not collected by the American Iron and Steel Institute or by the American Iron and Steel Association. About 51.1 per cent. of the pig iron made in 1914 was delivered to steel plants in a molten condition, 20.6 per cent. was sand cast, and 28.3 per cent. was machine cast, chill cast, or was in the form of direct castings.

Similar figures gathered by the United States Census give the following results: Delivered in molten condition to steel works, in 1904, 35.5 per cent.; in 1909, 47.6 per cent.; sand cast in 1904, 36.6 per cent.; in 1909, 29.8 per cent.

PIG METAL DELIVERED IN MOLTEN CONDITION, BY GRADES AND STATES, GROSS TONS, 1914.

States.	Basic.	Bessemer.	All other.	Total.
New York, Maryland.....	249,790	306,126	1,585	557,501
Pennsylvania.....	3,561,193	2,169,390	130	5,730,713
West Virginia.....		44,451		44,451
Alabama.....	398,022		7,050	405,072
Ohio.....	699,382	2,108,379		2,807,761
Indiana, Illinois, Colorado.....	1,527,656	837,219	874	2,365,749
Total for 1914.....	6,436,043	5,465,565	9,639	11,911,247
Total for 1913.....	8,915,179	7,823,317	212	16,738,708

METHODS BY WHICH FOUNDRY PIG IRON PRODUCED FOR SALE IN 1913-1914 WAS CAST.

States.	Sand cast.	Machine cast.	Chill cast.	Total. Gross tons.
Massachusetts, Connecticut.....	5,494			5,494
New York.....	535,187	88,689	28,307	652,183
New Jersey.....	10,842		13,021	23,863
Pennsylvania.....	619,845	81,160	14,129	715,134
Maryland, Virginia, West Va., Alabama.	1,266,692	121,210	19,653	1,407,555
Kentucky, Tennessee, Mississippi.....	246,901			246,901
Ohio.....	405,648	180,771	24,075	610,494
Indiana, Illinois.....	17,816	151,923		169,739
Michigan, Wis., Minn., Missouri, Cal....	446,244	115,482		561,726
Total for 1914.....	3,554,669	739,235	99,185	4,393,089
Total for 1913.....	4,374,012	628,686	82,254	5,084,952

METHODS BY WHICH MALLEABLE PIG IRON PRODUCED FOR SALE IN 1913-1914 WAS CAST.

States.	Sand cast.	Machine cast.	Chill cast.	Total. Gross tons.
New York.....	150,789	42,360	12,330	205,479
Pennsylvania.....	45,722	6,601	5,195	57,518
Kentucky, Ohio.....	45,940	113,826	16,053	175,819
Illinois, Michigan, Wisconsin.....	57,137	175,818		232,955
Total for 1914.....	299,588	338,605	33,578	671,771
Total for 1913.....	501,568	450,616	37,057	989,241

MISCELLANEOUS PIG IRON STATISTICS.

PRODUCTION OF PIG IRON IN PENNSYLVANIA BY DISTRICTS.

Districts.	1910.	1911.	1912.	1913.	1914.
Lehigh Valley.....	759,250	887,013	952,068	1,053,686	765,819
Schuylkill Valley.....	803,362	722,265	909,337	865,959	735,183
LowerSusquehannaValley	643,270	446,671	562,774	635,079	365,690
Juniata Valley.....	191,554	93,624	123,021	140,173	95,259
Allegheny County.....	5,330,982	5,116,442	6,107,226	5,999,539	4,665,893
Shenango Valley.....	1,924,508	1,252,344	2,063,300	2,288,693	1,403,906
Other Western Penna. bit.	1,615,125	1,285,201	1,830,573	1,967,128	1,698,393
Charcoal.....	4,272	3,513	3,832	4,679	3,226
Total...Gross tons.	11,272,323	9,807,073	12,552,131	12,954,936	9,733,369

PRODUCTION OF PIG IRON IN OHIO BY DISTRICTS, 1910-1914.

Districts.	1910.	1911.	1912.	1913.	1914.
Mahoning Valley.....	2,534,969	2,393,575	2,889,419	2,987,970	2,389,881
Lake Counties.....	1,474,465	1,577,528	2,050,163	2,227,537	1,637,042
Miscellaneous bituminous	1,285,775	1,056,178	1,457,552	1,468,008	941,888
Hanging Rock bituminous	455,843	281,323	403,434	444,009	313,437
Hanging Rock charcoal...	1,060	1,902	1,925	2,001	1,178
Total...Gross tons.	5,752,112	5,310,506	6,802,493	7,129,525	5,283,426

PRODUCTION OF BASIC PIG IRON IN PENNSYLVANIA AND OHIO BY DISTRICTS, GROSS TONS, 1910-1914.

Districts.	1910.	1911.	1912.	1913.	1914.
Lehigh Valley.....	366,132	471,838	521,495	572,521	363,146
Schuylkill Valley.....	391,582	423,846	462,020	531,950	370,836
L. Susq. and Juniata...	362,708	222,440	314,079	382,628	199,475
Allegheny County.....	2,807,551	2,883,927	3,355,490	3,314,770	2,619,625
Shenango Valley.....	620,658	451,607	890,087	1,221,689	685,718
Other Western Pa. bit..	698,434	715,104	946,925	911,437	1,028,004
Total for Penna....	5,247,065	5,168,762	6,490,096	6,934,995	5,266,804
Mahoning Valley.....	416,995	430,367	620,421	769,454	795,828
Lake Counties.....	273,946	339,883	423,048	486,365	373,791
Miscellaneous bitum...	411,446	293,022	447,865	449,896	248,831
Hanging Rock bitum...	53,047	48,469	66,621	69,510	89,823
Total for Ohio....	1,155,434	1,111,741	1,557,955	1,775,225	1,508,273

PRODUCTION OF BESSEMER PIG IRON IN PENNSYLVANIA AND OHIO BY DISTRICTS, GROSS TONS, 1910-1914.

Districts.	1910.	1911.	1912.	1913.	1914.
Lehigh Valley.....	60,924	103,506	136,219	170,204	201,718
Schuylkill Valley.....	104,052	70,481	94,826	99,768	71,621
L. Susquehanna Valley.....	126,463	87,305	92,484	112,819	86,626
Allegheny County.....	2,352,149	2,078,757	2,517,529	2,479,245	1,875,970
Shenango Valley.....	1,279,380	790,871	1,154,790	1,022,772	714,682
Other Western Pa. bit.	470,937	330,345	406,443	594,029	352,637
Total for Penna. . .	4,393,905	3,461,265	4,402,291	4,478,837	3,303,254
Mahoning Valley.....	1,738,907	1,640,588	1,935,959	1,871,560	1,317,455
Lake Counties.....	830,921	862,031	1,236,446	1,271,871	889,379
Miscellaneous bitum. . .	837,166	727,591	949,193	948,483	672,888
Hanging Rock bitum. . .	53,742	53,760	52,628	92,188	25,743
Total for Ohio. . .	3,460,736	3,283,970	4,174,226	4,184,102	2,905,465

APPROXIMATE CONSUMPTION OF PIG IRON, GROSS TONS, 1890-1914.

Years.	Pro- duction.	Add stocks unsold on Jan. 1.	Add imports.	Deduct stocks Dec. 31.	Deduct exports.	Approxi- mate con- sumption.
1890.....	9,202,703	283,879	134,955	661,858	16,341	8,943,338
1891.....	8,279,870	661,858	67,179	627,233	14,946	8,366,728
1892.....	9,157,000	627,233	70,125	535,616	15,427	9,303,315
1893.....	7,124,502	535,616	54,394	707,318	24,587	6,982,607
1894.....	6,657,388	707,318	15,582	661,328	24,482	6,694,478
1895.....	9,446,308	661,328	53,232	506,132	26,164	9,628,572
1896.....	8,623,127	506,132	56,272	847,686	62,071	8,275,774
1897.....	9,652,680	847,686	19,212	874,978	262,686	9,381,914
1898.....	11,773,934	874,978	25,152	415,333	253,057	12,005,674
1899.....	13,620,703	415,333	40,393	68,309	228,678	13,779,442
1900.....	13,789,242	68,309	52,565	446,020	286,687	13,177,409
1901.....	15,878,354	446,020	62,930	73,647	81,211	16,232,446
1902.....	17,821,307	73,647	619,354	49,951	27,487	18,436,870
1903.....	18,009,252	49,951	599,574	598,489	20,379	18,039,909
1904.....	16,497,033	598,489	79,500	446,442	49,025	16,679,555
1905.....	22,992,380	*.....	212,466	*.....	49,221	23,155,625
1906.....	25,307,191	.....	379,828	.....	83,317	25,603,702
1907.....	25,781,361	.....	489,475	.....	73,703	26,197,133
1908.....	15,936,018	.....	92,202	.....	46,696	15,981,524
1909.....	25,795,471	.....	176,442	.....	61,989	25,909,924
1910.....	27,303,567	.....	237,233	.....	127,385	27,413,415
1911.....	23,649,547	.....	148,459	.....	120,799	23,677,207
1912.....	29,726,937	.....	129,325	.....	272,676	29,583,586
1913.....	30,966,152	.....	156,450	.....	277,648	30,844,954
1914.....	23,332,244	.....	138,903	.....	114,423	23,356,724

* Collection of unsold stock statistics discontinued.

MATERIALS CONSUMED BY BLAST FURNACES.

CONSUMPTION OF IRON ORE, MILL CINDER, SCALE, ETC., BY STATES, 1913-1914.

States.	1913—Gross tons.			1914—Gross tons.		
	Iron ore.	Mill cinder, scale, etc.	Total.	Iron ore.	Mill cinder, scale, etc.	Total.
Mass., Conn..	30,460	.....	30,460	15,612	.....	15,612
New York...	3,949,201	82,223	4,031,424	2,725,657	53,288	2,778,945
New Jersey..	176,090	35,486	211,576	170,873	27,074	197,947
Pennsylvania	23,111,198	1,746,065	24,857,263	16,846,828	2,240,426	19,087,254
Md., Virginia	1,208,243	46,081	1,254,324	760,044	175,393	935,437
Ky., Miss....	130,506	22,551	153,057	127,916	60,559	188,475
Alabama....	5,203,200	126,910	5,330,110	4,551,829	115,793	4,667,622
West Virginia	400,929	26,677	427,606	230,510	16,386	246,896
Tennessee...	642,639	36,337	678,976	470,016	37,758	507,774
Ohio.....	13,154,635	574,632	13,729,267	9,584,749	379,509	9,964,258
Illinois.....	5,435,560	208,679	5,644,239	3,341,855	152,628	3,494,483
Ind., Mich...	3,467,008	102,857	3,569,865	3,007,778	80,864	3,088,642
Wis., Minn...	711,379	23,897	735,276	616,224	19,464	635,688
Mo., Col., Cal.	669,952	18,605	688,557	538,109	18,858	556,967
Total.....	58,291,000	3,051,000	61,342,000	42,988,000	3,378,000	46,366,000

CONSUMPTION OF IRON ORE, MILL CINDER, SCALE, ETC., BY STATES, GROSS TONS, 1910-1914.

States.	1910.	1911.	1912.	1913.	1914.
Mass., Connecticut....	40,492	22,650	41,522	30,460	15,612
New York.....	3,782,567	3,085,499	3,830,380	4,031,424	2,778,945
New Jersey.....	499,797	77,426	67,763	211,576	197,947
Pennsylvania.....	21,957,288	19,254,523	24,627,239	24,857,263	19,087,254
Maryland, Virginia....	1,612,978	1,161,605	994,770	1,254,324	935,437
Georgia, Ky., Miss....	223,467	194,867	132,584	153,057	188,475
Alabama.....	4,973,747	4,386,908	4,881,534	5,330,110	4,667,622
West Virginia.....	309,282	547,690	512,685	427,606	246,896
Tennessee.....	961,875	762,756	788,854	678,976	507,774
Ohio.....	11,011,262	10,288,019	13,248,496	13,729,267	9,964,258
Illinois.....	5,061,503	4,092,938	5,720,421	5,644,239	3,494,483
Indiana, Michigan.....	2,574,170	2,459,096	3,687,555	3,569,865	3,088,642
Wisconsin, Minnesota...	633,327	589,941	615,685	735,276	635,688
Mo., Col., Wash., Cal...	897,245	817,082	825,512	688,557	556,967
Total.....	54,539,000	47,741,000	59,975,000	61,342,000	46,366,000

CONSUMPTION OF ORE, CINDER, ETC., PER TON OF PIG IRON
MADE, 1909-1914, GROSS TONS.

Years.	Ore, briquettes, etc.	Pert on iron made.	Cinder, scale, etc.	Per ton iron made.	Total ore, cinder, etc.	Per ton iron made.	Per cent. ore, etc.	Per cent. cinder, etc.
1909....	48,660,000	1.886	2,535,000	0.098	51,195,000	1.984	95.0	5.0
1910....	51,739,000	1.895	2,800,000	0.102	54,539,000	1.997	94.9	5.1
1911....	43,980,000	1.859	3,761,000	0.159	47,741,000	2.018	92.1	7.9
1912....	55,656,000	1.872	4,319,000	0.145	59,975,000	2.017	92.8	7.2
1913....	58,291,000	1.882	3,051,000	0.099	61,342,000	1.981	95.0	5.0
1914....	42,988,000	1.842	3,378,000	0.145	46,366,000	1.987	92.7	7.3

In addition, from 800,000 to 900,000 tons of iron ore are said to be consumed annually by rolling mills and steel works.

CONSUMPTION OF FUEL PER GROSS TON PIG IRON MADE, IN
POUNDS AND BUSHELS, 1912-1914.

Years.	Coke and bit. coal. Pounds.	Anth. coal and coke mixed.		Anth. coal alone. Pounds	Charcoal. Bushels.
		Anth. coal. Pounds.	Coke. Pounds.		
1912.....	2,436.5	565.2	2,341.6	2,954.7	102.1
1913.....	2,433.3	625.2	2,415.6	2,978.1	103.7
1914.....	2,354.4	742.2	1,935.4	3,132.4	107.1

Similar details were not collected for 1911 and prior years by the American Iron and Steel Association or by the American Iron and Steel Institute.

CONSUMPTION OF COKE, COAL, AND CHARCOAL IN THE
MANUFACTURE OF PIG IRON, 1912-1914.

Years.	Pig iron produced. Gross tons.	Coke consumed. Net tons.	Bit. coal consumed. Net tons.	Anth. coal consumed. Gross tons.	Charcoal consumed. Bushels.
1912.....	29,726,937	35,721,127	47,022	73,794	35,436,017
1913.....	30,966,152	37,192,287	39,008	107,318	35,242,059
1914.....	23,332,244	27,070,856	61,815	31,421	28,272,567

Details of fuel consumption were not collected for 1911 and prior years by the American Iron and Steel Association. Fuel consumed for power purposes is not included above.

LIMESTONE CONSUMED IN MAKING PIG IRON, BY STATES,
GROSS TONS, 1910-1914.

States.	1910.	1911.	1912.	1913.	1914.
Massachusetts, Conn...	5,909	3,685	6,897	5,395	3,233
New York.....	1,042,411	881,114	1,030,600	1,158,300	757,564
New Jersey.....	179,845	30,700	28,630	75,348	71,255
Pennsylvania.....	6,172,796	5,212,548	6,844,271	6,977,465	5,050,964
Maryland, Virginia....	709,020	458,769	393,857	534,103	349,315
Georgia.....	5,199	480	.....	.....	.....
Alabama.....	918,006	574,981	442,981	687,995	499,433
West Virginia.....	93,952	137,946	136,198	110,653	65,343
Kentucky, Mississippi..	58,418	56,373	43,897	50,760	58,914
Tennessee.....	231,152	204,222	195,005	148,020	137,613
Ohio.....	2,819,761	2,648,284	3,445,617	3,733,346	2,745,476
Illinois.....	1,195,660	952,157	1,286,693	1,326,926	792,497
Indiana, Michigan....	468,691	466,221	737,068	744,766	611,882
Wisconsin, Minnesota..	156,686	117,777	142,241	195,860	161,941
Mo., Col., Wash., Cal..	470,392	341,699	358,211	322,110	264,186
Total.....	14,527,898	12,086,956	15,092,166	16,071,047	11,569,616

The average consumption of limestone per ton of pig iron made was 1,110.7 pounds in 1914, against 1,162.5 pounds in 1913. By anthracite and bituminous furnaces the consumption in 1914 was 1,119.6 pounds, against 1,170.5 pounds in 1913, and by charcoal furnaces it was 333.4 pounds, against 441.6 pounds in 1913.

BLAST FURNACE STATISTICS.

ANNUAL CAPACITY OF COMPLETED, BUILDING, AND REBUILDING
BLAST FURNACES, DECEMBER 31, 1914.

States.	Number.				Annual capacity—Gross tons.			
	Anth.*	Coke.†	Char.	Total.	Anth.*	Coke.†	Char.	Total.
Massachusetts	0	0	2	2	.....	.....	10,000	10,000
Connecticut...	0	0	3	3	.....	.....	15,000	15,000
New York....	3	23	1	27	123,000	2,810,000	5,000	2,938,000
New Jersey...	0	5	1	6	.....	430,000	300	430,300
Pennsylvania..	17	136	6	159	587,200	17,256,200	14,600	17,858,000
Maryland....	0	4	1	5	.....	657,000	5,000	662,000
Virginia.....	0	20	2	22	.....	989,000	29,000	1,018,000
West Virginia.	0	4	0	4	.....	408,000	.....	408,000
Kentucky....	0	5	1	6	.....	311,250	3,000	314,250
Tennessee....	0	17	1	18	.....	777,650	4,000	781,650
Georgia.....	0	2	2	4	.....	96,000	33,500	129,500
Alabama.....	0	44	4	48	.....	3,580,000	80,000	3,660,000
Mississippi...	0	0	1	1	.....	.....	3,500	3,500
Texas.....	0	2	1	3	.....	61,000	15,000	76,000
Ohio.....	0	73	1	74	.....	8,825,000	3,000	8,828,000
Indiana.....	0	10	0	10	.....	1,631,200	.....	1,631,200
Illinois.....	0	26	0	26	.....	3,674,800	.....	3,674,800
Michigan.....	0	3	11	14	.....	250,000	343,800	593,800
Wisconsin....	0	6	2	8	.....	408,400	48,600	457,000
Minnesota....	0	1	0	1	.....	82,000	.....	82,000
Missouri....	0	1	1	2	.....	45,000	20,000	65,000
Colorado.....	0	6	0	6	.....	730,000	.....	730,000
Washington...	0	1	0	1	.....	24,000	.....	24,000
Oregon.....	0	0	1	1	.....	.....	15,000	15,000
Total comp..	20	389	42	451	710,200	43,046,500	648,300	44,405,000
Total build..	0	5	0	5	.....	860,000	.....	860,000
Grand total..	20	394	42	456	710,200	43,906,500	648,300	45,265,000

* Includes furnaces which use anthracite coal alone and anthracite coal and coke mixed.

† Includes 7 furnaces (2 in Pennsylvania, 3 in Ohio, and 2 in Illinois) which use coke and raw bituminous coal.

Of the total annual capacity of the completed, rebuilding, and building furnaces on December 31, 1914, 97 per cent. represented the capacity of the bituminous furnaces, 1.6 per cent. the capacity of the mixed anthracite and coke furnaces, and 1.4 per cent. the capacity of the charcoal furnaces.

ANNUAL CAPACITY OF ACTIVE FURNACES IN 1914.

States.	Production pig iron.	No. furnaces active in 1914.	Capacity of active furnaces.	Total number completed furnaces.	Total capacity all furnaces.
Massachusetts, Conn.....	6,594	3	15,000	5	25,000
New York, New Jersey....	1,559,864	20	2,190,300	33	3,368,300
Pennsylvania.....	9,733,369	109	13,645,000	159	17,858,000
Maryland.....	195,594	3	315,250	5	662,000
Virginia.....	271,228	9	429,000	22	1,018,000
Georgia, Texas.....		0		7	205,500
Alabama.....	1,826,929	27	2,352,000	48	3,660,000
West Virginia, Ky., Miss..	236,393	6	487,650	11	725,750
Tennessee.....	216,738	7	270,500	18	781,650
Ohio.....	5,283,426	60	7,661,000	74	8,828,000
Illinois.....	1,847,451	16	2,467,000	26	3,674,800
Indiana, Michigan.....	1,557,355	20	1,832,000	24	2,225,000
Wisconsin, Minnesota.....	329,526	7	452,300	9	539,000
Mo., Col., Wash., Ore., Cal.	267,777	4	458,000	10	834,000
Total.....Gross tons.	23,332,244	291	32,575,000	451	44,405,000

COMPLETED AND REBUILDING BLAST FURNACES, DECEMBER 31 OF EACH YEAR.

Fuel used.	1909.	1910.	1911.	1912.	1913.	1914.
Bituminous coal and coke.....	371	381	385	395	394	389
Anthracite and anthracite and coke.....	48	42	35	26	23	20
Charcoal.....	49	50	45	45	45	42
Total.....	468	473	465	466	462	451

FURNACES IN BLAST ON DECEMBER 31 OF EACH YEAR.

Fuel used.	1909.	1910.	1911.	1912.	1913.	1914.
Bituminous coal and coke.....	289	174	206	282	183	144
Anthracite and anthracite and coke.....	25	10	6	10	5	3
Charcoal.....	24	22	19	21	17	17
Total.....	338	206	231	313	205	164

IDLE FURNACES ON DECEMBER 31 OF EACH YEAR.

Fuel used.	1909.	1910.	1911.	1912.	1913.	1914.
Bituminous coal and coke.....	82	207	179	113	211	245
Anthracite and anthracite and coke.....	23	32	29	16	18	17
Charcoal.....	25	28	26	24	28	25
Total.....	130	267	234	153	257	287

ACTIVE AND IDLE PENNSYLVANIA AND OHIO FURNACES.

Districts.	December 31, 1913.			December 31, 1914.		
	Active.	Idle.	Total.	Active.	Idle.	Total.
Lehigh Valley.....	9	13	22	9	13	22
Schuylkill Valley.....	8	10	18	5	12	17
Lower Susquehanna Valley.....	6	9	15	4	11	15
Juniata Valley.....	2	5	7	1	5	6
Allegheny County.....	24	23	47	20	27	47
Shenango Valley.....	11	13	24	9	15	24
Other Western Pennsylvania bit...	15	7	22	13	9	22
Charcoal.....	3	3	6	2	4	6
Total for Pennsylvania.....	78	83	161	63	96	159
Mahoning Valley.....	11	14	25	12	13	25
Hocking Valley.....	0	1	1	0	1	1
Lake Counties.....	12	5	17	8	9	17
Miscellaneous bituminous.....	7	8	15	5	10	15
Hanging Rock bituminous.....	10	5	15	5	10	15
Hanging Rock charcoal.....	0	2	2	1	0	1
Total for Ohio.....	40	35	75	31	43	74

FURNACES ACTIVE AND IDLE IN EACH HALF YEAR, 1913-1914.

The following table gives by fuels the number of blast furnaces which were active during a part or the whole of each half year in 1913 and 1914 ; also the number idle :

Fuel used.	1913.						1914.					
	First half.			Second half.			First half.			Second half.		
	Active.	Idle.	Total.	Active.	Idle.	Total.	Active.	Idle.	Total.	Active.	Idle.	Total.
Bituminous, chiefly coke.....	308	86	394	297	97	394	248	145	393	231	158	389
Anthracite and coke.....	13	8	21	7	14	21	7	13	20	5	15	20
Anthracite alone.....	1	3	4	2	0	2	0	1	1	0	0	0
Charcoal.....	26	19	45	24	21	45	20	23	43	24	18	42
Total.....	348	116	464	330	132	462	275	182	457	260	191	451

FURNACES ACTUALLY IN BLAST IN EACH HALF OF 1914, BY STATES.

The following table gives by States the number of furnaces that were actually in blast during the whole or a part of the first and second six months of 1914, as compared with the number of furnaces that were active on June 30 and December 31, 1914. Rebuilding furnaces are included.

**FURNACES ACTUALLY IN BLAST IN EACH HALF OF 1914,
BY STATES.**

States.	Com- pleted June 30.	In blast.		States.	Com- pleted Dec. 31.	In blast.	
		June 30, 1914.	1st half 1914.			Dec. 31, 1914.	2d half 1914.
Massachusetts..	2	0	1	Massachusetts..	2	1	1
Connecticut....	3	1	1	Connecticut....	3	1	2
New York.....	28	13	17	New York.....	27	12	16
New Jersey.....	6	2	2	New Jersey....	6	1	3
Pennsylvania...	159	176	104	Pennsylvania...	159	63	96
Maryland.....	5	2	2	Maryland.....	5	2	3
Virginia.....	23	8	9	Virginia.....	22	3	8
Georgia.....	4	0	0	Georgia.....	4	0	0
Alabama.....	49	20	24	Alabama.....	48	18	26
Texas.....	4	0	0	Texas.....	3	0	0
West Virginia...	4	1	3	West Virginia..	4	1	1
Kentucky.....	8	1	2	Kentucky.....	6	1	2
Mississippi.....	1	0	1	Mississippi....	1	0	1
Tennessee.....	18	6	6	Tennessee.....	18	4	7
Ohio.....	75	43	57	Ohio.....	74	31	52
Indiana.....	10	8	8	Indiana.....	10	4	8
Illinois.....	26	12	17	Illinois.....	26	7	14
Michigan.....	14	8	12	Michigan.....	14	9	10
Wisconsin.....	7	3	5	Wisconsin.....	8	3	5
Minnesota.....	1	1	1	Minnesota.....	1	0	1
Missouri.....	2	1	1	Missouri.....	2	1	1
Colorado.....	6	2	2	Colorado.....	6	2	3
Oregon.....	1	0	0	Oregon.....	1	0	0
Washington.....	1	0	0	Washington...	1	0	0
Total.....	457	208	275	Total.....	451	164	260

BUILDING BLAST FURNACES, DECEMBER 31, 1914.

Name of company.	Location of furnace.	No. of stacks	Fuel.	Annual capacity.
Pennsylvania Steel Company..	Steelton, Pa....	1	Coke	175,000
River Furnace Company.....	Cleveland, Ohio.	2	Coke	360,000
Minnesota Steel Company.....	Duluth, Minn...	2	Coke	325,000
Total.....	.....	5	.....	860,000

BLAST FURNACES COMPLETED IN 1914.

Name of company.	Location of furnace.	No. of stacks.	Fuel.	Annual capacity.	First blown in.
Salem Char. Fur. Co..	Dover, N. J..	1	Char.	300	Oct. 2, 1914.
Bethlehem Steel Co....	So. Beth., Pa.	1	Coke	160,000	Aug. 14, 1915.
W. R. Carr & Co.....	Phelps, Wis..	1	Char.	3,000	Sept. 25, 1914.
Total.....	.....	3	.....	163,300	.....

BLAST FURNACES ABANDONED OR DISMANTLED IN 1914.

Name of furnace.	Location of furnace.	No. of stacks.	Fuel.	Annual capacity.	When built.
Andover.....	Phillipsburg, N. J...	1	Coke....	60,000	1848
Carp.....	Marquette, Mich...	1	Charcoal	18,000	1872-73
Chatham.....	Chatham, N. Y....	1	Charcoal	10,000	1873
Grand Rivers.....	Grand Rivers, Ky..	2	Coke....	45,000	1890-91
Hecla.....	Ironton, Ohio.....	1	Charcoal	7,500	1887-90
Hokendauqua No. 5.	Hokendauqua, Pa..	1	Anth.&C.	20,000	1873
Jefferson.....	Jefferson, Tex.....	1	Coke....	36,000	1889-91
Nittany.....	Bellefonte, Pa....	1	Coke....	43,800	1887
Reed Island.....	Pulaski Co., Va....	1	Charcoal	3,000	1881
Secaucus.....	Secaucus, N. J....	1	Coke....	70,000	1877
Swede No. 2.....	Swedeland, Pa....	1	Coke....	100,000	1890-91
White Rock.....	Smyth Co., Va....	1	Charcoal	2,500	1875
Williamson.....	Birmingham, Ala..	1	Coke....	30,000	1886
Total.....		14		445,800	.....

ELECTRIC AND SPECIAL FURNACES, 1914.

In 1914 there were 5 plants in the United States which manufactured pig iron, ferro-manganese, ferro-silicon, ferro-titanium, ferro-vanadium, or other ferro-alloys with electricity, electricity and charcoal, etc. In addition 2 plants made ferro-alloys in special furnaces with natural gas or with mineral fuel and oil.

ACTIVE AND IDLE BLAST FURNACES AT THE END OF EACH YEAR, 1885-1914.

Years.	Active.	Idle.	Total.	Years.	Active.	Idle.	Total.
1885.....	276	315	591	1900.....	232	174	406
1886.....	331	246	577	1901.....	266	140	406
1887.....	339	244	583	1902.....	307	105	412
1888.....	332	257	589	1903.....	182	243	425
1889.....	344	226	570	1904.....	261	168	429
1890.....	311	251	562	1905.....	313	111	424
1891.....	313	256	569	1906.....	340	89	429
1892.....	253	311	564	1907.....	167	276	443
1893.....	137	381	518	1908.....	236	222	458
1894.....	185	326	511	1909.....	338	130	468
1895.....	242	226	468	1910.....	206	267	473
1896.....	159	311	470	1911.....	231	234	465
1897.....	191	232	423	1912.....	313	153	466
1898.....	202	212	414	1913.....	205	257	462
1899.....	289	125	414	1914.....	164	287	451

COMPLETED BLAST FURNACES ON DECEMBER 31, 1905-1914.

States.	Number of completed furnaces on December 31.*									
	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.
Massachusetts.....	2	2	2	2	2	2	2	2	2	2
Connecticut.....	3	3	3	3	3	3	3	3	3	3
New York.....	23	25	26	27	28	29	29	29	28	27
New Jersey.....	11	11	11	11	11	9	8	7	7	6
Pennsylvania.....	153	155	157	160	162	165	164	163	161	159
Maryland.....	6	5	5	5	5	5	5	5	5	5
Virginia.....	26	25	26	26	26	26	25	25	24	22
North Carolina.....	1	1	0	0	0	0	0	0	0	0
Georgia.....	4	4	4	4	4	4	4	3	4	4
Texas.....	4	4	4	4	4	4	4	4	4	3
Alabama.....	49	47	49	51	51	50	49	49	49	48
West Virginia.....	4	4	4	4	4	4	4	4	4	4
Kentucky.....	8	9	8	8	8	8	8	8	8	6
Mississippi.....	0	0	0	0	0	0	0	0	1	1
Tennessee.....	20	21	21	21	21	20	19	19	18	18
Ohio.....	62	64	68	73	74	76	75	75	75	74
Indiana.....	0	0	1	3	7	9	9	10	10	10
Illinois.....	21	22	24	25	26	26	24	26	26	26
Michigan.....	11	12	13	13	14	15	15	16	15	14
Wisconsin.....	6	6	6	7	7	7	7	7	7	8
Minnesota.....	1	1	1	1	1	1	1	1	1	1
Missouri.....	2	2	2	2	2	2	2	2	2	2
Colorado.....	5	5	6	6	6	6	6	6	6	6
Oregon.....	1	1	1	1	1	1	1	1	1	1
Washington.....	1	0	1	1	1	1	1	1	1	1
Total.....	424	429	443	458	468	473	465	466	462	451

* Rebuilding furnaces included since 1908.

STEEL INGOTS AND CASTINGS.

ALL KINDS OF STEEL INGOTS AND CASTINGS.

PRODUCTION OF STEEL BY PROCESSES, GROSS TONS, 1875-1914.

Years.	Open-hearth.	Bessemer.	Crucible.	Miscellaneous.	Total.
1875.....	8,080	335,283	35,180	11,256	389,799
1876.....	19,187	469,639	35,163	9,202	533,191
1877.....	22,349	500,524	36,098	10,647	569,618
1878.....	32,255	653,773	38,309	7,640	731,977
1879.....	50,259	829,439	50,696	4,879	935,273
1880.....	100,851	1,074,262	64,664	7,558	1,247,335
1881.....	131,202	1,374,247	80,145	2,720	1,588,314
1882.....	143,341	1,514,687	75,973	2,691	1,736,692
1883.....	119,356	1,477,345	71,835	4,999	1,673,535
1884.....	117,515	1,375,531	53,270	4,563	1,550,879
1885.....	133,376	1,519,430	57,599	1,515	1,711,920
1886.....	218,973	2,269,190	71,973	2,367	2,562,503
1887.....	322,069	2,936,033	75,375	5,594	3,339,071
1888.....	314,318	2,511,161	70,279	3,682	2,899,440
1889.....	374,543	2,930,204	75,865	5,120	3,385,732
1890.....	513,232	3,688,871	71,175	3,793	4,277,071
1891.....	579,753	3,247,417	72,586	4,484	3,904,240
1892.....	669,889	4,168,435	84,709	4,548	4,927,581
1893.....	737,890	3,215,686	63,613	2,806	4,019,995
1894.....	784,936	3,571,313	51,702	4,081	4,412,032
1895.....	1,137,182	4,909,128	67,666	858	6,114,834
1896.....	1,298,700	3,919,906	60,689	2,394	5,281,689
1897.....	1,608,671	5,475,315	69,959	3,012	7,156,957
1898.....	2,230,292	6,609,017	89,747	3,801	8,932,857
1899.....	2,947,316	7,586,354	101,213	4,974	10,639,857
1900.....	3,398,135	6,684,770	100,562	4,862	10,188,329
1901.....	4,656,309	8,713,302	98,513	5,471	13,473,595
1902.....	5,687,729	9,138,363	112,772	8,386	14,947,250
1903.....	5,829,911	8,592,829	102,434	9,804	14,534,978
1904.....	5,908,166	7,859,140	83,391	9,190	13,859,887
1905.....	8,971,376	10,941,375	102,233	8,963	20,023,947
1906.....	10,980,413	12,275,830	127,513	14,380	23,398,136
1907.....	11,549,736	11,667,549	131,234	14,075	23,362,594
1908.....	7,836,729	6,116,755	63,631	6,132	14,023,247
1909.....	14,493,936	9,330,783	107,355	22,947	23,955,021
1910.....	16,504,509	9,412,772	122,303	55,335	26,094,919
1911.....	15,598,650	7,947,854	97,653	31,949	23,676,106
1912.....	20,780,723	10,327,901	121,517	21,162	31,251,303
1913.....	21,599,931	9,545,706	121,226	34,011	31,300,874
1914.....	17,174,684	6,220,846	89,869	27,631	23,513,030

PRODUCTION OF STEEL INGOTS AND CASTINGS BY PROCESSES.

Years	Open-hearth.			Bessemer.	Cru- cible.	Elec- tric.	Mis- cella- neous.	Total. Gross tons.
	Basic.	Acid.	Total.					
1900.	2,545,091	853,044	3,398,135	6,684,770	100,562	.....	4,862	10,188,329
1901.	3,618,993	1,037,316	4,656,309	8,713,302	98,513	.....	5,471	13,473,595
1902.	4,496,533	1,191,196	5,687,729	9,138,363	112,772	.....	8,386	14,947,250
1903.	4,734,913	1,094,998	5,829,911	8,592,829	102,434	.....	9,804	14,534,978
1904.	5,106,367	801,799	5,908,166	7,859,140	83,391	.....	9,190	13,859,887
1905.	7,815,728	1,155,648	8,971,376	10,941,375	102,233	.....	8,963	20,023,947
1906.	9,658,760	1,321,653	10,980,413	12,275,830	127,513	.....	14,380	23,398,136
1907.	10,279,315	1,270,421	11,549,736	11,667,549	131,234	.....	14,075	23,362,594
1908.	7,140,425	696,304	7,836,729	6,116,755	63,631	.....	6,132	14,023,247
1909.	13,417,472	1,076,464	14,493,936	9,330,783	107,355	13,762	9,185	23,955,021
1910.	15,292,329	1,212,180	16,504,509	9,412,772	122,303	52,141	3,194	26,094,919
1911.	14,685,932	912,718	15,598,650	7,947,854	97,653	29,105	2,844	23,676,106
1912.	19,641,502	1,139,221	20,780,723	10,327,901	121,517	18,309	2,853	31,251,303
1913.	20,344,626	1,255,305	21,599,931	9,545,706	121,226	30,180	3,831	31,300,874
1914.	16,271,129	903,555	17,174,684	6,220,846	89,869	24,009	3,622	23,513,030

PRODUCTION OF STEEL INGOTS, 1900-1914.

1900.	2,502,447	718,197	3,220,644	6,678,303	96,573	...	6	9,995,526
1901.	3,524,052	830,635	4,354,687	8,706,538	94,586	.....	214	13,156,025
1902.	4,384,129	935,721	5,319,850	9,125,815	107,817	.....	2,833	14,556,315
1903.	4,600,034	829,529	5,429,563	8,574,730	97,025	.....	3,395	14,104,713
1904.	5,007,448	597,884	5,605,332	7,843,089	79,083	.....	2,172	13,529,676
1905.	7,609,569	835,267	8,444,836	10,919,272	96,500	.....	2,572	19,463,180
1906.	9,345,212	915,310	10,260,522	12,243,229	117,170	.....	3,510	22,624,431
1907.	9,912,839	890,372	10,803,211	11,634,276	121,001	.....	989	22,559,477
1908.	6,985,420	539,532	7,524,952	6,096,196	55,360	.....	519	13,677,027
1909.	13,111,467	781,429	13,892,896	9,296,969	94,672	13,456	786	23,298,779
1910.	14,858,353	782,805	15,641,158	9,354,437	107,671	50,821	.....	25,154,087
1911.	14,419,306	608,153	15,027,459	7,890,753	83,623	27,227	417	23,029,479
1912.	19,197,604	712,371	19,909,975	10,259,151	100,967	14,147	542	30,284,682
1913.	19,884,465	805,250	20,689,715	9,465,200	103,655	20,973	587	30,280,130
1914.	15,936,985	633,382	16,570,367	6,154,964	78,683	15,458	312	22,819,784

PRODUCTION OF STEEL CASTINGS, 1900-1914.

1900.	42,644	134,847	177,491	6,467	3,989	.....	4,856	192,803
1901.	94,941	206,681	301,622	6,764	3,927	.....	5,257	317,570
1902.	112,404	255,475	367,879	12,548	4,955	.....	5,553	390,935
1903.	134,879	265,469	400,348	18,099	5,409	.....	6,409	430,265
1904.	98,919	203,915	302,834	16,051	4,308	.....	7,018	330,211
1905.	206,159	320,381	526,540	22,103	5,738	.....	6,391	560,767
1906.	313,548	406,343	719,891	32,601	10,343	.....	10,870	773,705
1907.	366,476	380,049	746,525	33,273	10,233	.....	13,086	803,117
1908.	155,005	156,772	311,777	20,559	8,271	.....	5,613	346,220
1909.	306,005	295,035	601,040	33,814	12,683	306	8,399	656,242
1910.	433,976	429,375	863,351	58,335	14,632	1,320	3,194	940,832
1911.	266,626	304,565	571,191	57,101	14,030	1,878	2,427	646,627
1912.	443,998	426,850	870,848	68,750	20,550	4,162	2,311	966,621
1913.	460,161	450,055	910,216	80,506	17,571	9,207	3,244	1,020,744
1914.	334,144	270,173	604,317	65,882	11,186	8,551	3,310	693,246

In 1914, 123 works in 17 States and the District of Columbia made steel ingots, against the same number of works in the same number of States and the District of Columbia in 1913.

In 1914, 216 works in 27 States, the District of Columbia, and the Canal Zone, Panama, made steel castings, against 223 works in 29 States, the District of Columbia, and the Canal Zone, Panama, in 1913.

PRODUCTION OF ALL KINDS OF STEEL INGOTS AND CASTINGS
BY STATES, 1910-1914.

States.	1910.	1911.	1912.	1913.	1914.
New England.....	249,501	211,294	220,309	200,611	141,683
New York.....	1,332,851	942,295	1,201,903	1,235,704	759,355
New Jersey.....	155,779	127,266	147,583	171,012	122,440
Pennsylvania.....	13,207,539	11,990,523	15,633,754	15,554,294	11,924,776
Delaware, Maryland...	403,197	299,911	336,172	394,841	211,240
Dist. of Col., Virginia..	4,737	4,630	4,682	5,701	3,677
West Virginia.....	282,926	341,018	418,514	401,490	223,471
Kentucky, Tennessee...	203,652	148,293	176,901	194,789	164,009
Georgia, Alabama....	591,041	499,181	770,888	823,994	572,073
Louisiana, Texas.....	1,615	1,800	1,475	1,510	955
Ohio.....	5,050,608	4,994,110	6,856,029	6,755,051	5,458,383
Indiana.....	1,308,859	1,395,347	2,003,047	2,181,958	1,630,720
Illinois.....	2,717,581	2,143,446	2,805,641	2,759,026	1,779,929
Michigan.....	15,359	10,730	17,685	18,922	11,650
Wisconsin.....	37,481	30,167	42,040	45,501	25,573
Minnesota.....	540	639	730	863	687
Missouri.....	41,120	28,643	52,925	48,495	33,165
Iowa, Kansas, Okla....	6,113	9,637	18,679	26,792	19,902
Colorado, Washington..	481,555	494,132	522,864	451,322	398,325
Utah, Oregon.....	1,997	1,041	2,556	3,190	1,856
California, Canal Zone, Panama.....	868	2,003	16,926	25,808	29,161
Total... Gross tons.	26,094,919	23,676,106	31,251,303	31,300,874	23,513,030

The output of a few plants has been estimated.

PERCENTAGE OF PRODUCTION OF STEEL BY PROCESSES.

Processes.	1913—Per cent.			1914—Per cent.		
	Ingots.	Castings.	Total.	Ingots.	Castings.	Total.
Open-hearth.....	68.3	89.2	69.0	72.6	87.2	73.0
Bessemer.....	31.3	7.9	30.5	27.0	9.5	26.5
Crucible and all other..	.4	2.9	.5	.4	3.3	.5
Total.....	100.0	100.0	100.0	100.0	100.0	100.0
Acid open-hearth.....	2.6	44.1	4.0	2.8	39.0	3.8
Basic open-hearth.....	65.7	45.1	65.0	69.8	48.2	69.2

ACTIVE STEEL WORKS BY STATES, 1914.

States.	Total active works.	Of these the following made—						
		Open-hearth.		Bessemer.		Crucible.	Electric.	Miscellaneous.
		Basic.	Acid.	Standard.	Modified.			
Massachusetts.....	10	2	3	0	2	6	0	0
Rhode Island.....	2	1	0	0	0	1	0	0
Connecticut.....	3	1	0	0	1	1	0	1
New York.....	16	3	4	1	3	5	5	0
New Jersey.....	11	4	4	0	2	6	2	0
Pennsylvania.....	102	48	40	7	9	27	4	1
Delaware.....	5	0	2	0	3	0	0	0
Maryland.....	3	2	0	1	1	0	0	0
District of Columbia	2	1	1	0	1	0	0	0
Virginia.....	2	0	0	0	2	0	0	0
West Virginia.....	5	1	2	2	0	0	0	0
Kentucky.....	2	1	1	1	0	0	0	0
Tennessee.....	2	0	0	0	1	1	0	0
Georgia.....	1	1	0	0	0	0	0	0
Alabama.....	3	3	0	0	0	0	0	0
Louisiana.....	2	0	0	0	2	0	0	0
Texas.....	2	0	0	0	1	1	0	0
Ohio.....	39	19	4	7	9	7	1	1
Indiana.....	12	3	5	0	1	3	0	2
Illinois.....	19	9	2	3	6	1	2	0
Michigan.....	15	1	2	0	8	6	1	0
Wisconsin.....	16	1	3	0	6	7	1	0
Minnesota.....	4	0	0	0	2	2	0	0
Missouri.....	3	1	0	0	1	1	0	0
Iowa.....	4	1	0	0	1	2	0	0
Colorado.....	1	1	0	0	0	0	0	0
Utah.....	1	0	0	0	1	0	0	0
Washington.....	5	1	0	0	3	0	1	0
Oregon.....	2	0	0	0	1	0	1	0
California.....	8	3	0	0	2	2	1	0
Canal Zone, Panama	1	0	0	0	1	0	0	0
Total.....	303	108	73	22	70	79	19	5

NEW STEEL PLANTS, 1914.

In 1914, 14 new steel plants were built, with an approximate annual capacity of 440,000 tons of ingots and 27,000 tons of finished steel castings.

STEEL WORKS ABANDONED OR DISMANTLED IN 1914.

In 1914, 22 plants which were equipped for the manufacture of steel ingots or castings were abandoned. These plants had an approximate annual capacity of 395,200 gross tons of ingots and 38,180 tons of castings.

ACTIVE AND IDLE STEEL WORKS BY STATES, 1914.

States.	Open-hearth steel plants.			Bessemer steel plants.			Cruc., elec., and misc. steel plants.		
	Act.	Idle.	Total.	Act.	Idle.	Total.	Act.	Idle.	Total.
Maine.....	0	1	1	0	0	0	0	0	0
Massachusetts.....	4	1	5	2	0	2	6	1	7
Rhode Island.....	1	0	1	0	0	0	1	0	1
Connecticut.....	1	1	2	1	0	1	2	1	3
New York.....	7	2	9	4	2	6	10	1	11
New Jersey.....	5	3	8	2	1	3	8	0	8
Pennsylvania.....	73	7	80	16	2	18	32	2	34
Delaware.....	2	1	3	3	0	3	0	0	0
Maryland.....	2	0	2	2	1	3	0	0	0
District of Columbia	2	0	2	1	0	1	0	0	0
Virginia.....	0	1	1	2	0	2	0	0	0
West Virginia.....	3	1	4	2	0	2	0	1	1
Kentucky.....	1	0	1	1	0	1	0	0	0
Tennessee.....	0	0	0	1	1	2	1	0	1
Georgia.....	1	0	1	0	0	0	0	0	0
Alabama.....	3	1	4	0	1	1	0	0	0
Louisiana.....	0	0	0	2	0	2	0	0	0
Texas.....	0	0	0	1	0	1	1	0	1
Ohio.....	22	1	23	16	1	17	9	2	11
Indiana.....	7	1	8	1	0	1	5	0	5
Illinois.....	9	1	10	9	0	9	3	1	4
Michigan.....	3	0	3	8	0	8	7	1	8
Wisconsin.....	4	0	4	6	0	6	8	3	11
Minnesota.....	0	0	0	2	0	2	2	0	2
Missouri.....	1	0	1	1	2	3	1	0	1
Iowa.....	1	1	2	1	0	1	2	0	2
Colorado.....	1	0	1	0	1	1	0	0	0
Utah.....	0	0	0	1	0	1	0	0	0
Washington.....	1	1	2	3	1	4	1	1	2
Oregon.....	0	0	0	1	0	1	1	0	1
California.....	3	0	3	2	1	3	3	0	3
Canal Zone, Panama	0	0	0	1	0	1	0	0	0
Total	157	24	181	*92	†14	*106	103	14	117

* Includes 2 plants which made steel in 1914 but whose converters were dismantled or destroyed by fire prior to December 31, 1914.

† Includes 3 plants which are equipped with Bessemer steel converters, but which do not make Bessemer steel, the converters being used for desiliconizing and decarburizing molten metal for open-hearth steel furnaces. Two of these plants were active and one was idle in 1914.

BUILDING STEEL PLANTS, DECEMBER 31, 1914.

Name of company.	Location of works.	Equipment.	Annual capacity. Gross tons.
*Amer. I. & S. Mfg. Co.....	Lebanon, Pa.....	{Four 50-ton B.O.H.; two 20-ton Frick elect.}	75,000
Central Steel Co....	Massillon, Ohio....	Three 50-ton B.O.H...	120,000
Corrigan, McKinney & Co.....	Cleveland, Ohio....	Eight 75-ton B.O.H...	450,000
Elect. Steel Co. of Ind.	Indianapolis, Ind...	One 3-ton basic elect..	3,600
†Lebanon Steel Fdy.	Lebanon, Pa.....	One 1-ton electric.	1,500
Minnesota Steel Co.	Duluth, Minn.....	Ten 75-ton B.O.H.....	500,000
Niagara Elec. Steel Corp.....	North Tonawanda, N. Y.....	One ½-ton basic elect..	1,500
*Southern Cal. I. & S. Co.....	Los Angeles, Cal....	One 15-ton B.O.H.....	10,000
Syracuse Crucible Steel Co.....	Syracuse, N.Y.	{Buildings erected. No machinery installed.}	.....
*Youngstown Iron & Steel Co.....	Youngstown, Ohio.	Three 80-ton B.O.H...	185,000
Total.....	.....	.....	1,346,600

*Addition to rolling mill. †Addition to steel foundry.

ALLOY-TREATED STEEL INGOTS AND CASTINGS.

PRODUCTION OF ALLOY-TREATED STEEL INGOTS AND CASTINGS.

Years.	Ingots.	Castings.	Total.	Years.	Ingots.	Castings.	Total.
1909.....	158,978	23,002	181,980	1912....	689,392	103,109	792,501
1910.....	538,462	29,357	567,819	1913.....	625,430	88,927	714,357
1911.....	425,169	56,290	481,459	1914.....	577,107	69,846	646,953

APPROXIMATE PRODUCTION OF ALLOY-TREATED STEEL INGOTS AND CASTINGS, BY PROCESSES, GROSS TONS, 1914.

Processes.	Ingots.	Castings.	Total.
Open-hearth steel—basic.....	430,302	3,035	433,337
Open-hearth steel—acid.....	98,689	45,436	144,125
Bessemer steel.....	10,433	20,009	30,442
Crucible steel.....	28,679	1,026	29,705
Electric and miscellaneous steel.....	9,004	340	9,344
Total.....	577,107	69,846	646,953

In 1914, there were 111 works in 21 States and the District of Columbia which made alloy-treated steel ingots or castings.

OPEN-HEARTH STEEL INGOTS AND CASTINGS.

PRODUCTION OF OPEN-HEARTH STEEL INGOTS AND CASTINGS BY STATES, 1910-1914.

States.	1910.	1911.	1912.	1913.	1914.
New England.....	223,158	189,879	214,325	195,419	137,962
New York, New Jersey..	713,245	679,152	792,201	996,312	719,227
Pennsylvania.....	10,153,816	9,594,914	12,408,109	12,522,227	9,854,038
Delaware, Maryland, District of Columbia..	158,827	128,309	44,079	186,961	125,760
West Virginia, Kentucky, Georgia, Alabama....	738,392	636,625	967,557	997,016	723,097
Ohio.....	1,733,409	1,721,549	2,565,343	2,726,219	2,592,778
Indiana.....	1,307,129	1,394,520	2,001,937	2,180,106	1,628,840
Illinois.....	995,011	801,624	1,235,166	1,264,854	896,610
Michigan, Wisconsin...	38,638	27,993	41,827	44,173	24,314
Other States.....	442,884	424,085	510,179	486,644	472,058
Total.. Gross tons.	16,504,509	15,598,650	20,780,723	21,599,931	17,174,684

In 1914, 157 works in 22 States and the District of Columbia made open-hearth steel ingots or castings and 24 plants were idle. Of the active plants, 60 made ingots but not castings, 68 made castings but not ingots, and 29 made both ingots and castings. In 1913 there were 183 completed plants, of which 158 were active and 25 were idle.

In 1914, 85 open-hearth works made basic but not acid steel, 48 made acid but not basic steel, and 24 made both basic and acid steel.

In 1914, 89 works made open-hearth steel ingots, of which 64 made ingots by the basic but not by the acid process, 4 made ingots by the acid but not by the basic process, and 21 made ingots by both the basic and acid processes. In 1913, 88 works made open-hearth steel ingots.

In 1914, 97 works made open-hearth steel castings, of which 37 made castings by the basic but not by the acid process, 51 made castings by the acid but not by the basic process, and 9 made castings by both the basic and acid processes. In 1913, 102 works made open-hearth castings.

COMPLETED, BUILDING, AND PROJECTED OPEN-HEARTH PLANTS ON DECEMBER 31, 1914.

Of the 181 completed open-hearth steel plants at the close of 1914, 121 were equipped to make basic steel, of which 108 were active during the year and 13 were idle; and 87 were

equipped to make acid steel, of which 73 were active and 14 were idle. Some of the plants were equipped to make both basic and acid steel. Six plants were being built on December 31, 1914, located as follows: Pennsylvania, 1; Ohio, 3; Minnesota, 1; and California, 1. On the same date work had been suspended upon 2 partly-erected plants. In addition 3 plants were projected, namely, 1 in Pennsylvania, 1 in West Virginia, and 1 in Ohio.

On December 31, 1913, there were 183 completed open-hearth steel plants and 7 plants were being built.

DUPLEX STEEL INGOTS AND CASTINGS.

Included in the 16,271,129 tons of basic open-hearth steel ingots and castings produced in 1914 are 835,690 tons of duplex steel ingots and castings which were made from metal partly purified in Bessemer converters and finally purified in basic open-hearth steel furnaces, against 2,210,718 tons in 1913, a decrease of 1,375,028 tons, or 62.1 per cent. In 1912, the production was 1,438,654 tons.

In 1914, duplex steel was produced by 5 works in 4 States, against 9 works in 5 States in 1913 and 7 works in 4 States in 1912.

BESSEMER STEEL INGOTS AND CASTINGS.

PRODUCTION OF BESSEMER STEEL BY STANDARD AND OTHER CONVERTERS, 1903-1914.

Years.	Standard Bessemer process.	Tropenas and all other modified processes.	Total. Gross tons.
1903.....	8,578,712	14,117	8,592,829
1904.....	7,849,773	9,367	7,859,140
1905.....	10,920,591	20,784	10,941,375
1906.....	12,244,309	31,521	12,275,830
1907.....	11,635,092	32,457	11,667,549
1908.....	6,096,478	20,277	6,116,755
1909.....	9,297,781	33,002	9,330,783
1910.....	9,355,350	57,422	9,412,772
1911.....	7,893,961	53,893	7,947,854
1912.....	10,260,913	66,988	10,327,901
1913.....	9,465,882	79,824	9,545,706
1914.....	6,155,203	65,643	6,220,846

PRODUCTION OF BESSEMER STEEL BY STATES, 1910-1914.

States.	1910.	1911.	1912.	1913.	1914.
Ohio.....	3,314,053	3,268,994	4,285,673	4,024,662	2,862,700
Pennsylvania.....	2,975,750	2,338,813	3,157,928	2,954,818	2,014,526
Illinois.....	1,693,053	1,335,053	1,559,576	1,475,274	871,110
Other States.....	1,429,916	1,004,994	1,324,724	1,090,952	472,510
Total.....	9,412,772	7,947,854	10,327,901	9,545,706	6,220,846

With the exception of 158 tons all the ingots produced in 1914 were made by the standard Bessemer process. Of the total production of steel castings in 1914, only 397 tons were made by the standard process. The production of castings in that year by the Tropenas process amounted to 34,963 tons and by the Bretau, Zenzen, and other modifications of the Bessemer process to 30,522 tons.

In 1914, Bessemer steel was made by 92 works, located in 25 States, the District of Columbia, and the Canal Zone, Panama. Ninety-three works in 25 States, the District of Columbia, and the Canal Zone, Panama, made Bessemer steel in 1913.

Twenty-two plants for the manufacture of steel by the standard Bessemer process were active in 1914, against 23 in 1913; and 40 Tropenas plants were active in 1914, against 36 in 1913. In addition 30 plants made steel by other modified Bessemer processes in 1914, against 34 in 1913.

In 1914 there were 11 idle Bessemer steel plants. In addition there were 3 plants which usually operate Bessemer converters for desiliconizing and decarburizing metal for open-hearth furnaces but do not produce Bessemer steel. Two of these plants were active and 1 was idle in 1914. These 3 plants are not included in the 11 idle Bessemer plants enumerated above. Three plants in 1914 which made Bessemer steel also made partly-purified metal for open-hearth furnaces. These 3 plants are included in the 92 active Bessemer works above reported.

COMPLETED AND PROJECTED BESSEMER STEEL PLANTS ON
DECEMBER 31, 1914.

Of the 104 completed Bessemer steel plants at the close of 1914, 27 were equipped to manufacture steel by the standard Bessemer process, of which 22 were active during the year, 3 were idle, and 2 made partly purified metal for open-hearth furnaces; 44 plants were equipped to manufacture Tropenas steel, of which 39 were active and 5 were idle; and 33 plants were

equipped to make steel by other modifications of the Bessemer process, of which 29 were active and 4 were idle. On December 31, 1913, 107 plants were equipped to make Bessemer steel and 1 plant was being built.

On December 31, 1914, 5 modified Bessemer plants were projected, as compared with 7 plants on December 31, 1913.

COMPLETED AND BUILDING CRUCIBLE STEEL PLANTS ON
DECEMBER 31, 1914.

The total number of completed crucible steel plants at the close of 1914 was 92, of which 79 were active during the year and 13 were idle. At the close of 1913 there were 99 completed plants, of which 82 were active during the year and 17 were idle.

On December 31, 1914, 1 plant for the manufacture of crucible steel was being built in New York. At the close of 1913, 2 crucible steel plants were in course of construction.

Of the active crucible steel plants in 1914, 28 in 4 States made ingots but not castings, 48 in 14 States made castings but not ingots, and 3 in 2 States made both ingots and castings.

COMPLETED, BUILDING, AND PROJECTED ELECTRIC STEEL
PLANTS ON DECEMBER 31, 1914.

At the close of 1914 there were 20 plants which were equipped for the manufacture of steel by the electric process, of which 19 were active during the year and 1 was idle. At the close of 1913 there were 16 completed plants and 3 plants were being built.

In addition at the close of 1914 several steel plants used electric steel furnaces for melting ferro-alloys, etc.

On December 31, 1914, 4 plants for the manufacture of steel by the electric process were being built—1 in New York, 2 in Pennsylvania, and 1 in Indiana—and 4 plants were projected—1 in Pennsylvania, 1 in Florida, 1 in Michigan, and 1 in Missouri.

Of the active electric steel plants in 1914, 6 in 4 States made ingots but not castings, 9 in 8 States made castings but not ingots, and 4 in 4 States made both ingots and castings.

COMPLETED MISCELLANEOUS STEEL PLANTS ON DECEMBER 31, 1914.

The number of completed plants which were equipped to manufacture steel by the cementation and other miscellaneous

processes at the close of 1914 was 5, all of which were active during the year. At the close of 1913 there were also 5 completed plants.

STEEL WORKS STATISTICS.

TOTAL ANNUAL CAPACITY OF COMPLETED STEEL FURNACES AND CONVERTERS, DECEMBER 31, 1914.

States.	Open-hearth.	Bessemer.	Crucible.	Electric.	Miscellaneous.	Total Gross tons.
Maine.....	12,000	0	0	0	0	12,000
Massachusetts....	198,200	2,475	1,535	25,000	0	227,210
Rhode Island.....	25,000	0	550	0	0	25,550
Connecticut.....	90,000	1,300	5,600	0	600	97,500
New York.....	1,040,500	878,400	39,050	9,550	0	1,967,500
New Jersey.....	313,700	22,600	19,600	11,600	0	367,500
Pennsylvania.....	15,679,400	3,732,750	158,710	10,800	800	19,582,460
Delaware.....	168,000	11,200	0	0	0	179,200
Maryland.....	191,000	439,100	0	0	0	630,100
District of Columbia	13,900	300	0	0	0	14,200
Virginia.....	0	1,350	0	0	0	1,350
West Virginia.....	92,100	421,600	7,500	0	0	521,200
Kentucky.....	180,000	200,000	0	0	0	380,000
Tennessee.....	0	4,500	1,500	0	0	6,000
Georgia.....	60,000	0	0	0	0	60,000
Alabama.....	995,000	0	0	0	0	995,000
Louisiana.....	0	1,850	0	0	0	1,850
Texas.....	0	250	125	0	0	375
Ohio.....	3,982,250	4,572,600	5,150	9,000	2,500	8,571,500
Indiana.....	2,691,000	450	1,585	0	3,600	2,696,635
Illinois.....	1,615,000	1,761,200	6,400	30,800	0	3,413,400
Michigan.....	20,500	21,350	4,700	5,000	0	51,550
Wisconsin.....	51,000	17,800	7,700	2,000	0	78,500
Minnesota.....	0	2,900	1,150	0	0	4,050
Missouri.....	100,000	12,500	500	0	0	113,000
Iowa.....	33,200	1,200	2,550	0	0	36,950
Colorado.....	540,000	600,000	0	0	0	1,140,000
Utah.....	0	2,400	0	0	0	2,400
Washington.....	40,500	4,900	700	1,000	0	47,100
Oregon.....	0	2,400	0	300	0	2,700
California.....	59,200	4,500	900	500	0	65,100
Canal Zone, Panama	0	2,000	0	0	0	2,000
Total for 1914....	28,191,450	12,723,875	265,505	105,550	7,500	*41,293,880
Total for 1913....	26,904,200	12,418,575	261,990	97,400	7,100	*39,689,265

* Does not include the capacity of open-hearth furnaces used for melting stock for malleable works, Bessemer converters used for desilicizing and decarburizing molten metal, or electric furnaces used for melting alloys.

ANNUAL CAPACITY OF OPEN-HEARTH STEEL FURNACES IN THE UNITED STATES, DECEMBER 31, 1914.

States.	No. of plants.	Basic—Gross tons.			Acid—Gross tons.			Total—Gross tons.		
		Ingots.	Castings.	Total.	Ingots.	Castings.	Total.	Ingots.	Castings.	Total.
Maine.....	1	12,000	0	12,000	0	0	0	12,000	0	12,000
Massachusetts.....	5	95,000	0	95,000	69,600	33,600	103,200	164,600	33,600	198,200
Rhode Island.....	1	25,000	0	25,000	0	0	0	25,000	0	25,000
Connecticut.....	2	80,000	0	80,000	0	10,000	10,000	80,000	10,000	90,000
New York.....	9	952,000	50,000	1,002,000	0	38,500	38,500	952,000	88,500	1,040,500
New Jersey.....	8	157,900	48,000	205,900	94,000	13,800	107,800	251,900	61,800	313,700
Pennsylvania.....	80	14,070,550	148,400	14,218,950	1,023,500	436,950	1,460,450	15,094,050	585,350	15,679,400
Delaware.....	3	120,000	0	120,000	30,000	18,000	48,000	150,000	18,000	168,000
Maryland.....	2	191,000	0	191,000	0	0	0	191,000	0	191,000
District of Columbia.....	2	13,200	0	13,200	0	700	700	13,200	700	13,900
Virginia.....	5	72,500	0	72,500	0	19,600	19,600	72,500	19,600	92,100
Virginia, West Virginia.....	1	160,000	0	160,000	20,000	0	20,000	180,000	0	180,000
Kentucky.....	1	60,000	0	60,000	0	0	0	60,000	0	60,000
Georgia.....	1	980,000	15,000	995,000	0	0	0	980,000	15,000	995,000
Alabama.....	4	3,741,700	155,950	3,897,650	20,000	64,600	84,600	3,761,700	220,550	3,982,250
Ohio.....	23	2,595,000	600	2,595,600	40,000	55,400	95,400	2,635,000	56,000	2,691,000
Indiana.....	8	1,388,000	185,000	1,573,000	38,400	3,600	42,000	1,426,400	188,600	1,615,000
Illinois.....	10	0	7,000	7,000	0	13,500	13,500	0	20,500	20,500
Michigan.....	3	0	7,000	7,000	0	44,000	44,000	0	51,000	51,000
Wisconsin.....	4	0	7,000	7,000	0	0	0	0	51,000	51,000
Iowa.....	2	0	33,200	33,200	0	0	0	0	33,200	33,200
Missouri.....	1	0	100,000	100,000	0	0	0	0	100,000	100,000
Colorado.....	1	540,000	0	540,000	0	0	0	540,000	0	540,000
Washington.....	2	40,000	500	40,500	0	0	0	40,000	500	40,500
California.....	3	55,000	4,200	59,200	0	0	0	55,000	4,200	59,200
Total for 1914.....	181	25,348,850	754,850	26,103,700	1,335,500	752,250	2,087,750	26,684,350	1,507,100	28,191,450
Total for 1913.....	183	24,258,250	735,150	24,993,400	1,133,550	777,250	1,910,800	25,391,800	1,512,400	26,904,200

ANNUAL CAPACITY OF BESSEMER STEEL CONVERTERS IN THE UNITED STATES, DECEMBER 31, 1914.

The capacity of Bessemer converters used for desilicizing and decarburizing molten metal for open-hearth furnaces is not included.

States.	Standard Bessemer.				Tropenas.				Other Bessemer.				Total.			
	No. plants	Ingot.	Cast-ings.	Total.	No. plants	In-got.	Cast-ings.	Total.	No. plants	In-got.	Cast-ings.	Total.	No. plants	Ingot.	Cast-ings.	Total.
Massachusetts	0	0	0	2,475	2	0	0	2,475	0	0	0	0	2	0	0	2,475
Connecticut	0	0	0	1,300	1	0	0	1,300	0	0	0	0	1	0	0	1,300
New York	1	870,000	0	870,000	3	0	0	7,500	2	0	900	900	6	870,000	8,400	878,400
New Jersey	0	0	0	0	2	0	0	11,800	1	0	10,800	10,800	3	0	22,600	22,600
Pennsylvania	9	3,703,000	0	3,703,000	7	0	0	24,150	2	0	5,600	5,600	18	3,703,000	29,750	3,732,750
Delaware	0	0	0	0	2	0	0	8,200	1	0	3,000	3,000	3	0	11,200	11,200
Maryland	1	436,500	0	436,500	1	0	0	2,000	1	0	600	600	3	436,500	2,600	439,100
Dist. of Col.	0	0	0	0	1	0	0	300	0	0	0	0	1	0	300	300
Virginia	0	0	0	1,350	2	0	0	1,350	0	0	0	0	2	0	1,350	1,350
West Virginia	2	421,400	200	421,600	0	0	0	0	0	0	0	0	2	421,400	200	421,600
Kentucky	1	200,000	0	200,000	0	0	0	0	0	0	0	0	1	200,000	0	200,000
Tennessee	0	0	0	0	2	0	0	4,500	0	0	0	0	2	0	4,500	4,500
Louisiana	0	0	0	1,850	0	0	0	1,850	0	0	0	0	2	0	1,850	1,850
Texas	0	0	0	250	1	0	0	250	0	0	0	0	1	0	250	250
Alabama	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
Ohio	8	4,551,000	0	4,551,000	6	0	0	13,800	3	0	7,800	7,800	17	4,551,000	21,600	4,572,600
Indiana	0	0	0	450	1	0	0	450	0	0	0	0	1	0	450	450
Illinois	3	1,741,000	0	1,741,000	2	0	0	13,200	3	0	7,000	7,000	8	1,741,000	20,200	1,761,200
Michigan	0	0	0	0	1	0	0	1,900	6	0	19,450	19,450	7	0	21,350	21,350
Wisconsin	0	0	0	0	2	0	0	6,800	4	0	11,000	11,000	6	0	17,800	17,800
Minnesota	0	0	0	0	1	0	0	2,500	1	0	400	400	2	0	2,900	2,900
Iowa	0	0	0	0	0	0	0	0	1	0	1,200	1,200	1	0	1,200	1,200
Missouri	0	0	0	0	1	0	0	3,500	2	0	9,000	9,000	3	0	12,500	12,500
Colorado	1	600,000	0	600,000	0	0	0	0	0	0	0	0	1	600,000	0	600,000
Utah	0	0	0	0	0	0	0	0	1	500	1,900	2,400	1	500	1,900	2,400
Oregon	0	0	0	0	0	0	0	0	1	0	2,400	2,400	1	0	2,400	2,400
Washington	0	0	0	0	2	0	0	1,900	2	0	3,000	3,000	4	0	4,900	4,900
California	0	0	0	0	1	0	0	600	2	0	3,900	3,900	3	0	4,500	4,500
Panama	0	0	0	0	1	0	0	2,000	0	0	0	0	1	0	2,000	2,000
Total for 1914	27	12,522,900	200	12,523,100	44	0	0	112,325	33	500	87,950	88,450	104	12,523,400	200,475	12,723,875
Total for 1913	30	12,223,550	200	12,223,750	39	0	0	103,175	38	700	90,950	91,650	107	12,224,250	194,325	12,418,575

**ANNUAL CAPACITY OF CRUCIBLE STEEL FURNACES,
DECEMBER 31, 1914.**

States.	No. of plants.	Annual capacity—Gross tons.		
		Ingots.	Castings.	Total.
Massachusetts.....	6	0	1,535	1,535
Rhode Island.....	1	0	550	550
Connecticut.....	2	4,700	900	5,600
New York.....	6	39,050	0	39,050
New Jersey.....	6	16,700	2,900	19,600
Pennsylvania.....	29	154,700	4,010	158,710
West Virginia.....	1	7,500	0	7,500
Tennessee.....	1	0	1,500	1,500
Texas.....	1	0	125	125
Ohio.....	9	0	5,150	5,150
Indiana.....	3	0	1,585	1,585
Illinois.....	2	5,400	1,000	6,400
Michigan.....	7	0	4,700	4,700
Wisconsin.....	10	0	7,700	7,700
Minnesota.....	2	0	1,150	1,150
Missouri.....	1	0	500	500
Iowa.....	2	0	2,550	2,550
Washington.....	1	0	700	700
California.....	2	0	900	900
Total for 1914.....	92	228,050	37,455	265,505
Total for 1913.....	99	220,025	41,965	261,990

**ANNUAL CAPACITY OF ELECTRIC STEEL FURNACES,
DECEMBER 31, 1914.**

States.	No. of plants.	Annual capacity—Gross tons.		
		Ingots.	Castings.	Total.
Massachusetts.....	1	25,000	0	25,000
New York.....	5	7,000	2,550	9,550
New Jersey.....	2	11,600	0	11,600
Pennsylvania.....	4	1,800	9,000	10,800
Ohio.....	1	9,000	0	9,000
Illinois.....	2	30,000	800	30,800
Michigan.....	1	3,000	2,000	5,000
Wisconsin.....	1	0	2,000	2,000
Oregon.....	1	0	300	300
Washington.....	1	0	1,000	1,000
California.....	1	0	500	500
Total.....	20	87,400	18,150	105,550

ANNUAL CAPACITY OF MISCELLANEOUS STEEL FURNACES.

The annual capacity of the miscellaneous steel furnaces on December 31, 1914, was 7,500 gross tons—600 tons of ingots and 6,900 tons of castings.

ROLLED IRON AND STEEL.

In 1914, the production of all kinds of iron and steel rolled into finished forms (including blooms, billets, and axle blanks rolled for forging purposes and semi-finished products which were rolled for export in that year) shows a decrease of 6,421,047 tons, or 25.9 per cent., as compared with the output in 1913.

TOTAL PRODUCTION OF ALL KINDS OF FINISHED ROLLED IRON AND STEEL, 1887-1914.

Years	Iron and steel rails.	Plates and sheets, except nail plate.	Nail plate.	Wire rods. Gross tons.	Structural shapes, not including plates.	Bars, skelp, and all other forms.	Total. Gross tons.
1887.	2,139,640	603,355	308,432	.....	.....	2,184,279	5,235,706
1888.	1,403,700	609,827	289,891	279,769	.....	2,034,162	4,617,349
1889.	1,522,204	716,496	259,409	363,851	.....	2,374,968	5,236,928
1890.	1,885,307	809,981	251,828	457,099	.....	2,618,660	6,022,875
1891.	1,307,176	678,927	223,312	536,607	.....	2,644,941	5,390,963
1892.	1,551,844	751,460	201,242	627,829	453,957	2,579,482	6,165,814
1893.	1,136,458	674,345	136,113	537,272	387,307	2,104,190	4,975,685
1894.	1,021,772	682,900	108,262	673,402	360,305	1,795,570	4,642,211
1895.	1,306,135	991,459	95,085	791,130	517,920	2,487,845	6,189,574
1896.	1,122,010	965,776	72,137	623,986	495,571	2,236,361	5,515,841
1897.	1,647,892	1,207,286	94,054	970,736	583,790	2,497,970	7,001,728
1898.	1,981,241	1,448,301	70,188	1,071,683	702,197	3,239,760	8,513,370
1899.	2,272,700	1,903,505	85,015	1,036,398	850,376	4,146,425	10,294,419
1900.	2,385,682	1,794,528	70,245	846,291	815,161	3,575,536	9,487,443
1901.	2,874,639	2,254,425	68,850	1,365,934	1,013,150	4,772,329	12,349,327
1902.	2,947,933	2,665,409	72,936	1,574,293	1,300,326	5,383,219	13,944,116
1903.	2,992,477	2,599,665	64,102	1,503,455	1,095,813	4,952,185	13,207,697
1904.	2,284,711	2,421,398	61,601	1,699,028	949,146	4,597,497	12,013,381
1905.	3,375,929	3,532,230	64,542	1,808,688	1,660,519	6,398,107	16,840,015
1906.	3,977,887	4,182,156	54,211	1,871,614	2,118,772	7,383,828	19,588,468
1907.	3,633,654	4,248,832	52,027	2,017,583	1,940,352	7,972,374	19,864,822
1908.	1,921,015	2,649,693	45,747	1,816,949	1,083,181	4,311,608	11,828,193
1909.	3,023,845	4,234,346	63,746	2,335,685	2,275,562	7,711,506	19,644,690
1910.	3,636,031	4,955,484	45,294	2,241,830	2,266,890	8,475,750	21,621,279
1911.	2,822,790	4,488,049	48,522	2,450,453	1,912,367	7,316,990	19,039,171
1912.	3,327,915	5,875,080	45,331	2,653,553	2,846,487	9,908,475	24,656,841
1913.	3,502,780	5,751,037	37,503	2,464,807	3,004,972	10,030,144	24,791,243
1914.	1,945,095	4,719,246	38,573	2,431,714	2,031,124	7,204,444	18,370,196

Rolled blooms and billets for forging purposes are included from 1905, while semi-finished products rolled for export are included for 1912, 1913, and 1914 only. Prior to 1892 structural shapes were grouped with bars, hoops, etc.

PRODUCTION OF FINISHED ROLLED PRODUCTS, SHOWING IRON
AND STEEL PRODUCTS SEPARATELY, GROSS TONS, 1904-1914.

Years.	Iron.	Steel.	Total.	Years.	Iron.	Steel.	Total.
1904.	1,760,084	10,253,297	12,013,381	1910..	1,740,156	19,881,123	21,621,279
1905.	2,059,990	14,780,025	16,840,015	1911..	1,460,615	17,578,556	19,039,171
1906.	2,186,557	17,401,911	19,588,468	1912..	1,637,582	23,019,259	24,656,841
1907.	2,200,086	17,664,736	19,864,822	1913..	1,678,257	23,112,986	24,791,243
1908.	1,238,449	10,589,744	11,828,193	1914..	1,167,776	17,202,420	18,370,196
1909.	1,709,431	17,935,259	19,644,690	.....	.....	.....	.....

PRODUCTION OF ALL KINDS OF FINISHED ROLLED IRON AND
STEEL BY STATES, GROSS TONS, 1910-1914.

States.	1910.	1911.	1912.	1913.	1914.
Maine, Massachusetts..	171,782	157,448	193,401	178,782	139,179
Rhode Island, Conn....	121,065	73,788	81,410	78,604	55,265
New York.....	1,013,768	768,763	1,034,071	1,036,606	681,655
New Jersey.....	165,057	154,563	175,143	194,153	143,357
Pennsylvania.....	10,774,531	9,426,827	12,254,040	12,195,709	9,070,085
Delaware, Virginia....	36,806	30,487	32,888	35,594	28,705
Maryland.....	307,837	264,222	284,617	324,091	170,723
West Virginia.....	405,925	472,177	591,333	561,535	456,108
Kentucky, North Car...	173,653	115,370	115,264	140,494	151,422
Tennessee, Ga., Texas..	61,497	71,779	77,473	74,074	61,229
Alabama.....	426,471	356,609	532,247	540,171	413,654
Ohio.....	3,228,223	3,382,063	4,330,487	4,259,813	3,491,464
Indiana.....	1,310,645	1,156,411	1,873,906	2,135,962	1,512,486
Illinois.....	2,547,662	1,939,350	2,253,664	2,248,638	1,444,270
Michigan.....	62,398	26,914	28,737	41,324	11,379
Wisconsin.....	242,777	121,371	218,254	209,325	119,422
Missouri, Oklahoma....	84,320	68,961	82,883	73,496	49,473
Kansas, Col., Wash....	437,685	407,314	438,622	409,789	325,343
Wyoming, Ore., Cal....	49,177	44,754	58,401	53,083	44,977
Total.....	21,621,279	19,039,171	24,656,841	24,791,243	18,370,196

PRODUCTION OF ALL KINDS OF FINISHED ROLLED IRON AND
STEEL IN PENNSYLVANIA BY DISTRICTS, 1910-1914.

Districts—Gross tons.	1910.	1911.	1912.	1913.	1914.
Philadelphia County...	111,884	82,331	97,292	107,195	79,989
Lehigh Valley.....	442,723	512,085	584,919	629,581	521,829
Schuylkill Valley.....	790,887	666,293	797,599	769,037	594,506
Eastern Pennsylvania..	404,209	333,761	423,444	469,046	332,366
Upper Susq. Valley....	154,777	159,623	180,795	194,042	127,444
Lower Susq. Valley....	616,063	576,871	588,137	596,620	360,835
Juniata Valley.....	68,510	54,460	77,277	78,278	45,544
Allegheny County.....	5,677,537	4,504,152	6,015,105	6,023,785	4,191,611
Shenango Valley.....	618,312	648,201	1,171,866	1,076,358	895,154
Western Pennsylvania..	1,889,629	1,889,050	2,317,606	2,251,767	1,920,807
Total.....	10,774,531	9,426,827	12,254,040	12,195,709	9,070,085

PRODUCTION OF ALL KINDS OF FINISHED ROLLED IRON AND STEEL IN OHIO BY DISTRICTS, 1910-1914.

Districts—Gross tons.	1910.	1911.	1912.	1913.	1914.
Mahoning Valley.....	1,287,328	1,287,177	1,766,962	1,711,053	1,417,879
Lake Counties.....	1,101,489	1,119,336	1,321,395	1,376,065	1,064,650
Hanging Rock.....	491,448	489,168	646,181	637,537	510,534
Interior Counties.....					
Ohio River Counties...	347,958	486,382	595,949	535,158	498,401
Total.....	3,228,223	3,382,063	4,330,487	4,259,813	3,491,464

PRODUCTION OF FINISHED ROLLED FORMS BY STATES, 1913-1914, SHOWING IRON AND STEEL SEPARATELY.

States.	1913—Gross tons.			1914—Gross tons.		
	Iron.	Steel.	Total.	Iron.	Steel.	Total.
Me., Mass.....	20,459	158,323	178,782	18,027	121,152	139,179
R. I., Conn....	20,880	57,724	78,604	15,232	40,033	55,265
New York.....	75,705	960,901	1,036,606	70,393	611,262	681,655
New Jersey....	39,225	154,928	194,153	26,001	117,356	143,357
Pennsylvania..	758,683	11,437,026	12,195,709	490,165	8,579,920	9,070,085
Delaware, Va..	20,334	15,260	35,594	14,436	14,269	28,705
Maryland.....	2,700	321,391	324,091	1,351	169,372	170,723
West Virginia..	2,126	559,409	561,535	.....	456,108	456,108
Ky., Tenn., N. C., Ga., Tex. }	46,804	167,764	214,568	36,117	176,534	212,651
Alabama.....	2,200	537,971	540,171	283	413,371	413,654
Ohio.....	198,859	4,060,954	4,259,813	159,488	3,331,976	3,491,464
Indiana.....	224,380	1,911,582	2,135,962	167,983	1,344,503	1,512,486
Illinois.....	130,276	2,118,362	2,248,638	95,960	1,348,310	1,444,270
Mich., Wis....	25,564	225,085	250,649	646	130,155	130,801
Mo., Okla....	63,174	10,322	73,496	40,194	9,279	49,473
Kan., Colorado, Washington. }	21,080	388,709	409,789	10,462	314,881	325,343
California.....	25,808	27,275	53,083	21,038	23,939	44,977
Total.....	1,678,257	23,112,986	24,791,243	1,167,776	17,202,420	18,370,196

Of the total production in 1914, about 93.6 per cent. was rolled from steel, as compared with about 93.2 per cent. in 1913.

In 1914 there were 371 plants in 27 States which rolled finished forms of iron or steel, as compared with 379 plants in 28 States in 1913. Two States—North Carolina and Oklahoma—rolled iron products only in 1914, and 3 States—Delaware, West Virginia, and Wisconsin—rolled steel products only in that year. With the exception of Kansas, whose 2 rolling mills were idle, all the other States named in the table rolled both iron and steel products in 1914.

PRODUCTION OF FINISHED ROLLED IRON AND STEEL BY LEADING ARTICLES, GROSS TONS, 1914.

Articles.	Iron.	Steel.	Total.
Rails.....		1,945,095	1,945,095
Plates and sheets.....	56,590	4,662,656	4,719,246
Nail and spike plate.....	4,725	33,848	38,573
Wire rods.....	731	2,430,983	2,431,714
Structural shapes.....	1,981	2,029,143	2,031,124
Merchant bars.....	563,171	1,960,460	2,523,631
Bars for reinforced concrete work.....		288,471	288,471
Skelp, flue, and pipe iron or steel.....	264,340	1,718,091	1,982,431
Long angle splice bars, tie-plate bars, etc.....	50,295	372,757	423,052
Hoops.....		211,028	211,028
Bands and cotton-ties.....	180	345,739	345,919
Rolled sheet piling, not including fabricated.....		35,314	35,314
Railroad ties.....		33,249	33,249
Rolled forging blooms, forging billets, etc.....	500	331,024	331,524
Exports of blooms, billets, sheet bars, etc.....	1,461	90,446	91,907
All other finished rolled products.....	223,802	714,116	937,918
Total.....Gross tons.	1,167,776	17,202,420	18,370,196

In addition to the 35,314 tons of rolled sheet piling above reported, there were produced by rolling mills and steel works in 1914 about 11,483 tons of fabricated sheet piling, as compared with 13,463 tons of the same kind of piling in 1913.

PRODUCTION OF RAILS.

PRODUCTION OF RAILS BY PROCESSES, IN GROSS TONS.

Years.	Open-hearth.	Bessemer.	Rerolled.*	Electric.	Iron.	Total.
1900.....	1,333	2,383,654	Included with Bessemer and open-hearth steel rails from 1900 to 1910 inclusive.	.....	695	2,385,682
1901.....	2,093	2,870,816		.....	1,730	2,874,639
1902.....	6,029	2,935,392		.....	6,512	2,947,933
1903.....	45,054	2,946,756		.....	667	2,992,477
1904.....	145,883	2,137,957		.....	871	2,284,711
1905.....	183,264	3,192,347		.....	318	3,375,929
1906.....	186,413	3,791,459		.....	15	3,977,887
1907.....	252,704	3,380,025		.....	925	3,633,654
1908.....	571,791	1,349,153		.....	71	1,921,015
1909.....	1,256,674	1,767,171		†	.....	3,023,845
1910.....	1,751,359	1,884,442		†	230	3,636,031
1911.....	1,676,923	1,053,420		462	234	2,822,790
1912.....	2,105,144	1,099,926	119,390	3,455	.....	3,327,915
1913.....	2,527,710	817,591	155,043	2,436	.....	3,502,780
1914.....	1,525,851	323,897	95,169	178	.....	1,945,095

* Rerolled from old steel rails and renewed rails which the manufacturers could not classify as Bessemer or open-hearth. † Small tonnages rolled in 1909 and 1910 but included with Bessemer and open-hearth rails for these years.

**PRODUCTION OF RAILS, SHOWING DECREASE BY PROCESSES,
1913-1914.**

Kinds.	1914.	Per cent.	1913.	Per cent.	Decrease.	Per cent.
Open-hearth...	1,525,851	78.45	2,527,710	72.16	1,001,859	39.64
Bessemer.....	323,897	16.65	817,591	23.34	493,694	60.38
All other.....	95,347	4.90	157,479	4.50	62,132	39.45
Total.....	1,945,095	100.00	3,502,780	100.00	1,557,685	44.47

Girder and high T rails for electric and street railways are included in the figures given above. For recent years the tonnage thus included was as follows: 1911, 205,409; 1912, 174,004; 1913, 195,659; 1914, 136,889 gross tons.

**PRODUCTION OF RENEWED AND REROLLED RAILS FROM NEW
SECONDS, NEW DEFECTIVE RAILS, AND OLD RAILS.**

Years.	Rerolled from new seconds, new defective rails, etc.			Rerolled from old rails.	Total rerolled. Gross tons.
	Open-hearth.	Bessemer.	Total.		
1911.....	2,631	19,379	22,010	91,751	113,761
1912.....	13,140	29,446	42,586	119,390	161,976
1913.....	13,052	30,741	43,793	155,043	198,836
1914.....	13,538	13,234	26,772	95,169	121,941

PRODUCTION OF RAILS BY WEIGHT PER YARD, 1897-1914.

Years.	Under 45 pounds.	45 and less than 85.	85 and less than 100.	100 pounds and over.	Total. Gross tons.
1897.....	88,896	1,223,435		335,561	1,647,892
1898.....	123,881	1,404,150		453,210	1,981,241
1899.....	133,836	1,559,340		579,524	2,272,700
1900.....	157,531	1,626,093		602,058	2,385,682
1901.....	155,406	2,225,411		493,822	2,874,639
1902.....	261,887	2,040,884		645,162	2,947,933
1903.....	221,262	1,603,088		1,168,127	2,992,477
1904.....	291,883	1,320,677		672,151	2,284,711
1905.....	228,252	1,601,624		1,546,053	3,375,929
1906.....	284,612	1,749,650		1,943,625	3,977,887
1907.....	295,838	1,569,985		1,767,831	3,633,654
1908.....	183,869	687,632		1,049,514	1,921,015
1909.....	255,726	1,024,856		1,743,263	3,023,845
1910.....	260,709	1,275,339		2,099,983	3,636,031
1911.....	218,758	1,067,696		1,536,336	2,822,790
1912.....	248,672	1,118,592		1,960,651	3,327,915
1913.....	*270,405	†967,313		2,265,062	3,502,780
1914.....	*238,423	†309,865	868,104	528,703	1,945,095

* Includes rails under 50 pounds. † Includes 50 pounds and less than 85 pounds.

PRODUCTION OF RAILS BY WEIGHT AND PROCESSES, 1914.

Kinds.	Under 50 lbs.		50 to 84 lbs.		85 to 99 lbs.		100 lbs. & over.		Total.	
	Gross tons.	Per cent.	Gross tons.	Per cent.	Gross tons.	Per cent.	Gross tons.	Per cent.	Gross tons.	Per cent.
O. H....	96,068	40.29	211,414	68.23	705,784	81.30	512,585	96.95	1,525,851	78.45
Bess....	78,280	32.83	97,063	31.32	132,539	15.27	16,015	3.03	323,897	16.65
Rer'ld.	64,061	26.87	1,358	.44	29,750	3.43	.....	.....	95,169	4.89
Elec....	14	.01	30	.01	31	....	103	.02	178	.01
Total	238,423	100.00	309,865	100.00	868,104	100.00	528,703	100.00	1,945,095	100.00

Included above is the annual production of alloy-treated rails, shown separately in the following tables. The tonnage of rails so treated was first determined in 1909.

PRODUCTION OF ALLOY-TREATED STEEL RAILS, 1909-1914.

Years	Total production. Gross tons.	Production by alloys.		Production by processes.		Production by weight per yard.			
		Titanium.	Other alloys.	Open-hearth and elect.	Bessemer.	Under 45 lbs.	45 and under 85 lbs.	85 and under 100 lbs.	100 lbs. and over.
1909.	49,395	35,945	13,450	13,696	35,699	..	9,132		40,263
1910.	257,324	256,759	565	27,389	229,935	..	70,170		187,154
1911.	153,989	152,990	999	38,539	115,450	..	27,097		126,892
1912.	149,267	141,773	7,494	40,393	108,874	21	5,426		143,820
1913.	59,519	47,655	11,864	33,567	25,952	*91	†9,414		50,014
1914.	27,937	23,321	4,616	27,447	490	*14	†1,168	8,301	18,454

* Includes rails under 50 pounds. † Includes 50 pounds and less than 85 pounds.

PRODUCTION OF ALLOY-TREATED STEEL RAILS, 1914.

Alloys.	Total production.	Production by processes.		Production by weight.			
		Open-hearth and electric.	Bessemer.	Under 50 pounds.	50 and under 85 pounds.	85 and under 100 lbs.	100 pounds and over.
Titanium.....	23,321	22,831	490	..	914	7,323	15,084
Manganese.....	4,616	4,616	...	14	254	978	3,370
Total.....	27,937	27,447	490	14	1,168	8,301	18,454

PRODUCTION OF RAILS IN PENNSYLVANIA, 1905-1914.

Years	Open-hearth.	Bessemer.	Total.	Years	Open-hearth.	Bessemer.	All other.	Total.
1905.	18,687	1,097,154	1,115,841	1910.	395,229	591,473	.....	986,702
1906.	1,703	1,298,409	1,300,112	1911.	477,228	352,331	10,104	839,663
1907.	36,837	1,093,932	1,130,769	1912.	526,755	343,837	18,080	888,672
1908.	177,461	315,547	493,008	1913.	618,795	326,819	26,206	971,820
1909.	301,988	553,719	855,707	1914.	423,426	142,662	26,444	592,532

APPROXIMATE CONSUMPTION OF RAILS, 1874-1914.

Years.	Production—Gross tons.			Add imports.	Deduct exports.	Approximate consumption.
	Iron.	Steel.	Total.			
1874....	521,848	129,414	651,262	96,706	1,122	746,846
1875....	447,901	259,699	707,600	17,364	1,080	723,884
1876....	417,114	368,269	785,383	256	3,180	782,459
1877....	296,911	385,865	682,776	31	6,847	676,160
1878....	288,295	499,817	788,112	9	8,354	779,767
1879....	375,143	618,850	993,993	39,417	3,066	1,030,344
1880....	440,859	864,353	1,305,212	259,543	958	1,563,797
1881....	436,233	1,210,285	1,646,518	344,929	611	1,990,836
1882....	203,459	1,304,392	1,507,851	200,113	3,220	1,704,744
1883....	57,994	1,156,911	1,214,905	34,801	2,308	1,247,398
1884....	22,821	999,367	1,022,188	2,829	6,034	1,018,983
1885....	13,228	963,750	976,978	2,189	7,757	971,410
1886....	21,142	1,579,395	1,600,537	41,587	2,644	1,639,480
1887....	20,591	2,119,049	2,139,640	137,830	549	2,276,921
1888....	12,725	1,390,975	1,403,700	63,037	6,908	1,459,829
1889....	9,159	1,513,045	1,522,204	6,217	9,325	1,519,096
1890....	13,882	1,871,425	1,885,307	204	16,947	1,868,564
1891....	8,240	1,298,936	1,307,176	253	11,239	1,296,190
1892....	10,437	1,541,407	1,551,844	347	7,982	1,544,209
1893....	6,090	1,130,368	1,136,458	2,888	19,876	1,119,470
1894....	4,674	1,017,098	1,021,772	300	13,556	1,008,516
1895....	5,810	1,300,325	1,306,135	1,447	15,599	1,291,983
1896....	4,347	1,117,663	1,122,010	7,796	73,131	1,056,675
1897....	2,872	1,645,020	1,647,892	415	148,221	1,500,086
1898....	3,319	1,977,922	1,981,241	200	301,903	1,679,538
1899....	1,592	2,271,108	2,272,700	2,134	277,714	1,997,120
1900....	695	2,384,987	2,385,682	1,448	361,619	2,025,511
1901....	1,730	2,872,909	2,874,639	1,905	318,956	2,557,588
1902....	6,512	2,941,421	2,947,933	63,522	67,666	2,943,789
1903....	667	2,991,810	2,992,477	95,555	30,837	3,057,195
1904....	871	2,283,840	2,284,711	37,776	416,250	1,906,237
1905....	318	3,375,611	3,375,929	17,278	295,023	3,098,184
1906....	15	3,977,872	3,977,887	4,943	328,036	3,654,794
1907....	925	3,632,729	3,633,654	3,752	338,906	3,298,500
1908....	71	1,920,944	1,921,015	1,719	196,510	1,726,224
1909....	none.	3,023,845	3,023,845	1,542	299,540	2,725,847
1910....	230	3,635,801	3,636,031	7,861	353,180	3,290,712
1911....	234	2,822,556	2,822,790	3,414	420,874	2,405,330
1912....	none.	3,327,915	3,327,915	3,780	446,473	2,885,222
1913....	none.	3,502,780	3,502,780	10,408	460,553	3,052,635
1914....	none.	1,945,095	1,945,095	22,571	174,680	1,792,986

PRODUCTION OF STRUCTURAL SHAPES.

PRODUCTION OF STRUCTURAL SHAPES, GROSS TONS, 1892-1914.

Years.	Tons.	Years.	Tons.	Years.	Tons.
1892.....	453,957	1900.....	815,161	1908.....	1,083,181
1893.....	387,307	1901.....	1,013,150	1909.....	2,275,562
1894.....	360,305	1902.....	1,300,326	1910.....	2,266,890
1895.....	517,920	1903.....	1,095,813	1911.....	1,912,367
1896.....	495,571	1904.....	949,146	1912.....	2,846,487
1897.....	583,790	1905.....	1,660,519	1913.....	3,004,972
1898.....	702,197	1906.....	2,118,772	1914.....	2,031,124
1899.....	850,376	1907.....	1,940,352	.....	.....

Prior to 1912 the output of heavy structural shapes was not separated from the output of light structural shapes. In the statistics for 1910 and 1911 the production of small angles, small channels, and other similar light structural forms for use in the manufacture of bedsteads, safes, fences, etc., was not included in the total output of structural shapes, but was included for 1909 and some prior years.

The figures given for heavy structural shapes for 1912, 1913, and 1914 include all beams, tees, zee bars, angles, channels, etc., having one leg or web of 3 inches and over which were rolled for structural or fabricating purposes, while the figures given for light structural shapes include only such light shapes and small angles, etc., as were rolled for use in the manufacture of bedsteads, agricultural implements, fences, safes, vaults, or for other fabricating purposes having a section smaller than is provided for in the heavy structural classification. The production of iron and steel plates, girders made from plates, merchant bars, bars for reinforced concrete, sheet piling, etc., all of which are provided for elsewhere, is not included in any of the figures given for structural shapes.

PRODUCTION OF HEAVY AND LIGHT STRUCTURAL SHAPES, GROSS TONS, 1912-1914.

Years.	Heavy shapes.	Light shapes.	Total.
1912.....	2,470,415	376,072	2,846,487
1913.....	2,553,806	451,166	3,004,972
1914.....	1,787,281	243,843	2,031,124

All the heavy structural shapes were rolled from steel.

In 1914, 41 works in 10 States rolled heavy or light structural

shapes, namely: New York, 2; New Jersey, 2; Pennsylvania, 22; Alabama, 1; Ohio, 3; Indiana, 3; Illinois, 4; Wisconsin, 1; Colorado, 1; and California, 2. In 1913, 40 works in 11 States rolled structural shapes. Pennsylvania made over 73.5 per cent. of the total in 1914, against over 71 per cent. in 1913.

PRODUCTION AND APPROXIMATE CONSUMPTION OF STRUCTURAL SHAPES, GROSS TONS, 1900-1914.

Years.	Production of structural shapes.			Add imports.	Deduct exports.	Consumption.
	Iron.	Steel.	Total.			
1900.....	815,161		815,161	*.....	67,714	747,447
1901.....	1,013,150		1,013,150	*.....	54,005	959,145
1902.....	1,300,326		1,300,326	*.....	53,859	1,246,467
1903.....	1,095,813		1,095,813	8,865	30,641	1,074,037
1904.....	8,019	941,127	949,146	7,203	55,514	900,835
1905.....	11,630	1,648,889	1,660,519	16,147	84,234	1,592,432
1906.....	4,719	2,114,053	2,118,772	28,573	112,555	2,034,790
1907.....	3,973	1,936,379	1,940,352	2,294	138,442	1,804,204
1908.....	2,423	1,080,758	1,083,181	3,623	116,881	969,923
1909.....	44,814	2,230,748	2,275,562	6,146	90,830	2,190,878
1910.....	426	2,266,464	2,266,890	14,897	146,721	2,135,066
1911.....	811	1,911,556	1,912,367	5,343	223,493	1,694,217
1912.....	5,517	2,840,970	2,846,487	3,120	288,164	2,561,443
1913.....	3,841	3,001,131	3,004,972	11,659	403,264	2,613,367
1914.....	1,981	2,029,143	2,031,124	10,145	182,395	1,858,874

* Imports of structural shapes were included with ingots, billets, etc., prior to 1903.

† In these years the production of small structural forms was not included.

PRODUCTION OF WIRE RODS.

PRODUCTION OF WIRE RODS, GROSS TONS, 1888-1914.

Years.	Tons.	Years.	Tons.	Years.	Tons.	Years.	Tons.
1888..	279,769	1895...	791,130	1902...	1,574,293	1909..	2,335,685
1889..	363,851	1896...	623,986	1903...	1,503,455	1910..	2,241,830
1890..	457,099	1897...	970,736	1904...	1,699,028	1911..	2,450,453
1891..	536,607	1898...	1,071,683	1905...	1,808,688	1912..	2,653,553
1892..	627,829	1899...	1,036,398	1906...	1,871,614	1913..	2,464,807
1893..	537,272	1900...	846,291	1907...	2,017,583	1914..	2,431,714
1894..	673,402	1901...	1,365,934	1908...	1,816,949	.....	.....

Small quantities of copper-clad steel wire rods are included in the totals for recent years. It was necessary to estimate the output of one wire-rod plant in 1914.

PRODUCTION AND APPROXIMATE CONSUMPTION OF WIRE RODS,
GROSS TONS, 1900-1914.

Years.	Production of wire rods.			Add imports.	Deduct exports.	Consumption.
	Iron.	Steel.	Total.			
1900.....	1,929	844,362	846,291	21,092	10,652	856,731
1901.....	475	1,365,459	1,365,934	16,804	8,165	1,374,573
1902.....	206	1,574,087	1,574,293	21,382	24,613	1,571,062
1903.....	30	1,503,425	1,503,455	20,836	22,360	1,501,931
1904.....	1,166	1,697,862	1,699,028	15,313	20,073	1,694,268
1905.....	1,281	1,807,407	1,808,688	17,616	6,514	1,819,790
1906.....	1,201	1,870,413	1,871,614	17,799	5,895	1,883,518
1907.....	1,550	2,016,033	2,017,583	17,076	10,697	2,023,962
1908.....	509	1,816,440	1,816,949	11,209	7,412	1,820,746
1909.....	.....	2,335,685	2,335,685	10,544	20,142	2,326,087
1910.....	627	2,241,203	2,241,830	20,374	22,869	2,239,335
1911.....	610	2,449,843	2,450,453	15,483	22,641	2,443,295
1912.....	1,289	2,652,264	2,653,553	15,069	64,978	2,603,644
1913.....	832	2,463,975	2,464,807	16,098	61,637	2,419,268
1914.....	731	2,430,983	2,431,714	6,954	61,856	2,376,812

Iron or steel wire rods were rolled in 1914 by 37 works in 12 States, as follows: Massachusetts, 1; Rhode Island, 2; New York, 3; New Jersey, 3; Pennsylvania, 12; Kentucky, 1; Georgia, 1; Alabama, 2; Ohio, 6; Indiana, 2; Illinois, 3; and Colorado, 1. In 1913, 37 works in 12 States rolled wire rods.

PRODUCTION OF PLATES AND SHEETS.

PRODUCTION OF IRON AND STEEL PLATES AND SHEETS,
1888-1914.

Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.
1888.....	609,827	1897.....	1,207,286	1906.....	4,182,156
1889.....	716,496	1898.....	1,448,301	1907.....	4,248,832
1890.....	809,981	1899.....	1,903,505	1908.....	2,649,693
1891.....	678,927	1900.....	1,794,528	1909.....	4,234,346
1892.....	751,460	1901.....	2,254,425	1910.....	4,955,484
1893.....	674,345	1902.....	2,665,409	1911.....	4,488,049
1894.....	682,900	1903.....	2,599,665	1912.....	5,875,080
1895.....	991,459	1904.....	2,421,398	1913.....	5,751,037
1896.....	965,776	1905.....	3,532,230	1914.....	4,719,246

The production of iron and steel nail plate and skelp is not included in the table, but the output of black plates for tin-

ning is included. Tie plates are included for 1909, 1910, and 1911, but not for 1912, 1913, or 1914. The production of a few plate and sheet plants is estimated.

In 1914, 128 works in 15 States rolled plates or sheets.

PRODUCTION OF PLATES AND SHEETS BY GAUGES, GROSS TONS.

Years.	Plates—No. 12 and thicker.			Sheets—No. 13 and thinner.			Grand total.
	Iron.	Steel.	Total.	Iron.	Steel.	Total.	
1905....	10,022	2,031,184	2,041,206	62,134	1,428,890	1,491,024	3,532,230
1906....	23,333	2,508,219	2,531,552	51,040	1,599,564	1,650,604	4,182,156
1907....	30,277	2,629,783	2,660,060	43,761	1,545,011	1,588,772	4,248,832
1908....	31,679	1,239,342	1,271,021	22,354	1,356,318	1,378,672	2,649,693
1909....	32,332	2,346,766	2,379,098	43,870	1,811,378	1,855,248	4,234,346
1910....	37,763	2,769,965	2,807,728	53,355	2,094,401	2,147,756	4,955,484
1911....	46,147	2,288,194	2,334,341	43,280	2,110,428	2,153,708	4,488,049
1912....	33,349	3,001,851	3,035,200	41,695	2,798,185	2,839,880	5,875,080

A new plate and sheet classification was adopted in 1913. It is not therefore possible to compare separately the plate or the sheet output in 1913 and 1914, under the new classification, with the plate or the sheet output in 1912 and previous years, under the old classification. The new classification does not, however, in any way affect comparisons of the total output of plates and sheets.

PRODUCTION OF PLATES AND SHEETS BY KINDS, 1913-1914.

Kinds.	1913—Gross tons.			1914—Gross tons.		
	Iron.	Steel.	Total.	Iron.	Steel.	Total.
Universal plates....	1,565	1,156,851	1,158,416	839	765,274	766,113
Sheared plates—						
Rolled on single						
stands.....	2,584	1,393,043	1,395,627	1,660	1,168,678	1,170,338
Roughed and fin.						
on sep. stands..	900	447,827	448,727	.....	175,970	175,970
Black sheets made on						
sheet or job. mills	56,901	1,660,067	1,716,968	51,373	1,376,254	1,427,627
Black plates, inc.						
black plates for						
tinning and black						
plate specialties	2,779	1,028,520	1,031,299	2,718	1,176,480	1,179,198
rolled on tin mills.						
Total.....	64,729	5,686,308	5,751,037	56,590	4,662,656	4,719,246

**PRODUCTION OF PLATES AND SHEETS BY SIZE AND MODE OF
MANUFACTURE, GROSS TONS, 1914.**

Kinds of products.	Iron.	Steel.	Total
Universal plates, inc. flats or bars over 6 in. wide:			
$\frac{1}{4}$ of an inch and over in thickness.....	839	711,419	712,258
Under $\frac{1}{4}$ of an inch thick.....	...	53,855	53,855
Total universal plates.....	839	765,274	766,113
Sheared plates:			
$\frac{1}{4}$ of an inch and over in thickness.....	1,000	1,024,971	1,025,971
Under $\frac{1}{4}$ of an inch thick.....	660	319,677	320,337
Total sheared plates.....	1,660	1,344,648	1,346,308
Black sheets, made on either sheet or job. mills:			
No. 12 gauge and thicker.....	7,644	117,628	125,272
No. 13 gauge and thinner.....	43,729	1,258,626	1,302,355
Total black sheets.....	51,373	1,376,254	1,427,627
Black plates rolled on tin mills:			
Black plates for tinning.....	2,272	935,909	938,181
Other black plate specialties.....	446	240,571	241,017
Total black plates rolled on tin mills....	2,718	1,176,480	1,179,198
Grand total of plates and sheets.....	56,590	4,662,656	4,719,246

**PRODUCTION OF SHEARED PLATES ACCORDING TO THICKNESS,
GROSS TONS, 1914.**

Mode of manufacture.	Iron.	Steel.	Total.
Sheared plates, rolled on single stands of rolls:			
$\frac{1}{4}$ of an inch and over in thickness.....	1,000	996,321	997,321
Under $\frac{1}{4}$ of an inch thick.....	660	172,357	173,017
Total rolled on single stands.....	1,660	1,168,678	1,170,338
Sheared plates, roughed and fin. on sep. stands:			
$\frac{1}{4}$ of an inch and over in thickness.....	.....	28,650	28,650
Under $\frac{1}{4}$ of an inch thick.....	.....	147,320	147,320
Total roughed and fin. on sep. stands..	.....	175,970	175,970
Total sheared plates, 1914	1,660	1,344,648	1,346,308
Total sheared plates, 1913	3,484	1,840,870	1,844,354

**PRODUCTION OF UNIVERSAL PLATES BY WIDTHS, SHOWING IRON
AND STEEL SEPARATELY, GROSS TONS, 1914.**

Width of universal plates.	Iron.	Steel.	Total.
Under 30 inches wide.....	824	635,150	635,974
30 inches wide, but under 48 inches wide.....	15	123,159	123,174
48 inches wide and over.....	...	6,965	6,965
Total for 1914.....	839	765,274	766,113

In a few cases it was necessary for the manufacturers to estimate their output of universal plates by widths.

Of the total output of universal plates in 1914, 83 per cent. was under 30 inches wide, 16.1 per cent. was 30 inches but under 48 inches wide, and nine-tenths of one per cent. was 48 inches wide and over.

**PRODUCTION OF IRON AND STEEL BLACK PLATES FOR TINNING,
1894-1914.**

Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.
1894.....	52,359	1901.....	398,026	1908.....	513,771
1895.....	129,615	1902.....	365,743	1909.....	606,482
1896.....	185,387	1903.....	490,652	1910.....	712,137
1897.....	271,886	1904.....	472,569	1911.....	795,598
1898.....	345,254	1905.....	507,587	1912.....	982,197
1899.....	375,000	1906.....	576,079	1913.....	827,266
1900.....	315,000	1907.....	504,072	1914.....	938,181

**PRODUCTION OF BLACK PLATES FOR TINNING, SHOWING IRON
AND STEEL SEPARATELY, GROSS TONS, 1904-1914.**

Years.	Iron.	Steel.	Total.	Years.	Iron.	Steel.	Total.
1904..	2,981	469,588	472,569	1910..	2,893	709,244	712,137
1905..	3,152	504,435	507,587	1911..	3,515	792,083	795,598
1906..	5,666	570,413	576,079	1912..	5,378	976,819	982,197
1907..	3,161	500,911	504,072	1913..	2,779	824,487	827,266
1908..	2,954	510,817	513,771	1914..	2,272	935,909	938,181
1909..	4,261	602,221	606,482	.....	.....	.....	.....

Similar statistics for earlier years are not available. In 1913 and 1914, 30 works made black plates for tinning.

APPROXIMATE CONSUMPTION OF PLATES AND SHEETS,
GROSS TONS, 1900-1914.

Years.	Production of plates and sheets.			Add imports.	Deduct exports.	Approximate consumption.
	Iron.	Steel.	Total.			
1900....		1,794,528	1,794,528	5,143	54,865	1,744,806
1901....		2,254,425	2,254,425	5,621	30,832	2,229,214
1902....		2,665,409	2,665,409	7,156	18,300	2,654,265
1903....		2,599,665	2,599,665	11,557	18,094	2,593,128
1904....	67,713	2,353,685	2,421,398	4,165	55,204	2,370,359
1905....	72,156	3,460,074	3,532,230	2,336	75,097	3,459,469
1906....	74,373	4,107,783	4,182,156	3,231	110,700	4,074,687
1907....	74,038	4,174,794	4,248,832	3,748	122,696	4,129,884
1908....	54,033	2,595,660	2,649,693	2,629	104,993	2,547,329
1909....	76,202	4,158,144	4,234,346	4,720	180,047	4,059,019
1910....	91,118	4,864,366	4,955,484	6,152	274,521	4,687,115
1911....	89,427	4,398,622	4,488,049	2,453	372,373	4,118,129
1912....	75,044	5,800,036	5,875,080	3,299	546,521	5,331,858
1913....	64,729	5,686,308	5,751,037	2,893	463,426	5,290,504
1914....	56,590	4,662,656	4,719,246	4,310	280,095	4,443,461

In 1914, 5.9 per cent. of the plates and sheets made in that year was exported, as compared with 8 per cent. in 1913, 9.3 per cent. in 1912, and 8.2 per cent. in 1911.

ACTIVE PLATE AND SHEET WORKS, 1914.

States.	Total active plants.	Of these the following rolled—				
		Universal plates.	Sheared plates.		Black sheets on sheet or job. mills.	Black plates on tin mills.
			Single stands.	Separate stands.		
Massachusetts...	2	0	0	1	1	0
New York.....	5	1	1	2	2	0
New Jersey.....	1	0	1	0	0	0
Pennsylvania...	59	16	14	10	21	16
Delaware.....	1	0	0	0	1	0
Maryland.....	1	0	0	0	0	1
West Virginia...	9	0	0	1	4	7
Kentucky.....	4	0	2	0	2	0
Alabama.....	1	0	0	1	0	0
Ohio.....	36	3	4	4	24	13
Indiana.....	6	2	1	1	4	1
Illinois.....	2	2	1	0	1	1
Wisconsin.....	1	0	0	1	0	0
Missouri.....	1	0	0	0	1	0
California.....	1	1	0	0	0	0
Total.....	130	25	24	21	61	39

PRODUCTION OF MERCHANT BARS.

PRODUCTION OF MERCHANT BARS, SHOWING IRON AND STEEL
MERCHANT BARS SEPARATELY, GROSS TONS, 1905-1914.

Years.	Iron.	Steel.	Total.	Years.	Iron.	Steel.	Total.
1905...	1,322,439	2,271,162	3,593,601	1910.	1,074,163	2,711,568	3,785,731
1906...	1,481,348	2,510,852	3,992,200	1911.	835,625	2,211,737	3,047,362
1907...	1,440,356	2,530,632	3,970,988	1912.	944,790	2,752,324	3,697,114
1908...	685,233	1,301,405	1,986,638	1913.	1,026,632	2,930,977	3,957,609
1909...	952,230	2,311,301	3,263,531	1914.	563,171	1,960,460	2,523,631

Statistics are not available prior to 1905. Horseshoe bars, bolt and nut rods, spike and chain rods, concrete bars, etc., are not included.

In 1914 there were 145 plants in 24 States which rolled iron or steel merchant bars, as compared with 149 plants in 24 States in 1913. In 1914, iron merchant bars were rolled by 74 works in 22 States and steel merchant bars by 94 works in 16 States, while in 1913 iron merchant bars were rolled by 79 works in 23 States and steel merchant bars by 96 works in 18 States.

In 1914, merchant bars were rolled by every State which produced finished hot rolled products except Rhode Island, Delaware, and West Virginia.

PRODUCTION OF CONCRETE BARS.

PRODUCTION OF CONCRETE BARS, SHOWING IRON AND STEEL
CONCRETE BARS SEPARATELY, GROSS TONS, 1909-1914.

Years.	Iron.	Steel.	Total.	Years.	Iron.	Steel.	Total.
1909...	.....	159,352	159,352	1912.	2,500	271,832	274,332
1910...	4,645	236,464	241,109	1913.	113	319,557	319,670
1911...	2,388	256,353	258,741	1914.	....	288,471	288,471

Statistics are not available prior to 1909.

In 1914 there were 36 plants in 15 States which rolled iron or steel bars for reinforced concrete work, as compared with 38 plants in 16 States in 1913. In 1914, Ohio made 26.7 per cent. of the total output, New York, 17.7 per cent., Pennsylvania, 15.8 per cent., and Indiana, 12.1 per cent.

PRODUCTION OF SKELP:

PRODUCTION OF SKELP, SHOWING IRON AND STEEL SKELP SEPARATELY, GROSS TONS, 1905-1914.

Years.	Iron.	Steel.	Total.	Years.	Iron.	Steel.	Total.
1905...	452,797	983,198	1,435,995	1910.	350,578	1,477,616	1,828,194
1906...	391,517	1,137,068	1,528,585	1911.	322,397	1,658,276	1,980,673
1907...	444,536	1,358,091	1,802,627	1912.	327,012	2,119,804	2,446,816
1908...	297,049	853,534	1,150,583	1913.	312,746	2,189,218	2,501,964
1909...	370,151	1,663,230	2,033,381	1914.	264,340	1,718,091	1,982,431

In 1914, 46 plants in 6 States rolled iron or steel skelp, as compared with 47 works in 5 States in 1913.

PRODUCTION OF NAIL PLATE.

PRODUCTION OF IRON AND STEEL NAIL PLATE, 1887-1914.

Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.
1887...	308,432	1894.	108,262	1901...	68,850	1908...	45,747
1888...	289,891	1895.	95,085	1902...	72,936	1909...	63,746
1889...	259,409	1896.	72,137	1903...	64,102	1910...	45,294
1890...	251,828	1897.	94,054	1904...	61,601	1911...	48,522
1891...	223,312	1898.	70,188	1905...	64,542	1912...	45,331
1892...	201,242	1899.	85,015	1906...	54,211	1913...	37,503
1893...	136,113	1900.	70,245	1907...	52,027	1914...	38,573

Ten plants in 5 States rolled iron or steel nail or spike plate in 1914, against 11 plants in 6 States in 1913.

PRODUCTION OF MISCELLANEOUS ROLLED PRODUCTS.

Rolled blooms, billets, and axle blanks or billets for forging purposes are included in the statistics given below, but forged armor plate, hammered axles, eye-bars, shafting, and other forgings are not included. For 1912, 1913, and 1914 blooms, billets, sheet bars, tinplate bars, and other semi-finished products rolled for export are also included, but for 1911 and all prior years they are not included.

PRODUCTION OF MISCELLANEOUS ROLLED PRODUCTS, SHOWING
IRON AND STEEL SEPARATELY, GROSS TONS, 1908-1914.

Years.	Iron.	Steel.	Total.	Years.	Iron.	Steel.	Total.
1908...	183,649	990,738	1,174,387	1912.	272,757	3,217,456	3,490,213
1909...	250,110	2,005,132	2,255,242	1913.	264,320	2,986,581	3,250,901
1910...	207,003	2,413,713	2,620,716	1914.	276,238	2,133,673	2,409,911
1911...	199,172	1,831,042	2,030,214	....	.....	.....	.....

PRODUCTION OF MISCELLANEOUS ROLLED IRON AND STEEL
PRODUCTS, GROSS TONS, 1914.

Miscellaneous rolled products.	Iron.	Steel.	Total.
Hoops.....	.....	211,028	211,028
Bands and cotton-ties.....	180	345,739	345,919
Long angle splice bars, fish-plate bars, tie-plate bars, and other rail joint shapes.....	50,295	372,757	423,052
Rolled sheet piling, not including fabricated..	.....	35,314	35,314
Railroad ties.....	.....	33,249	33,249
Rolled forging blooms, forging billets, etc....	500	331,024	331,524
Blooms, billets, sheet bars, etc., for export....	1,461	90,446	91,907
Spike and chain rods, bolt and nut rods, horseshoe bars, strips, etc.....	223,802	714,116	937,918
Total.....	276,238	2,133,673	2,409,911

PRODUCTION OF MISCELLANEOUS ROLLED PRODUCTS, GROSS
TONS, 1910-1914.

Articles.	1910.	1911.	1912.	1913.	1914.
Hoops.....	262,214	225,074	270,007	280,886	211,028
Bands and cotton-ties.	424,979	342,810	587,395	499,660	345,919
Long angle splice bars, fish-plate bars, tie-plate bars, etc.....	*.....	*.....	571,772	686,390	423,052
Rolled sheet piling....	26,598	22,827	22,276	46,289	35,314
Railroad ties.....	49,048	39,197	41,396	44,244	33,249
Rolled forging blooms and forging billets...	459,933	231,115	462,476	537,210	331,524
Blooms, billets, sheet bars, tinplate bars, etc., for export.....	*.....	*.....	347,783	88,778	91,907
Spike and chain rods, bolt and nut rods, horseshoe bars, strips, shafting, tires, etc...	1,397,944	1,169,191	1,187,108	1,067,444	937,918
Total.....	2,620,716	2,030,214	3,490,213	3,250,901	2,409,911

* Statistics not collected from the manufacturers prior to 1912.

ROLLING MILL STATISTICS

ACTIVE AND IDLE ROLLING MILLS, 1914.

States.	Active.	Idle.	Total.	States.	Active.	Idle.	Total.
Maine.....	1	0	1	Texas.....	1	0	1
Massachusetts...	5	0	5	Ohio.....	63	6	69
Rhode Island...	4	0	4	Indiana.....	16	2	18
Connecticut.....	4	2	6	Illinois.....	21	4	25
New York.....	18	2	20	Michigan.....	3	1	4
New Jersey.....	14	0	14	Wisconsin....	3	1	4
Pennsylvania....	167	22	189	Missouri.....	3	1	4
Delaware.....	1	1	2	Oklahoma....	2	0	2
Maryland.....	4	0	4	Kansas.....	0	2	2
Virginia.....	2	1	3	Colorado.....	1	0	1
West Virginia...	15	3	18	Washington...	1	1	2
Kentucky.....	6	1	7	Oregon.....	0	1	1
Tennessee.....	1	0	1	California....	5	0	5
North Carolina..	1	0	1	.....		
Georgia.....	2	0	2	.....		
Alabama.....	7	2	9	Total.....	371	53	424

NEW ROLLING MILLS, 1914.

Name of company.	Location of works.	Products.
American Steel & Wire Co.	Fairfield, Alabama.	Wire rods.
Baltimore & Ohio R. R. Co.....	Baltimore, Md.....	Merchant bar.
Brier Hill Steel Co.....	Youngstown, Ohio.	Billets and sheet bars.
Fort Smith Iron & Steel Co.....	Arkoma, Okla....	Merchant bar.
Hercules Forge Co.....	Indianapolis, Ind..	Rolled steel wheels.
Howe & Samuel, Inc.....	Danville, Pa.....	Muck bar.
Otis Steel Co.....	Cleveland, Ohio....	Plates and sheets.
Western Reserve Steel Co.....	Warren, Ohio.....	Sheets.

BUILDING ROLLING MILLS, DECEMBER 31, 1914.

Name of company.	Location of works.	Products.
Central Steel Co.....	Massillon, Ohio....	Blooms, sheet bars.
Corrigan, McKinney & Co.....	Cleveland, Ohio....	Sheet bars, billets.
Minnesota Steel Co.....	Duluth, Minn.....	(Blooms, rails, merchant bar, structural, etc.
St. Louis Screw Co.....	St. Louis, Mo.....	Merchant bar, rounds.
Syracuse Crucible Steel Co.....	Syracuse, N. Y....	Buildings only erected.
Utah Iron & Steel Co.....	Salt Lake City, Utah	Merchant bar.

ROLLING MILLS ABANDONED OR DISMANTLED IN 1914.

In 1914, 24 plants which were equipped for the manufacture of hot rolled iron or steel were abandoned or dismantled.

TINPLATES, GALVANIZED SHEETS, PIPES AND TUBES, NAILS, RAIL JOINTS, AND CHARCOAL BLOOMS.

PRODUCTION OF TINPLATES AND TERNE PLATES.

PRODUCTION OF TINPLATES AND TERNE PLATES, 1891-1914.

Years.	Tinplates.	Terne plates.	Total pounds.
1891 (second 6 months).....	368,400	1,868,343	2,236,743
1892 (calendar year).....	13,921,296	28,197,896	42,119,192
1893.....	64,536,209	59,070,498	123,606,707
1894.....	102,223,407	64,120,002	166,343,409
1895.....	165,927,907	88,683,488	254,611,395
1896.....	270,151,785	89,058,013	359,209,798
1897 (first 6 months).....	203,028,258	49,545,643	252,573,901
1897 (second 6 months).....			322,205,619
1898 (calendar year).....	.....	.....	732,289,600
1899.....	.....	.....	808,360,000
1900 (cen. year end. May 31) ..	707,718,239	141,285,783	*850,004,495
1901 (calendar year).....	.....	.....	894,411,840
1902.....	.....	.....	806,400,000
1903.....	.....	.....	1,075,200,000
1904 (cen. year end. Dec. 31) .	867,526,985	158,857,866	*1,032,940,706
1905 (calendar year).....	.....	.....	1,105,440,000
1906.....	1,100,373,000	193,367,000	1,293,740,000
1907.....	996,650,000	156,447,000	1,153,097,000
1908.....	1,048,896,000	154,179,000	1,203,075,000
1909.....	1,179,858,000	190,930,000	1,370,788,000
1910.....	1,450,821,000	168,184,000	1,619,005,000
1911.....	1,597,629,000	158,441,000	1,756,070,000
1912.....	1,965,659,000	191,396,000	2,157,055,000
1913.....	1,708,186,000	136,944,000	1,845,130,000
1914.....	1,939,785,000	146,195,000	2,085,980,000

* Includes 1,000,473 pounds in 1900 and 6,555,855 pounds in 1904 of "other sheet iron and sheet steel, tin or terne plated."

ACTIVE AND IDLE TINPLATE AND TERNE PLATE WORKS.

In 1914 there were 19 plants in 6 States which made tinplates but not terne plates, 2 plants in 2 States which made terne plates but not tinplates, and 11 plants in 4 States which made both tinplates and terne plates. The number of active plants in 1914 was 33, against 35 in 1913.

PRODUCTION OF TINPLATES AND TERNE PLATES, 1891-1914.

Calendar years.	Gross tons.	Calendar years.	Gross tons.
1891 (last six months) . . .	999	1903	480,000
1892	18,803	1904 (cen. yr. end. Dec. 31)	461,134
1893	55,182	1905	493,500
1894	74,260	1906	577,562
1895	113,666	1907	514,775
1896	160,362	1908	537,087
1897	256,598	1909	611,959
1898	326,915	1910	722,770
1899	360,875	1911	783,960
1900 (cen. yr. end. May 31)	379,466	1912	962,971
1901	399,291	1913	823,719
1902	360,000	1914	931,241

PRODUCTION OF IRON AND STEEL TERNE PLATES AND STEEL TINPLATES, 1908-1914.

Years.	Terne plates—Pounds.			Steel tinplates.	Grand total. Pounds.
	Iron.	Steel.	Total.		
1908	6,560,500	147,618,500	154,179,000	1,048,896,000	1,203,075,000
1909	8,054,900	182,875,100	190,930,000	1,179,858,000	1,370,788,000
1910	5,765,000	162,419,000	168,184,000	1,450,821,000	1,619,005,000
1911	7,720,000	150,721,000	158,441,000	1,597,629,000	1,756,070,000
1912	11,259,000	180,137,000	191,396,000	1,965,659,000	2,157,055,000
1913	6,433,000	130,511,000	136,944,000	*1,708,186,000	1,845,130,000
1914	6,109,000	140,086,000	146,195,000	1,939,785,000	2,085,980,000

* Includes about 1,000 lbs. iron tinplates. No iron tinplates reported in other years.

Similar statistics are not available prior to 1908. Small quantities of pure lead coated and aluminum coated sheets produced in recent years are not included in the table.

PRODUCTION OF COKE AND CHARCOAL TINPLATES, 1913-1914.

States.	Coke. Pounds.	Charcoal. Pounds.	Total. Pounds.
Pennsylvania	1,139,313,000	12,517,000	1,151,830,000
Maryland, West Virginia	305,363,000	22,987,000	328,350,000
Ohio, Indiana, Ill., Michigan	452,060,000	7,545,000	459,605,000
Total for 1914	*1,896,736,000	43,049,000	1,939,785,000
Total for 1913	*1,662,148,000	46,038,000	1,708,186,000

* Includes 6,227,000 pounds in 1914 and 5,728,000 pounds in 1913 which were formed or stamped from black plates by companies which manufacture tinplates and tinned after the completion of the forming or stamping process.

APPROXIMATE CONSUMPTION OF TINPLATES AND TERNE PLATES,
GROSS TONS, 1900-1914.

Calendar years.	Production.	Add imports.	Deduct exports.	Approximate consumption.
1900 (Census year)	*379,466	60,386	273	439,579
1901	399,291	77,395	439	476,247
1902	360,000	60,115	1,566	418,549
1903	480,000	47,360	292	527,068
1904 (Census year)	*461,134	70,652	7,898	523,888
1905	493,500	65,740	7,941	551,299
1906	577,562	56,983	12,082	622,463
1907	514,775	57,773	10,203	562,345
1908	537,087	58,490	11,878	583,699
1909	611,959	62,593	9,327	665,225
1910	722,770	66,640	12,445	776,965
1911	783,960	14,099	61,381	736,678
1912	962,971	2,052	81,694	883,329
1913	823,719	20,680	57,812	786,587
1914	931,241	15,411	59,549	887,103

* For 1900 the census year ended May 31, 1900 ; for 1904, December 31, 1904.

PRODUCTION OF GALVANIZED SHEETS.

PRODUCTION OF IRON AND STEEL GALVANIZED SHEETS, 1913-1914.

Products.	1913—Pounds.		
	Iron.	Steel.	Total.
Galvanized sheets	100,791,705	1,745,072,660	1,845,864,365
Galvanized formed products* . . .	2,442,716	126,746,764	129,189,480
Total	103,234,421	1,871,819,424	1,975,053,845

Products.	1914—Pounds.		
	Iron.	Steel.	Total.
Galvanized sheets	91,235,731	1,716,431,398	1,807,667,129
Galvanized formed products* . . .	3,879,072	127,724,537	131,603,609
Total	95,114,803	1,844,155,935	1,939,270,738

* Articles formed or stamped from iron or steel black plates or black sheets and galvanized after the completion of the forming or stamping process.

In 1914, 30 plants in 8 States produced galvanized sheets but not galvanized formed products, 54 plants in 16 States produced galvanized formed products but not galvanized sheets, and 8 plants in 6 States produced both galvanized sheets and galvanized formed products ; 92 plants were active.

PRODUCTION OF PIPES AND TUBES.

PRODUCTION OF WROUGHT IRON AND STEEL PIPE AND BOILER TUBES, 1913-1914.

Kinds of pipe.	1913—Gross tons.			1914—Gross tons.		
	Iron.	Steel.	Total.	Iron.	Steel.	Total.
Black, standard...	120,619	709,853	830,472	102,244	562,263	664,507
Galvanized.....	25,323	241,617	266,940	31,896	233,133	265,029
Oil country goods.	84,778	756,311	841,089	50,824	568,467	619,291
O. D. and misc....	2,159	177,052	179,211	343	111,042	111,385
Boiler tubes.....	43,188	84,632	127,820	26,840	50,652	77,492
Total.....	276,067	1,969,465	2,245,532	212,147	1,525,557	1,737,704

In 1914 there were 27 active works, of which 19 made black, 16 made galvanized, 17 made oil country goods, 12 made O. D. and miscellaneous pipe, and 10 made boiler tubes.

PRODUCTION OF SEAMLESS STEEL TUBES.

The production of seamless steel tubes in 1914 amounted to 90,595 gross tons, against 108,567 tons in 1913, a decrease of 17,972 tons, or 16.5 per cent. Of the total in 1914, 36,939 tons were hot-finished and 53,656 tons were cold-drawn, against 42,740 tons of hot-finished and 65,827 tons of cold-drawn tubes in 1913. The output of a few plants is estimated.

PRODUCTION OF CAST IRON PIPE, NET TONS, 1913-1914.

Kinds of pipe.	1913—Net tons.			1914—Net tons.		
	Pipe.	Fittings.	Total.	Pipe.	Fittings.	Total.
Gas and water....	955,458	46,831	1,002,289	872,746	46,651	919,397
Soil and plumbers'	195,031	68,925	*263,956	183,666	57,717	*241,383
Total.....	1,150,489	115,756	1,266,245	1,056,412	104,368	1,160,780

* Includes 7,727 tons of cast iron culvert pipe in 1913 and approximately 18,900 tons of culvert pipe and fittings in 1914.

In 1914 there were 66 active plants, as compared with 67 active plants in 1913. Of the total in 1914, 32 plants made gas and water pipe and fittings and 37 plants made soil and plumbers' and culvert pipe and fittings, 3 plants making both gas and water and soil and plumbers' pipe.

PRODUCTION OF CUT AND WIRE NAILS.

PRODUCTION OF NAILS IN 100-LB. KEGS, 1890-1914.

Years.	Cut nails.	Wire nails.	Total.	Cut nails over wire.	Wire nails over cut.
1890.....	5,640,946	3,135,911	8,776,857	2,505,035	.....
1891.....	5,002,176	4,114,385	9,116,561	887,791	.....
1892.....	4,507,819	4,719,524	9,227,343	.....	211,705
1893.....	3,048,933	5,095,945	8,144,878	.....	2,047,012
1894.....	2,425,060	5,681,801	8,106,861	.....	3,256,741
1895.....	2,129,894	5,841,403	7,971,297	.....	3,711,509
1896.....	1,615,870	4,719,860	6,335,730	.....	3,103,990
1897.....	2,106,799	8,997,245	11,104,044	.....	6,890,446
1898.....	1,572,221	7,418,475	8,990,696	.....	5,846,254
1899.....	1,904,340	7,618,130	9,522,470	.....	5,713,790
1900.....	1,573,494	7,233,979	8,807,473	.....	5,660,485
1901.....	1,542,240	9,803,822	11,346,062	.....	8,261,582
1902.....	1,633,762	10,982,246	12,616,008	.....	9,348,484
1903.....	1,435,893	9,631,661	11,067,554	.....	8,195,768
1904.....	1,283,362	11,926,661	13,210,023	.....	10,643,299
1905.....	1,357,549	10,854,892	12,212,441	.....	9,497,343
1906.....	1,189,239	11,486,647	12,675,886	.....	10,297,408
1907.....	1,109,138	11,731,044	12,840,182	.....	10,621,906
1908.....	956,182	10,662,972	11,619,154	.....	9,706,790
1909.....	1,207,597	13,916,053	15,123,650	.....	12,708,456
1910.....	1,005,233	12,704,902	13,710,135	.....	11,699,669
1911.....	967,636	13,437,778	14,405,414	.....	12,470,142
1912.....	978,415	14,659,700	15,638,115	.....	13,681,285
1913.....	842,038	13,559,727	14,401,765	.....	12,717,689
1914.....	769,665	13,132,814	13,902,479	.....	12,363,149

APPROXIMATE CONSUMPTION OF CUT AND WIRE NAILS.

Years.	Cut and wire nails—Kegs 100 lbs.			Years.	Cut and wire nails—Kegs 100 lbs.		
	Produc- tion.	Exports.	Consump- tion.		Produc- tion.	Exports.	Consump- tion.
1887..	8,158,870	131,654	8,027,216	1901..	11,346,062	628,865	10,717,197
1888..	7,993,591	135,020	7,858,571	1902..	12,616,008	756,619	11,859,389
1889..	8,245,758	137,139	8,108,619	1903..	11,067,554	903,672	10,163,882
1890..	8,776,857	152,769	8,624,088	1904..	13,210,023	942,274	12,267,749
1891..	9,116,561	122,822	8,993,739	1905..	12,212,441	976,475	11,235,966
1892..	9,227,343	174,073	9,053,270	1906..	12,675,886	1,205,224	11,470,662
1893..	8,144,878	159,361	7,985,517	1907..	12,840,182	1,100,247	11,739,935
1894..	8,106,861	222,149	7,884,712	1908..	11,619,154	751,138	10,868,016
1895..	7,971,297	229,406	7,741,891	1909..	15,123,650	909,252	14,214,398
1896..	6,335,730	332,726	6,003,004	1910..	13,710,135	1,142,382	12,567,753
1897..	11,104,044	467,499	10,636,545	1911..	14,405,414	1,456,811	12,948,603
1898..	8,990,696	659,663	8,331,033	1912..	15,638,115	1,738,921	13,899,194
1899..	9,522,470	974,206	8,548,264	1913..	14,401,765	1,062,362	13,339,403
1900..	8,807,473	863,911	7,943,562	1914..	13,902,479	885,843	13,016,636

**PRODUCTION AND APPROXIMATE CONSUMPTION OF WIRE NAILS
IN 100-LB. KEGS, 1887-1914.**

Years.	Production.	Exports.	Consumption.	Years.	Production.	Exports.	Consumption.
1887..	1,250,000	8,867	1,241,133	1901..	9,803,822	420,506	9,383,316
1888..	1,500,000	13,414	1,486,586	1902..	10,982,246	595,391	10,386,855
1889..	2,435,000	19,172	2,415,828	1903..	9,631,661	704,546	8,927,115
1890..	3,135,911	18,395	3,117,516	1904..	11,926,661	734,554	11,192,107
1891..	4,114,385	18,986	4,095,399	1905..	10,854,892	799,734	10,055,158
1892..	4,719,524	21,387	4,698,137	1906..	11,486,647	1,035,705	10,450,942
1893..	5,095,945	27,451	5,068,494	1907..	11,731,044	945,035	10,786,009
1894..	5,681,801	38,920	5,642,881	1908..	10,662,972	593,819	10,069,153
1895..	5,841,403	53,012	5,788,391	1909..	13,916,053	686,687	13,229,366
1896..	4,719,860	95,638	4,624,222	1910..	12,704,902	960,295	11,744,607
1897..	8,997,245	129,767	8,867,478	1911..	13,437,778	1,200,957	12,236,821
1898..	7,418,475	307,190	7,111,285	1912..	14,659,700	1,530,353	13,129,347
1899..	7,618,130	750,781	6,867,349	1913..	13,559,727	977,477	12,582,250
1900..	7,233,979	613,858	6,620,121	1914..	13,132,814	809,167	12,323,647

Steel wire nails only were made in 1913 and 1914. It was necessary to estimate the output of a few plants.

In 1914, wire nails were made by 50 works in 15 States, while in 1913, wire nails were made by 51 works in 15 States. Five wire-nail plants were idle in 1913 and 1914.

**PRODUCTION AND APPROXIMATE CONSUMPTION OF CUT NAILS IN
100-LB. KEGS, 1887-1914.**

Years.	Production.	Exports.	Consumption.	Years.	Production.	Exports.	Consumption.
1887..	6,908,870	122,787	6,786,083	1901..	1,542,240	208,359	1,333,881
1888..	6,493,591	121,606	6,371,985	1902..	1,633,762	161,228	1,472,534
1889..	5,810,758	117,967	5,692,791	1903..	1,435,893	199,126	1,236,767
1890..	5,640,946	134,374	5,506,572	1904..	1,283,362	207,720	1,075,642
1891..	5,002,176	103,836	4,898,340	1905..	1,357,549	176,741	1,180,808
1892..	4,507,819	152,686	4,355,133	1906..	1,189,239	169,519	1,019,720
1893..	3,048,933	131,910	2,917,023	1907..	1,109,138	155,212	953,926
1894..	2,425,060	183,229	2,241,831	1908..	956,182	157,319	798,863
1895..	2,129,894	176,394	1,953,500	1909..	1,207,597	222,565	985,032
1896..	1,615,870	237,088	1,378,782	1910..	1,005,233	182,087	823,146
1897..	2,106,799	337,732	1,769,067	1911..	967,636	255,854	711,782
1898..	1,572,221	352,473	1,219,748	1912..	978,415	208,568	769,847
1899..	1,904,340	223,425	1,680,915	1913..	842,038	84,885	757,153
1900..	1,573,494	250,053	1,323,441	1914..	769,665	76,676	692,989

Horseshoe nails, cut tacks, wire nails, or railroad or other forged iron or steel spikes are not included.

Fourteen works in 8 States made cut nails in 1914.

PRODUCTION OF FINISHED ANGLE SPLICE BARS, TIE PLATES, FISH PLATES, ETC., BY ROLLING MILLS AND STEEL WORKS.

PRODUCTION OF RAIL JOINTS AND FASTENINGS, 1913-1914.

Articles.	1913—Gross tons.			1914—Gross tons.		
	Iron.	Steel.	Total.	Iron.	Steel.	Total.
Angle splice bars.....	10,186	143,264	153,450	3,854	82,921	86,775
Tie plates.....	31,591	292,837	324,428	39,563	157,595	197,158
Fish plates.....	741	15,818	16,559	393	29,314	29,707
Other rail joints.....	.....	133,041	133,041	110	58,792	58,902
Total.....	42,518	584,960	627,478	43,920	328,622	372,542

It was necessary to estimate the output of one plant. The output of spikes, bolts, nuts, and similar fastenings is not included. There were 27 active works in 1914 and 26 in 1913.

PRODUCTION OF FORGED IRON AND STEEL BY ROLLING MILLS AND STEEL WORKS.

Years.	Production—Gross tons.			Years.	Production—Gross tons.		
	Iron.	Steel.	Total.		Iron.	Steel.	Total.
1906...	19,148	333,488	352,636	1911...	4,034	214,202	218,236
1907...	23,772	357,033	380,805	1912...	9,155	383,365	392,520
1908...	13,646	117,497	131,143	1913...	27,892	380,091	407,983
1909...	25,523	223,741	249,264	1914...	3,675	337,746	341,421
1910...	20,410	299,452	319,862	.....	.....	.....	.....

PRODUCTION OF HAMMERED CHARCOAL IRON BLOOMS, BILLETS, ETC.

Years.	For sale.	For own use.	Total. Gross tons.	Years.	For sale.	For own use.	Total. Gross tons.
1906...	17,833	77,166	94,999	1911...	2,271	62,345	64,616
1907...	17,554	67,069	84,623	1912...	250	65,557	65,807
1908...	8,103	47,870	55,973	1913...	80	59,313	59,393
1909...	9,593	46,772	56,365	1914...	5,026	36,399	41,425
1910...	14,016	61,958	75,974	....	.....	.....	.....

PRODUCTION AND SHIPMENTS OF IRON ORE, COAL, AND COKE.

PRODUCTION AND SHIPMENTS OF IRON ORE.

PRODUCTION OF IRON ORE BY STATES, GROSS TONS, 1910-1914.

[From Mineral Resources of the United States, U. S. Geological Survey.]

States.	1910.	1911.	1912.	1913.	1914.
Minnesota.....	31,966,769	24,645,105	34,431,768	38,658,793	21,946,901
Michigan.....	13,303,906	10,329,039	11,191,430	12,841,093	10,796,200
Alabama.....	4,801,275	3,827,791	4,563,603	5,215,740	4,838,959
New York.....	1,287,209	1,061,279	1,216,672	1,459,628	785,377
Wisconsin.....	1,149,551	698,660	860,600	1,018,272	886,512
Pennsylvania.....	739,799	537,506	517,081	489,056	406,326
Virginia.....	903,377	614,023	446,305	483,843	378,520
Tennessee.....	732,247	463,835	416,885	370,002	330,214
New Jersey.....	521,832	466,234	364,673	325,305	350,135
Georgia.....	313,878	203,889	134,637	155,236	67,722
W. Va., Ky., Md., N. C.	143,687	182,341	103,956	82,243	91,966
Missouri.....	78,341	65,325	43,480	39,354	37,554
Ohio.....	22,320	15,707	10,346	7,849	5,138
Other States.....	1,050,715	765,818	848,711	834,023	518,237
Total.....	57,014,906	43,876,552	55,150,147	61,980,437	41,439,761

IRON ORE MARKETED (SHIPPED) BY STATES, 1913-1914.

[From Mineral Resources of the United States, U. S. Geological Survey.]

States.	1913—Gross tons.		1914—Gross tons.	
	Marketed.	Value.	Marketed.	Value.
Minnesota.....	36,603,331	\$80,789,025	23,298,547	\$40,628,771
Michigan.....	12,668,560	33,479,954	8,533,280	18,722,358
Alabama.....	5,333,218	6,648,569	4,514,926	5,727,619
New York.....	1,420,889	3,100,235	640,252	1,992,892
Wisconsin.....	896,243	2,149,397	591,595	1,178,610
Pennsylvania.....	478,693	589,038	400,062	399,639
Virginia.....	492,649	983,279	346,382	719,415
Tennessee.....	364,092	493,556	330,214	466,523
New Jersey.....	291,653	980,303	346,820	1,076,208
Georgia.....	153,336	237,876	66,222	119,363
W. Va., Ky., Md., N. C.	83,243	240,004	86,346	143,197
Missouri.....	37,134	83,628	36,304	75,696
Ohio.....	8,299	17,100	523,330	654,788
Other States.....	811,758	1,113,594		
Total.....	59,643,098	\$130,905,558	39,714,280	\$71,905,079

SHIPMENTS OF LAKE SUPERIOR IRON ORE.

IRON ORE SHIPMENTS BY RANGES, GROSS TONS, 1910-1914.

[From statistics gathered by The Iron Trade Review.]

Ranges.	1910.	1911.	1912.	1913	1914.
Marquette.....	4,392,726	2,833,116	4,202,308	3,966,680	2,491,857
Menominee.....	4,237,738	3,911,174	4,711,440	4,965,604	3,221,258
Gogebic.....	4,315,314	2,603,318	5,006,266	4,531,558	3,568,482
Vermilion.....	1,203,177	1,088,930	1,844,981	1,566,600	1,016,993
Mesabi.....	29,201,760	22,093,532	32,047,409	34,038,643	21,465,967
Cuyuna.....	.....	147,431	305,111	733,021	859,404
Miscellaneous...	91,682	115,629	104,031	145,010	105,765
Total.....	43,442,397	32,793,130	48,221,546	49,947,116	32,729,726

IRON ORE SHIPMENTS BY PORTS, GROSS TONS, 1910-1914.

[From statistics gathered by The Iron Trade Review.]

Ports.	1910.	1911.	1912.	1913.	1914.
Escanaba.....	4,959,726	4,278,445	5,234,655	5,399,444	3,664,451
Marquette.....	3,248,516	2,200,380	3,296,761	3,137,617	1,755,726
Ashland.....	4,094,374	2,429,290	4,797,101	4,338,230	3,363,419
Two Harbors...	8,271,177	6,367,537	9,370,969	10,075,718	5,610,262
Superior.....	8,414,799	9,920,490	14,240,714	13,788,343	11,309,748
Duluth.....	13,640,166	6,934,269	10,495,577	12,331,126	6,318,291
Total lake....	42,628,758	32,130,411	47,435,777	49,070,478	32,021,897
All rail.....	813,639	662,719	785,769	876,638	707,829
Grand total.	43,442,397	32,793,130	48,221,546	49,947,116	32,729,726

IRON ORE RECEIVED AND ON DOCK AT CLOSE OF NAVIGATION
AT LAKE ERIE PORTS, 1885-1914.

[From statistics gathered by The Iron Trade Review.]

Years.	Receipts. Gross tons.	On dock. Gross tons.	Years.	Receipts. Gross tons.	On dock. Gross tons.
1885.....	1,503,969	1,048,940	1900.....	15,797,787	5,904,670
1886.....	2,270,554	966,472	1901.....	17,014,076	5,859,663
1887.....	3,439,198	1,558,861	1902.....	22,649,424	7,074,254
1888.....	3,783,659	1,848,555	1903.....	19,681,731	6,371,085
1889.....	5,856,344	2,607,106	1904.....	17,932,814	5,763,399
1890.....	6,874,664	3,893,487	1905.....	29,060,693	6,438,967
1891.....	4,939,684	3,508,489	1906.....	32,194,205	6,252,455
1892.....	6,660,734	4,149,451	1907.....	35,348,915	7,385,728
1893.....	5,333,061	4,070,710	1908.....	20,527,052	9,074,003
1894.....	6,350,825	4,834,247	1909.....	33,672,825	9,471,428
1895.....	8,112,228	4,415,712	1910.....	34,042,897	9,797,980
1896.....	8,026,432	4,954,984	1911.....	25,531,550	9,469,869
1897.....	10,120,906	5,923,755	1912.....	37,472,108	10,080,798
1898.....	11,028,321	5,136,407	1913.....	39,099,647	9,261,676
1899.....	15,222,187	5,530,283	1914.....	25,402,655	9,345,871

**RECEIPTS OF LAKE SUPERIOR IRON ORE AT LAKE ERIE PORTS,
GROSS TONS, 1909-1914.**

[From statistics gathered by The Iron Trade Review.]

Ports.	1909.	1910.	1911.	1912.	1913.	1914.
Toledo.....	1,374,224	1,225,202	493,345	1,411,278	1,084,215	773,711
Sandusky....	11,088	.....	.....	.....	.....	.....
Huron.....	243,082	197,951	223,947	540,586	687,485	617,363
Lorain.....	2,796,856	2,884,738	2,937,605	3,771,350	3,709,213	1,677,988
Cleveland...	6,051,342	6,344,943	4,584,211	7,914,836	8,812,583	5,519,698
Fairport....	1,734,277	1,516,434	666,365	1,810,381	2,037,126	1,558,134
Ashtabula...	8,056,941	9,620,638	6,359,131	8,158,080	8,336,126	5,318,788
Conneaut....	7,007,834	6,309,548	6,931,278	7,839,831	7,849,303	6,263,480
Erie.....	1,235,057	942,592	289,400	547,067	713,904	260,991
Buffalo.....	5,002,235	4,704,439	2,802,976	5,060,642	5,506,691	2,913,273
Detroit.....	159,889	296,412	243,292	418,057	363,001	332,564
Port Colborne	.....	.....	.....	.....	.....	166,665
Total.....	33,672,825	34,042,897	25,531,550	37,472,108	39,099,647	25,402,655

Shipments from the Helen mine and the Moose Mountain mine, both located in Ontario, are not included above.

The shipments of iron ore from the Lake Superior region for the account of the United States Steel Corporation from mines owned wholly or in part by the Corporation are reported to us annually. In 1914 the shipments amounted to 16,740,059 gross tons, or 51.1 per cent. of the total for the region, against 25,202,084 tons, or 50.4 per cent., in 1913; 24,331,837 tons, or 50.4 per cent., in 1912; 17,806,257 tons, or 54.2 per cent., in 1911; 22,185,972 tons, or 51 per cent., in 1910; and 21,876,246 tons, or 51.3 per cent., in 1909. Iron Ridge ore is included.

LARGEST SHIPPERS OF LAKE SUPERIOR IRON ORE IN 1914.

Mesabi range—Leonard, 2,686,285 gross tons; Mahoning, 1,212,287 tons; Saunty-Alpena, 1,131,255 tons; Canisteo, 1,051,895 tons; Uno South, 945,840 tons; Susquehanna, 906,913 tons; Fayal, 673,643 tons; Hill, 592,590 tons; Leetonia, 551,022 tons; Shenango, 546,519 tons; Mississippi, 507,660 tons; Holman, 497,276 tons; Harold, 489,042 tons; Spruce, 488,870 tons; Genoa, 476,972 tons; Hull-Rust, 458,468 tons; and Dale, 423,711 tons. These 17 mines shipped 13,640,248 tons in 1914, or over one-half of the total ore shipped from this range in that year. No other mine in this range shipped over 400,000 tons; 94 mines were active.

Gogebic range—The Norrie group shipped 984,242 tons; Newport, 707,485 tons; Wakefield, 313,050 tons; Colby,

291,947 tons ; Montreal, 229,559 tons ; Palms, 174,177 tons ; Asteroid, 135,119 tons ; Ashland, 133,250 tons ; Tilden, 114,767 tons ; Ottawa (Odanah), 106,260 tons. No other mine in this range shipped over 69,000 tons. The active mines numbered 21.

Menominee range—Chapin shipped 340,722 tons ; Pewabic, 299,228 tons ; Caspian, 279,379 tons ; Penn. Iron Mining Company, 203,478 tons ; Aragon, 188,765 tons ; Riverton group, 176,233 tons ; Zimmerman, 172,720 tons ; and Bristol (Claire), 172,034 tons. No other mine in this range shipped over 123,000 tons. The number of active mines was 41.

Marquette range—The Cleveland-Cliffs group shipped 673,160 tons ; Negaunee, 247,484 tons ; Queen group, 178,574 tons ; Cambria, 132,814 tons ; Richmond, 129,548 tons ; Lake Angeline, 128,073 tons ; Lloyd, 123,211 tons ; Rolling Mill, 98,010 tons ; and Stephenson, 93,795 tons. No other mine in this range shipped over 87,000 tons ; 25 mines were active.

Vermilion range—Zenith shipped 424,110 tons ; Pioneer, 282,559 tons ; Section 30, 85,943 tons ; Soudan, 74,972 tons ; Sibley, 74,868 tons ; and Savoy, 74,541 tons ; active mines, 6.

Cuyuna range—Armour No. 2 shipped 283,565 tons ; Kennedy, 179,885 tons ; Thompson, 178,202 tons ; and Rowe, 78,685 tons. No other mine in this range shipped over 52,000 gross tons. The number of active mines was 7.

MANGANESE ORE.

PRODUCTION, IMPORTS, AND CONSUMPTION OF MANGANESE ORE, GROSS TONS, 1889-1914.

Years.	Production.	Imports.	Approximate consumption.	Years.	Production.	Imports.	Approximate consumption.
1889.	24,197	4,286	28,483	1902.	7,477	235,576	243,053
1890.	19,287	34,154	53,441	1903.	2,825	146,056	148,881
1891.	22,452	28,825	51,277	1904.	3,146	108,519	111,665
1892.	13,613	58,572	72,185	1905.	4,118	257,033	261,151
1893.	7,718	68,113	75,831	1906.	6,921	221,260	228,181
1894.	6,308	44,655	50,963	1907.	5,604	209,021	214,625
1895.	9,547	86,111	95,658	1908.	6,144	178,203	184,347
1896.	10,088	31,489	41,577	1909.	1,544	212,765	214,309
1897.	11,108	119,961	131,069	1910.	2,258	242,348	244,606
1898.	15,957	114,885	130,842	1911.	2,457	176,852	179,309
1899.	9,935	188,349	198,284	1912.	1,664	300,661	302,325
1900.	11,771	256,252	268,023	1913.	4,048	345,090	349,138
1901.	11,995	165,722	177,717	1914.	2,635	283,294	285,929

PRODUCTION AND SHIPMENTS OF COAL.

PRODUCTION OF COAL BY STATES, NET TONS, 1910-1914.

[From Mineral Resources of the United States, U. S. Geological Survey.]

States.	1910.	1911.	1912.	1913.	1914.
Alabama.....	16,111,462	15,021,421	16,100,600	17,678,522	15,593,422
Arkansas.....	1,905,958	2,106,789	2,100,819	2,234,107	1,836,540
Cal., Id., Nev., Alaska.....	16,612	13,468	14,297	29,088	13,974
Colorado.....	11,973,736	10,157,383	10,977,824	9,232,510	8,170,559
Ga., North Car.	177,245	165,330	227,703	255,626	166,498
Illinois.....	45,900,246	53,679,118	59,885,226	61,618,744	57,589,197
Indiana.....	18,389,815	14,201,355	15,285,718	17,165,671	16,641,132
Iowa.....	7,928,120	7,331,648	7,289,529	7,525,936	7,451,022
Kansas.....	4,921,451	6,178,728	6,986,182	7,202,210	6,860,988
Kentucky.....	14,623,319	14,049,703	16,490,521	19,616,600	20,382,763
Maryland.....	5,217,125	4,685,795	4,964,038	4,779,839	4,133,547
Michigan.....	1,534,967	1,476,074	1,206,230	1,231,786	1,283,030
Missouri.....	2,982,433	3,836,107	4,339,856	4,318,125	3,935,980
Montana.....	2,920,970	2,976,358	3,048,495	3,240,973	2,805,173
New Mexico....	3,508,321	3,148,158	3,536,824	3,708,806	3,877,689
North Dakota..	399,041	502,628	499,480	495,320	506,685
Ohio.....	34,209,668	30,759,986	34,528,727	36,200,527	18,843,115
Oklahoma.....	2,646,226	3,074,242	3,675,418	4,165,770	3,988,613
Oregon.....	67,533	46,661	41,637	46,063	51,558
Penna. bitum...	150,521,526	144,561,257	161,865,488	173,781,217	147,983,294
South Dakota..	.....	.....	.....	10,540	11,850
Tennessee.....	7,121,380	6,433,156	6,473,228	6,860,184	5,943,258
Texas.....	1,892,176	1,974,593	2,188,612	2,429,144	2,323,773
Utah.....	2,517,809	2,513,175	3,016,149	3,254,828	3,103,036
Virginia.....	6,507,997	6,864,667	7,846,638	8,828,068	7,959,535
Washington....	3,911,899	3,572,815	3,360,932	3,577,891	3,064,820
West Virginia..	61,671,019	59,831,580	66,786,687	71,254,136	71,707,626
Wyoming.....	7,533,088	6,744,864	7,368,124	7,393,066	6,475,293
Total bitum..	417,111,142	405,907,059	450,104,982	478,435,297	422,703,970
Penna. anth..	84,485,236	90,464,067	84,361,598	91,524,922	90,821,507
Grand total..	501,596,378	496,371,126	534,466,580	569,960,219	513,525,477

Changing net to gross tons the output in 1914 amounted to 458,504,890 tons, of which 377,414,259 gross tons were bituminous and 81,090,631 gross tons were Pennsylvania anthracite.

As compared with 1913, there was a decrease in output in 1914 of 56,434,742 net tons, or 50,388,162 gross tons. In

bituminous coal the decrease amounted to 55,731,327 net or 49,760,113 gross tons, and in Pennsylvania anthracite to 703,415 net or 628,049 gross tons.

The anthracite production includes 2,828,010 net tons, or 2,525,009 gross tons, which were recovered from old culm banks by washeries, and 115,257 net tons, or 102,908 gross tons, which were recovered by dredges from the bed of the Susquehanna river.

TOTAL CONSUMPTION OF COAL.

The total exports of coal in 1914 amounted to 19,747,945 net tons, or 17,632,094 gross tons, and the imports for consumption to 1,563,524 net tons, or 1,396,004 gross tons; the total consumption in 1914, not counting stocks on hand at the beginning and end of the year, was 495,341,056 net tons, or 96.4 per cent. of the total domestic production in that year.

SHIPMENTS OF ANTHRACITE COAL AND CUMBERLAND COAL.

The shipments of anthracite coal from the Pennsylvania mines in 1914 were 68,342,601 gross tons, against 69,069,628 tons in 1913, 63,610,578 tons in 1912, 69,954,299 tons in 1911, 64,905,786 tons in 1910, 61,969,885 tons in 1909, and 64,665,014 tons in 1908. These figures were obtained from the Bureau of Anthracite Coal Statistics.

The shipments of Cumberland coal from the mines of Western Maryland and West Virginia in 1914 amounted to 6,046,901 gross tons, against 6,921,330 tons in 1913. The largest shipments were made in 1907, when they amounted to 7,360,336 tons. For the above statistics we are indebted to the Cumberland and Pennsylvania Railroad Company.

MONONGAHELA SHIPMENTS OF COAL AND COKE.

We are advised by the War Department that in the fiscal year ended June 30, 1914, there were shipped on the Monongahela river 9,468,585 net tons of coal and 1,875 tons of coke, against 11,061,338 tons of coal and 4,200 tons of coke in the fiscal year 1913. In the calendar year 1914 there were shipped 8,617,159 net tons of coal but no coke, as compared with 10,335,585 tons of coal and 3,750 tons of coke in the calendar year 1913.

PRODUCTION AND SHIPMENTS OF COKE.

PRODUCTION OF COKE BY STATES, NET TONS, 1910-1914.

[From Mineral Resources of the United States, U. S. Geological Survey.]

States.	1910.	1911.	1912.	1913.	1914.
Pennsylvania...	26,315,607	21,923,935	27,438,693	28,753,444	20,258,393
Alabama.....	3,249,027	2,761,521	2,975,489	3,323,664	3,084,149
Indians.....	*.....	916,411	2,616,339	2,727,025	2,276,652
West Virginia..	3,803,850	2,291,049	2,465,986	2,472,752	1,427,962
Illinois.....	1,514,504	1,610,212	1,764,944	1,859,553	1,425,168
Virginia.....	1,493,655	910,411	967,947	1,303,603	780,984
Colorado.....	†1,346,211	951,748	972,941	879,461	666,083
New York.....	652,459	686,172	794,618	758,486	457,370
New Mexico...	401,646	381,927	413,906	467,945	362,572
Tennessee.....	322,756	330,418	370,076	364,578	264,127
Ohio.....	282,315	311,382	388,669	351,846	521,638
Kentucky.....	53,857	66,099	191,555	317,084	443,959
New Jersey....	*.....	*.....	270,429	255,792	255,283
Washington....	59,337	40,180	49,260	76,221	84,923
Georgia.....	43,814	37,553	43,158	42,747	24,517
Other States...	2,169,772	2,332,471	2,259,589	2,345,329	2,222,134
Total..Net tons.	41,708,810	35,551,489	43,983,599	46,299,530	34,555,914

* Production included with "other States." † Includes Utah.

At the close of 1914 there were 99,755 completed ovens in the United States, against 102,650 at the end of 1913. Of the total production of coke in 1914, 23,335,971 net tons, or 67.5 per cent., were made in bee-hive ovens, and 11,219,943 tons, or 32.5 per cent., in the various types of retort ovens. In 1913 there were 33,584,830 tons of coke, or 72.5 per cent., made in bee-hive ovens, and 12,714,700 tons, or 27.5 per cent., in retort ovens.

SHIPMENTS AND PRODUCTION OF CONNELLSVILLE COKE.

The Connells ville *Courier* reports that the total shipments of coke from the Connells ville region in 1914 show a decrease as compared with 1913 of 6,022,263 net tons, or 29.9 per cent. The *Courier* includes in the Connells ville region the two districts which produce Connells ville coke, and which the United States Geological Survey classifies as Connells ville and Lower Connells ville, the former shipping 7,914,935 tons in 1914 and the latter 6,160,703 tons. The *Courier* does not include the shipments and production of coke from the ovens north of Latrobe,

known as the Latrobe or Upper Connellsville district, nor from the ovens in the Greensburg basin, known as the Greensburg-Connellsville district.

The total production of coke in the Connellsville region in 1914 is reported by the *Courier* as having amounted to 14,001,435 net tons, shipments having exceeded production by 74,203 tons. Of the total output in 1914, 5,391,962 tons were made by merchant ovens and 8,609,473 tons by furnace ovens.

NUMBER OF OVENS, SHIPMENTS, AND AVERAGE PRICES OF CON-
NELLVILLE COKE, 1880-1914.

[From statistics gathered by the Connellsville Courier.

Calendar years.	Total ovens.	Shipments. Net tons.	Average price.	Calendar years.	Total ovens.	Shipments. Net tons.	Average price.
1880....	7,211	2,205,946	\$1.79	1898....	18,643	8,460,112	\$1.55
1881....	8,208	2,639,002	1.63	1899....	19,689	10,129,764	2.00
1882....	9,283	3,043,394	1.47	1900....	20,954	10,166,234	2.70
1883....	10,176	3,552,402	1.14	1901....	21,575	12,609,949	1.95
1884....	10,543	3,192,105	1.13	1902....	26,329	14,138,740	2.37
1885....	10,471	3,096,012	1.22	1903....	28,092	13,345,230	3.00
1886....	10,952	4,180,521	1.36	1904....	29,119	12,427,468	1.75
1887....	11,923	4,146,989	1.79	1905....	30,842	17,896,526	2.26
1888....	13,975	4,955,553	1.19	1906....	34,059	19,999,326	2.75
1889....	14,458	5,930,428	1.34	1907....	35,697	19,029,058	2.90
1890....	16,020	6,464,156	1.94	1908....	37,842	10,700,022	1.80
1891....	17,204	4,760,665	1.87	1909....	39,158	17,785,832	2.00
1892....	17,256	6,329,452	1.83	1910....	39,137	18,689,722	2.10
1893....	17,513	4,805,623	1.49	1911....	38,904	16,334,174	1.72
1894....	17,834	5,454,451	1.00	1912....	38,884	20,000,873	1.92
1895....	17,947	8,244,438	1.23	1913....	39,067	20,097,901	2.95
1896....	18,351	5,411,602	1.90	1914....	37,965	14,075,638	2.00
1897....	18,628	6,915,052	1.65	.....	.....	.....	.....

SHIPMENTS OF POCAHONTAS COKE.

The shipments of Pocahontas Flat Top coke in 1914, for which we are indebted to the Norfolk and Western Railway Company, amounted to 789,800 net tons, against 1,280,638 tons in 1913, 1,284,954 tons in 1912, and 1,323,387 tons in 1911. Of the shipments in 1914, 788,086 tons were line trade and 1,714 tons were tidewater, while in 1913, 1,253,433 tons were line trade and 27,205 tons were tidewater.

MISCELLANEOUS PRODUCTION STATISTICS.

In 1914, Allegheny county made 47.9 per cent. of the total production of pig iron in Pennsylvania and 19.9 per cent. of the country's total production ; 49 per cent. of the total production of steel ingots and castings in Pennsylvania and 24.8 per cent. of the country's total production ; 41.1 per cent. of the rail production in Pennsylvania and 12.5 per cent. of the country's total production ; 47.1 per cent. of the production of structural shapes in Pennsylvania and 34.7 per cent. of the country's total production ; 41.5 per cent. of the production of plates and sheets in Pennsylvania and 21.2 per cent. of the total production ; 63.6 per cent. of the production of merchant bars in Pennsylvania and 29.5 per cent. of the country's total production ; 76.3 per cent. of the production of skelp in Pennsylvania and 34 per cent. of the country's total production ; and 46.2 per cent. of the production of all kinds of finished rolled iron and steel in Pennsylvania and 22.8 per cent. of the country's total production.

PRODUCTION OF IRON AND STEEL IN ALLEGHENY COUNTY, PENNSYLVANIA, GROSS TONS, 1901-1904.

Details.	1901.	1902.	1903.	1904.
Furnaces built and building...No.	37	40	41	42
Consumption of limestone.....	1,625,152	1,906,974	1,860,026	1,892,735
Production of pig iron.....	3,690,011	4,260,769	4,211,569	4,383,169
Rolling mills and steel works...No.	63	66	65	64
Production of Bessemer steel.....	2,883,595	3,094,175	2,748,833	2,487,412
Production of open-hearth steel....	2,199,191	2,503,245	2,604,349	2,737,560
Production of all other steel.....	56,053	62,888	51,195	36,408
Total production of steel.....	5,138,839	5,660,308	5,404,377	5,261,380
Production of all kinds of rails....	711,031	712,286	749,953	586,210
Production of structural shapes....	617,308	773,144	689,849	601,025
Production of plates and sheets....	850,285	1,010,650	945,327	839,015
Production of other rolled products	1,816,587	1,977,179	1,797,795	1,707,545
Production of all rolled products...	3,995,211	4,473,259	4,182,924	3,733,795

PRODUCTION OF IRON AND STEEL IN ALLEGHENY COUNTY, PENNSYLVANIA, FROM 1905 TO 1914.

Details.	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.
	Gross tons.	Gross tons.	Gross tons.	Gross tons.	Gross tons.	Gross tons.	Gross tons.	Gross tons.	Gross tons.	Gross tons.
Furnaces built and building. No.	42	47	47	47	47	47	47	47	47	47
Consumption of—										
Iron ore.....	Not ascertained	ained prior to 1908.								
Mill clinder, scale, etc.	Not ascertained	d prior to 1909.								
Limestone.....	2,356,803	2,570,646	2,500,321	1,926,667	2,643,550	2,680,176	2,656,811	3,242,709	3,065,549	2,388,397
Production of pig iron.....	5,410,890	5,702,721	5,438,233	3,917,338	5,497,372	5,330,982	5,116,442	6,107,226	5,999,539	4,665,893
Rolling mills and steelworks. No.	65	67	66	64	64	65	66	65	65	62
Production of—										
Bessemer steel.....	3,137,883	3,255,064	2,972,286	1,361,895	1,804,729	2,003,141	1,442,286	1,977,970	1,824,479	1,221,220
Open-hearth steel.....	3,410,482	3,799,907	3,883,014	3,106,797	4,849,366	5,099,464	4,980,426	5,777,672	5,809,778	4,610,274
All other steel.....	44,752	50,530	50,290	20,764	36,798	43,106	28,661	30,813	34,964	22,920
Total steel.....	6,593,117	7,105,501	6,905,590	4,489,456	6,690,893	7,145,711	6,451,373	7,786,455	7,669,221	5,854,414
Production of—										
All kinds of rails.....	743,612	851,419	770,333	269,719	483,026	534,511	427,140	380,255	401,984	243,889
Structural shapes.....	881,932	1,054,747	889,066	463,761	907,569	950,848	717,819	1,062,735	1,145,870	705,250
Plates and sheets.....	1,232,705	1,300,873	1,346,517	715,164	1,118,939	1,341,343	1,113,794	1,426,310	1,401,321	1,004,915
Merchant bars.....	968,839	1,205,498	1,185,228	483,514	994,522	1,229,768	812,026	1,231,859	1,167,902	744,626
Skelp.....	527,651	457,514	516,264	426,883	684,303	579,573	606,497	772,201	751,963	674,257
Other rolled products.....	715,832	815,966	930,822	500,189	952,499	1,041,494	826,876	*1,141,745	*1,154,745	*818,674
Total rolled products.....	5,070,571	5,686,017	5,638,230	2,859,230	5,140,858	5,677,537	4,504,152	*6,015,105	*6,023,785	*4,191,611

* Includes blooms, billets, sheet bars, tinplate bars, and other semi-finished forms rolled for export not included in prior years.

COMPARATIVE PRODUCTION OF LEADING IRON AND STEEL PRODUCTS BY THE UNITED STATES STEEL CORPORATION AND ALL OTHER COMPANIES FROM 1901 TO 1914.

Years.	PRODUCTION OF PIG IRON.				PRODUCTION OF STEEL INGOTS AND STEEL CASTINGS.				PRODUCTION OF ALL KINDS OF FINISHED ROLLED PRODUCTS.			
	Corporation.	All other.	Total.	Per cent. of Corp.	Corporation.	All other.	Total.	Per cent. of Corp.	Corporation.	All other.	Total.	Per cent. of Corp.
1901..	6,855,731	9,022,623	15,878,354	43.2	8,854,820	4,618,775	13,473,595	65.7	6,189,958	6,159,369	12,349,327	50.1
1902..	7,975,530	9,845,777	17,821,307	44.8	9,750,386	5,196,864	14,947,250	65.2	7,157,882	6,786,234	13,944,116	51.3
1903..	7,279,241	10,730,011	18,009,252	40.4	9,173,870	5,361,108	14,534,978	63.1	6,756,071	6,451,626	13,207,697	51.2
1904..	7,369,421	9,127,612	16,497,033	44.7	8,412,555	5,447,332	13,859,887	60.7	5,743,398	6,269,983	12,013,381	47.8
1905..	10,172,148	12,820,232	22,992,380	44.2	12,006,381	8,017,566	20,023,947	60.0	7,978,955	8,861,060	16,840,015	47.4
1906..	11,267,377	14,039,814	25,307,191	44.5	13,529,199	9,868,937	23,398,136	57.8	9,432,946	10,155,522	19,588,468	48.2
1907..	*11,422,795	14,358,566	25,781,361	44.3	*13,343,019	10,019,575	23,362,594	57.1	*9,629,484	10,235,338	19,864,822	48.5
1908..	6,934,408	9,001,610	15,936,018	43.5	7,838,713	6,184,534	14,023,247	55.9	5,571,528	6,256,665	11,828,193	47.1
1909..	11,618,350	14,177,121	25,795,471	45.0	13,355,189	10,599,832	23,955,021	55.8	9,605,306	10,039,384	19,644,690	48.9
1910..	11,831,398	15,472,169	27,303,567	43.3	14,179,369	11,915,550	26,094,919	54.3	10,393,925	11,227,354	21,621,279	48.1
1911..	10,744,897	12,904,650	23,649,547	45.4	12,753,370	10,922,736	23,676,106	53.9	8,703,824	10,335,347	19,039,171	45.7
1912..	14,186,164	15,540,773	29,726,937	47.7	16,901,223	14,350,080	31,251,303	54.1	11,964,792	12,692,049	24,656,841	48.5
1913..	14,080,730	16,885,422	30,966,152	45.5	16,656,361	14,644,513	31,300,874	53.2	11,853,639	12,937,604	24,791,243	47.8
1914..	10,052,457	13,279,787	23,332,244	43.1	11,826,476	11,686,554	23,513,030	50.3	8,101,228	10,268,968	18,370,196	44.1

* For this and all subsequent years the production of the Tennessee Coal, Iron, and Railroad Company is included.

PERCENTAGE OF PRODUCTION OF THE UNITED STATES STEEL CORPORATION IN 1913.

Products.	Production U. S. Steel Corporation.	Production all other companies.	Total production.	Percentage U. S. Steel Corporation.
Shipments of iron ore from the Lake Superior region in 1913*..... Gross tons.	25,202,084	24,745,032	49,947,116	50.46
Total production of iron ore in the United States in 1913..... Gross tons.	28,738,451	33,241,986	61,980,437	46.37
Production of coke in 1913..... Net tons.	16,663,480	29,636,050	46,299,530	35.99
Spiegeleisen and ferro-manganese.....	184,731	45,102	229,833	80.38
Bessemer, basic, low-phosphorus, foundry, forge, ferro-silicon, etc.....	13,895,999	16,840,320	30,736,319	45.21
Total pig iron, including spiegeleisen, ferro-manganese, ferro-silicon, etc..... Gross tons.	14,080,730	16,885,422	30,966,152	45.47
Total production of steel ingots and castings..... Gross tons.	16,656,361	14,644,513	31,300,874	53.21
Steel rails, including Bessemer, open-hearth, electric, rerolled, renewed, etc.....	1,944,352	1,558,428	3,502,780	55.51
Structural shapes.....	1,623,669	1,381,303	3,004,972	54.03
Plates and sheets, including black plates for tinning.....	2,825,546	2,925,491	5,751,037	49.13
Wire rods.....	1,440,552	1,024,255	2,464,807	58.44
Other finished rolled products, including nail plate, merchant bars, rolled forging blooms and billets, semi-finished products rolled for export, etc.....	4,019,520	6,048,127	10,067,647	39.93
Total of the rolled products enumerated above..... Gross tons.	11,853,639	12,937,604	24,791,243	47.81
Wire nails.....	6,041,330	7,518,397	13,559,727	44.55
Tinplates and terne plates..... Gross tons.	483,002	340,717	823,719	58.64

* In this line shipments are given instead of production.

PERCENTAGE OF PRODUCTION OF THE UNITED STATES STEEL CORPORATION IN 1914.

Products.	Production U. S. Steel Corporation.	Production all other companies.	Total production.	Percentage U. S. Steel Corporation.
Shipments of iron ore from the Lake Superior region in 1914*.....Gross tons.	16,740,059	15,989,667	32,729,726	51.15
Total production of iron ore in the United States in 1914.....Gross tons.	17,034,981	24,404,780	41,439,761	41.11
Production of coke in 1914.....Net tons.	11,173,914	23,382,000	34,555,914	32.34
Spiegeleisen and ferro-manganese.....	129,743	56,275	186,018	69.75
Bessemer, basic, low-phosphorus, foundry, forge, ferro-silicon, etc.....	9,922,714	13,223,512	23,146,226	42.87
Total pig iron, including spiegeleisen, ferro-manganese, ferro-silicon, etc..Gross tons.	10,052,457	13,279,787	23,332,244	43.08
Total production of steel ingots and castings.....Gross tons.	11,826,476	11,686,554	23,513,030	50.30
Steel rails, including Bessemer, open-hearth, electric, rerolled, renewed, etc.....	985,082	960,013	1,945,095	50.64
Structural shapes.....	965,208	1,065,916	2,031,124	47.52
Plates and sheets, including black plates for tinning.....	2,023,270	2,695,976	4,719,246	42.87
Wire rods.....	1,383,859	1,047,855	2,431,714	56.91
Other finished rolled products, including nail plate, merchant bars, rolled forging blooms and billets, semi-finished products rolled for export, etc.....	2,743,809	4,499,208	7,243,017	37.88
Total of the rolled products enumerated above.....Gross tons.	8,101,228	10,268,968	18,370,196	44.10
Wire nails.....Kegs of 100 pounds.	6,111,120	7,021,694	13,132,814	46.53
Tinplates and terne plates.....Gross tons.	498,863	432,378	931,241	53.57

* In this line shipments are given instead of production.

IMPORTS AND EXPORTS.

For statistics of imports and exports we are chiefly indebted to the Bureau of Foreign and Domestic Commerce.

IMPORTS OF IRON ORE.

IMPORTS OF IRON ORE, CALENDAR YEARS, 1879-1914.

Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.
1879..	284,141	1888..	587,470	1897..	489,970	1906..	1,060,390
1880..	493,408	1889..	853,573	1898..	187,093	1907..	1,229,168
1881..	782,887	1890..	1,246,830	1899..	674,082	1908..	776,898
1882..	589,655	1891..	912,856	1900..	897,831	1909..	1,694,957
1883..	490,875	1892..	806,585	1901..	966,950	1910..	2,591,031
1884..	487,820	1893..	526,951	1902..	1,165,470	1911..	1,811,732
1885..	390,786	1894..	168,541	1903..	980,440	1912..	2,104,576
1886..	1,039,433	1895..	524,153	1904..	487,613	1913..	2,594,770
1887..	1,194,301	1896..	682,806	1905..	845,651	1914..	1,351,368

IMPORTS OF IRON ORE BY CUSTOMS DISTRICTS, 1912-1914.

Customs districts.	1912.		1913.		1914.	
	Tons.	Values.	Tons.	Values.	Tons.	Values.
Maryland....	840,488	\$2,359,765	1,076,452	\$3,186,388	514,878	\$1,431,539
New York....	826	3,191	19,336	60,404	23,370	97,707
Philadelphia.	1,229,737	4,072,776	1,393,296	4,809,961	762,958	2,769,599
Ohio.....	28,958	50,677	92,672	222,703	37,566	108,545
All other....	4,567	13,281	13,014	57,363	12,596	103,960
Total.....	2,104,576	\$6,499,690	2,594,770	\$8,336,819	1,351,368	\$4,511,350

IMPORTS OF IRON ORE BY COUNTRIES, GROSS TONS, 1912-1914.

Countries.	1912.		1913.		1914.	
	Tons.	Values.	Tons.	Values.	Tons.	Values.
Cuba.....	1,398,593	\$3,969,986	1,635,622	\$4,864,186	815,017	\$2,288,102
Spain.....	92,061	222,951	112,580	488,798	66,982	233,287
Greece.....			9,200	12,952		
Newfoundland..	145,355	217,087	213,468	325,230	38,515	57,681
United Kingdom	10,229	20,587	10,431	24,726	3,443	80,332
Germany.....	1,729	5,602	1,323	6,223	2,256	9,222
Canada.....	106,675	201,882	179,860	409,098	52,514	153,415
Sweden.....	333,863	1,781,579	356,074	1,901,988	280,887	1,481,747
Russia in Europe	3,916	16,709				
French Africa...			12,950	32,299	46,175	114,781
Other countries..	12,155	63,307	63,262	271,319	45,579	92,783
Total.....	2,104,576	\$6,499,690	2,594,770	\$8,336,819	1,351,368	\$4,511,350

The imports of iron ore from "other countries" in 1914 include 35,180 tons, valued at \$41,760, from Chile ; 6,050 tons, valued at \$40,039, from French Oceania ; 2,400 tons, valued at \$3,600, from Venezuela ; 1,948 tons, valued at \$7,376, from France ; and 1 ton, valued at \$8, from Austria-Hungary.

IMPORTS AND EXPORTS OF COAL AND COKE.

The imports of anthracite coal in 1914 amounted to 19,347 gross tons, against 921 tons in 1913. Of the anthracite coal imported in 1914, 15,902 tons came from Canada, 2,340 tons from Australia, and 1,105 tons from Japan. Our imports of bituminous coal in 1914 amounted to 1,375,316 gross tons, against 1,413,857 tons in 1913. From Canada we imported 1,050,592 tons of bituminous coal in 1914 ; from Australia and Tasmania, 219,941 tons ; from Japan, 75,109 tons ; from the United Kingdom, 27,421 tons ; and from other countries, 2,253 tons.

The imports of coke in 1914 amounted to 135,270 net tons, against 104,728 net tons in 1913.

In 1914 the exports of anthracite coal amounted to 3,830,244 gross tons, against 4,154,386 tons in 1913. The exports of bituminous coal in 1914 amounted to 13,801,850 tons, against 17,986,757 tons in 1913. The total exports of coal in 1914 amounted to 17,632,094 tons, against 22,141,143 tons in 1913. Coal used by vessels engaged in foreign trade is not included.

Of the anthracite coal exported in 1914, 3,767,774 gross tons were sent to Canada, 15,250 tons to Newfoundland, 1,380 tons to Mexico, 5,139 tons to Santo Domingo, 2,553 tons to Bermuda, and 1,019 tons to Venezuela.

Of the bituminous coal exported, 9,170,901 tons were sent to Canada, 984,223 tons to Italy, 1,074,825 tons to Cuba, 552,600 tons to other islands in the West Indies and to Bermuda, 359,802 tons to Mexico, 278,026 tons to Brazil, 267,598 tons to Panama, 241,248 tons to Argentina, 94,797 tons to Egypt, and 93,183 tons to French Africa.

The exports of coke in 1914 amounted to 663,585 net tons, against 987,395 net tons in 1913.

IMPORTS AND EXPORTS OF PIG IRON, SPIEGEL-EISEN, FERRO-MANGANESE, ETC.

IMPORTS OF PIG IRON, SPIEGELEISEN, FERRO-MANGANESE, AND FERRO-SILICON, GROSS TONS, 1909-1914.

Countries.	1909.	1910.	1911.	1912.	1913.	1914.
Austria-Hungary.....	1,973	6,069	590	400	340	899
Germany.....	3,185	7,417	4,286	5,924	8,358	10,609
Netherlands.....	7,137	15,737	9,719	492	460	2,539
United Kingdom.....	151,563	182,082	114,947	110,526	132,921	91,639
Canada.....	2,844	3,175	4,260	4,998	4,609	25,968
China.....	4,836	13,924	11,857	1,750	3,017	1,485
Other countries.....	4,904	8,829	2,800	5,235	6,745	5,764
Total.....	176,442	237,233	148,459	129,325	156,450	138,903

In addition to the countries named above we imported 2,329 gross tons of pig iron from Sweden in 1914, 1,315 tons from Belgium, France, and other Europe, 1,310 tons from British India, and 810 tons from Newfoundland, Peru, Hongkong, Japan, and Australia and Tasmania.

EXPORTS OF PIG IRON TO FOREIGN COUNTRIES, GROSS TONS, CALENDAR YEARS, 1910-1914.

Countries.	1910.	1911.	1912.	1913.	1914.
Canada.....	115,642	98,293	208,581	193,396	57,852
Austria-Hungary.....	1,050	.....	14,806	4,601	1,150
Italy.....	3,027	7,710	11,954	24,551	14,288
United Kingdom.....	3,994	8,526	25,617	21,394	18,161
Australia and Tasmania.	25	4	.....	14,354	10,099
Japan.....	.....	730	.....	2,293	2,938
Netherlands.....	.....	10	140	1,516	1,467
Argentina.....	.....	.....	.....	792	1,042
Germany.....	336	293	2,403	1,723	749
Belgium.....	189	622	1,098	4,715	1,219
France.....	48	202	827	752	397
Denmark.....	.....	125	168	48	.....
Mexico.....	719	444	804	85	454
Panama.....	400	1,079	1,606	3,921	7 3
Cuba.....	733	1,122	734	646	593
Brazil.....	.....	.....	50	1,305	575
Chile.....	100	600	1,964	690	1,875
Peru.....	550	875	835	172	200
Philippines.....	407	.....	259	54	57
Other countries.....	165	164	230	640	564
Total.....	127,385	120,799	272,676	277,648	114,423

In 1914, the "other countries" to which pig iron was exported were Portugal, 50 tons; Costa Rica, 18 tons; Honduras, 8 tons; Nicaragua, 313 tons; Colombia, 10 tons; Uruguay, 100 tons; and Venezuela, 65 tons.

IMPORTS FOR CONSUMPTION OF SPIEGELEISEN AND FERRO-MANGANESE, 1903-1914.

Calendar years.	Spiegeleisen—Gross tons.			Ferro-manganese—Gross tons.		
	Tons.	Values.	Average value per ton.	Tons.	Values.	Average value per ton.
1903.....	122,016	\$2,709,317	\$22.20	41,518	\$1,699,666	\$40.94
1904.....	4,623	132,461	28.65	21,814	707,037	32.41
1905.....	55,457	1,336,104	24.09	52,841	1,884,651	35.67
1906.....	103,267	2,942,940	28.50	84,359	4,953,644	58.72
1907.....	48,995	1,399,381	28.56	87,400	5,354,656	61.27
1908.....	4,579	125,054	27.31	44,624	1,860,664	41.70
1909.....	16,921	353,447	20.89	88,934	3,396,381	38.19
1910.....	25,383	489,049	19.27	114,278	4,341,071	37.99
1911.....	20,970	405,444	19.33	80,263	3,015,062	37.56
1912.....	1,015	28,094	27.68	99,137	3,906,920	39.41
1913.....	77	2,173	28.22	128,070	5,682,915	44.37
1914.....	2,870	71,147	24.79	82,217	3,592,089	43.69

IMPORTS FOR CONSUMPTION OF FERRO-SILICON AND PIG IRON, 1903-1914.

Calendar years.	Ferro-silicon—Gross tons.			Bessemer, basic, foundry, forge, etc., pig iron—Gross tons.		
	Tons.	Values.	Average value per ton.	Tons.	Values.	Average value per ton.
1903.....	14,880	\$379,900	\$25.53	414,981	\$6,302,604	\$15.19
1904.....	3,691	184,229	49.91	49,219	730,582	14.84
1905.....	11,044	558,906	50.61	93,124	1,406,123	15.10
1906.....	11,863	788,085	66.43	174,540	2,950,610	16.90
1907.....	14,825	1,049,283	70.78	328,672	5,409,540	16.46
1908.....	5,532	281,590	50.90	32,784	558,796	17.04
1909.....	12,802	504,821	39.43	57,831	910,584	15.75
1910.....	11,391	527,157	46.28	93,740	1,489,710	15.89
1911.....	6,659	341,681	51.31	38,685	586,403	15.16
1912.....	7,489	446,456	59.61	18,386	318,208	17.31
1913.....	7,208	449,871	62.41	23,586	450,910	19.12
1914.....	6,149	341,925	55.61	39,213	588,252	15.00

IMPORTS AND EXPORTS OF IRON AND STEEL.

IMPORTS OF IRON AND STEEL, GROSS TONS, CALENDAR YEARS,
1913-1914.

Articles.	1913.		1914.	
	Tons.	Values.	Tons.	Values.
Pig iron, spiegel., ferro-mang., etc..	156,450	\$6,557,095	138,903	\$4,666,668
Scrap and old iron and steel	44,154	510,707	34,849	277,818
Bar iron	28,243	1,340,184	15,015	625,365
Iron and steel rails	10,408	216,272	22,571	610,037
Steel ingots, billets, blooms, etc....	26,675	3,505,463	40,189	2,943,047
Sheets and plates	2,893	381,593	4,310	514,080
Building forms and all other structural shapes	11,659	377,122	10,145	344,809
Tinplates, terne plates, and tag. tin	20,680	1,478,635	15,411	1,049,297
Wire rods of iron or steel	16,098	802,401	6,954	373,615
Anti-friction balls and bearings		2,389,275		1,673,841
Wire and articles made from		1,167,368		1,205,456
Cutlery		2,271,051		2,716,588
Shotgun barrels, in single tubes....		160,219		85,714
Machinery, machines, and parts of		6,105,646		6,176,450
Needles, hand sewing, darning, etc.		489,067		511,801
Hoop or band iron, for baling			*648	23,702
Other iron and steel manufactures		5,849,887		4,817,056
Total tons where specified . . .	317,260	\$33,601,985	288,995	\$28,615,344

* Figures cover period since July 1, 1914.

EXPORTS OF IRON AND STEEL, 1913-1914.

The following table gives our exports of iron and steel and manufactures thereof in the calendar years 1913 and 1914. The value of the exports of electrical machinery, which prior to 1912 the Bureau of Foreign and Domestic Commerce had included with the value of the exports of iron and steel, is not included in the total value for either 1913 or 1914.

In 1914, 35,291 tons of steel ingots, billets, and blooms were exported to the United Kingdom, 14,325 tons to Canada, and 880 tons to other countries. Of the wire exported the leading purchasers were Canada, British Oceania, British Africa, Brazil, Cuba, Argentina, and Mexico. Of the iron ore exported, 551,616 tons were sent to Canada, as compared with 1,042,129 tons in 1913.

EXPORTS OF IRON AND STEEL, CALENDAR YEARS, 1913-1914.

Articles—Gross tons except where otherwise stated.	1913.		1914.	
	Tons.	Values.	Tons.	Values.
Pig iron.....	277,648	\$4,026,306	114,423	\$1,638,102
Scrap and old iron and steel...	97,429	1,276,558	33,134	386,208
Bar iron.....	16,615	768,501	5,226	203,835
Steel wire rods.....	61,637	1,815,922	61,856	1,810,389
Steel bars or rod except wire rods	211,716	7,554,223	123,009	4,612,197
Steel rails.....	460,553	13,979,549	174,680	5,103,918
Billets, ingots and blooms....	91,847	2,200,248	50,496	1,103,702
Iron sheets and plates.....	98,978	6,568,413	48,017	3,128,184
Steel sheets and plates.....	364,448	14,472,711	232,078	9,308,312
Structural iron and steel.....	403,264	17,790,744	182,395	6,961,636
Hoop, band, and scroll.....	16,841	767,631	9,954	457,451
Tin plates, terne plates, tag. tin	57,812	4,608,551	59,549	4,337,779
Bolts, nuts, rivets, and washers	22,737	1,855,502	15,127	1,234,440
Horseshoes.....	1,247	101,985	5,903	748,136
Wire, barbed.....	82,051	4,267,476	93,847	4,633,348
Wire, all other.....	108,233	4,970,065	87,022	3,935,241
Cut nails and cut spikes.....	3,790	165,068	3,423	142,285
Railroad spikes.....	11,329	483,283	6,915	258,808
Wire nails and wire spikes....	43,637	2,114,186	36,124	1,603,904
All other nails, including tacks	3,969	434,498	3,182	401,319
Pipes and fittings.....	301,790	17,999,990	199,622	11,020,557
Radiators, etc.....	8,064	654,071	3,572	278,775
Car-wheels..... No.	73,402	592,698	27,571	199,821
Cash registers and parts of No.	46,776	4,535,069	31,929	3,267,829
Safes..... No.	8,437	357,923	5,435	259,542
Locomotives—steam & elec. No.	529	4,726,272	332	3,086,914
Stationary engines..... No.	26,281	4,073,422	19,308	2,424,433
Traction engines..... No.	2,565	4,982,798	584	1,217,379
All other engines and parts of..	.....	8,341,745	.....	5,922,539
Castings not elsewhere spec. .	.....	3,150,544	.....	1,660,768
Cutlery.....	.....	1,178,902	.....	958,700
Fire-arms.....	.....	3,920,008	.....	5,146,867
Locks, hinges, etc.....	.....	6,315,468	.....	4,842,158
Saws.....	.....	1,612,349	.....	1,158,122
Tools not elsewhere specified..	.....	10,704,737	.....	7,587,592
Laundry machinery.....	.....	1,121,319	.....	795,838
Metal-working machinery.....	.....	15,558,212	.....	14,841,380
Mining machinery.....	.....	10,885,070	.....	7,216,445
Printing presses.....	.....	2,659,663	.....	1,937,056
Pumps and pumping machinery	.....	4,004,225	.....	2,939,734
Sewing machines.....	.....	11,851,020	.....	8,658,762
Shoe machinery.....	.....	1,732,709	.....	1,140,228
Typewriting machines.....	.....	11,054,397	.....	7,573,145
Windmills.....	.....	1,595,778	.....	1,085,730
Wood-working machinery.....	.....	2,351,271	.....	1,355,415
All other machinery.....	.....	38,507,910	.....	28,355,837
Scales and balances.....	.....	1,187,596	.....	833,185
Stoves, ranges, and parts of...	.....	1,992,193	.....	1,532,098
All other mfrs. of iron and steel	.....	26,065,381	.....	20,555,641
Total tons where specified.	2,745,635	\$293,934,160	1,549,554	\$199,861,684

Of the steam locomotives exported in 1914, 22 were sent to Brazil, 37 to Canada, 2 to Mexico, 50 to Cuba, 25 to the Central American States and British Honduras, 20 to Europe, 2 to Argentina, 48 to South American States other than Brazil and Argentina, 16 to China, 4 to Japan, and 43 to other countries.

EXPORTS OF FERRO-VANADIUM, 1913-1914.

In addition to the exports of iron and steel given in the table there were sent to foreign countries in the 12 months of 1914, 770,079 pounds of ferro-vanadium, valued at \$640,948, against 604,287 pounds, valued at \$455,417, in the 12 months of 1913.

EXPORTS OF LEADING ARTICLES OF IRON AND STEEL, GROSS TONS, CALENDAR YEARS, 1910-1914.

Articles.	1910.	1911.	1912.	1913.	1914.
Pig iron.....	127,385	120,799	272,676	277,648	114,423
Scrap and old iron and steel..	25,825	77,918	105,965	97,429	33,134
Bar iron.....	18,045	17,683	21,926	16,615	5,226
Steel wire rods.....	22,869	22,641	64,978	61,637	61,856
Steel bars or rod and wire rods..	107,561	123,349	208,213	211,716	123,009
Steel rails.....	353,180	420,874	446,473	460,553	174,680
Rillets, ingots, and blooms...	58,230	234,267	294,818	91,847	50,496
Iron sheets and plates.....	102,534	134,949	193,719	98,978	48,017
Steel sheets and plates.....	171,987	237,424	352,802	364,448	232,078
Structural iron and steel.....	146,721	223,493	288,164	403,264	182,395
Hoop, band, and scroll.....	.....	3,731	12,557	16,841	9,954
Tinplates, terne plates, tag, tin	12,445	61,381	81,694	57,812	59,549
Bolts, nuts, rivets, and washers	.....	.....	9,986	22,737	15,127
Horseshoes.....	.....	.....	510	1,247	5,903
Wire, barbed.....	79,461	96,754	96,059	82,051	93,847
Wire, all other.....	92,467	133,008	148,653	108,233	87,022
Cut nails and cut spikes...	8,129	11,422	9,311	3,790	3,423
Railroad spikes.....	.....	.....	6,807	11,329	6,915
Wire nails and wire spikes...	42,870	53,614	68,319	43,637	36,124
All other nails, including tacks	10,202	12,848	8,198	3,969	3,182
Pipes and fittings.....	155,778	197,507	249,856	301,790	199,622
Radiators, etc.....	2,254	4,063	5,912	8,064	3,572
Total .....Gross tons.	1,537,943	2,187,725	2,947,596	2,745,635	1,549,554

Exports of "radiators and cast-iron house-heating boilers" were not separately stated prior to July 1, 1910; exports of "hoop, band, and scroll iron or steel" were included with all other manufactures of iron and steel from July 1, 1910, to June 30, 1911; and exports of "bolts, nuts, rivets, and washers," "horseshoes," and "railroad spikes" were not separately stated prior to July 1, 1912.

EXPORTS OF STEEL RAILS, CALENDAR YEARS, 1910-1914.

Countries.	1910.	1911.	1912.	1913.	1914.
Canada.....	25,341	88,047	133,351	161,971	23,171
Cent. America and Brit. Hond....	17,927	14,839	15,935	12,418	15,011
Mexico.....	63,082	35,152	32,402	13,907	960
West Indies and Bermuda.....	41,029	35,892	47,889	32,954	23,608
Argentina.....	64,370	57,385	13,574	41,181	5,004
Brazil.....	18,400	28,601	45,951	41,215	21,037
Other South America.....	16,384	41,596	54,465	33,525	11,699
Japan.....	17,977	49,775	54,247	20,820	15,809
Other Asia and Oceania.....	80,080	57,550	31,387	90,405	43,806
Other countries.....	8,590	12,037	17,272	12,157	14,575
Total..... Gross tons.	353,180	420,874	446,473	460,553	174,680

EXPORTS OF STRUCTURAL SHAPES, CALENDAR YEARS, 1909-1914.

Countries.	1909.	1910.	1911.	1912.	1913.	1914.
Canada.....	42,715	74,855	103,054	169,952	275,184	112,014
Panama.....	11,792	7,787	28,881	41,536	28,514	11,018
Mexico.....	8,317	21,723	19,665	3,257	11,282	1,616
Cuba.....	5,849	10,557	16,052	14,587	16,288	12,459
South America.....	6,014	12,681	13,073	13,537	29,543	19,025
Japan.....	5,848	4,007	19,536	17,191	8,981	3,133
British Oceania.....	3,155	5,695	7,135	8,422	10,703	6,566
Philippine Islands.....	3,271	2,179	4,305	1,283	5,873	3,031
Other countries.....	3,869	7,237	11,792	18,399	16,896	13,533
Total.... Gross tons.	90,830	146,721	223,493	288,164	403,264	182,395

EXPORTS OF WIRE RODS, CALENDAR YEARS, 1912-1914.

Countries.	1912.		1913.		1914.	
	Pounds.	Values.	Pounds.	Values.	Pounds.	Values.
Belgium.....	47,283	\$1,075	.....	.....	.....	.....
England.....	1,141,706	16,330	113,060	\$1,475	18,765,355	\$283,713
Scotland.....	.....	.....	.....	.....	1,183,760	16,204
Canada.....	143,276,757	1,863,469	137,308,225	1,800,877	106,964,730	1,354,412
Nicaragua.....	230	5	.....	.....	.....	.....
Mexico.....	45,660	1,014	15,362	488	102,206	2,428
Cuba.....	.....	.....	114,544	2,195	19,561	414
France.....	.....	.....	.....	.....	10,995,680	145,223
China.....	75,420	1,500	.....	.....	165,630	1,861
Australia and Tasmania.....	964,700	15,593	59,360	1,269	.....	.....
Other countries.....	.....	.....	456,602	9,618	361,598	6,134
Total.....	145,551,756	\$1,898,986	138,067,153	\$1,815,922	138,558,520	\$1,810,389

The "other countries" to which wire rods were exported in 1914 were Norway, 220,420 pounds; Japan, 118,100 pounds; Chile, 18,743 pounds; and Honduras, 4,335 pounds.

EXPORTS OF PLATES AND SHEETS.

EXPORTS OF PLATES AND SHEETS, SHOWING IRON AND STEEL SEPARATELY, CALENDAR YEAR 1914.

Countries.	Iron—Pounds.	Steel—Pounds.	Total—Pounds.
United Kingdom.....	28,242	8,820,401	8,848,643
Canada.....	63,611,838	350,793,854	414,405,692
Panama.....	1,715,178	7,338,313	9,053,491
Mexico.....	1,793,882	3,742,696	5,536,578
Cuba.....	886,596	18,378,274	19,264,870
Argentina.....		14,738,380	14,738,380
Brazil.....	2,515,551	1,171,835	3,687,386
Chile.....	83,811	15,944,519	16,028,330
Uruguay.....		3,379,340	3,379,340
British India.....	7,225,147	7,471,497	14,696,644
Japan.....	3,699,669	3,637,647	7,337,316
Australia and Tasmania.....		39,400,016	39,400,016
Philippine Islands.....	14,158,702	3,877,730	18,036,432
All other countries.....	11,840,701	41,159,738	53,000,439
Total.....	107,559,317	519,854,240	627,413,557

EXPORTS OF PLATES AND SHEETS TO LEADING COUNTRIES, CALENDAR YEARS, 1910-1914.

Countries.	1910. Pounds.	1911. Pounds.	1912. Pounds.	1913. Pounds.	1914. Pounds.
United Kingdom	10,336,091	10,114,211	39,252,950	25,079,888	8,848,643
Canada.....	370,563,051	435,243,867	655,559,702	713,402,787	414,405,692
Panama.....	7,207,469	14,110,509	9,365,118	11,012,990	9,053,491
Mexico.....	34,447,203	26,253,798	32,181,130	20,340,074	5,536,578
Cuba.....	22,554,689	23,460,492	25,745,864	29,497,992	19,264,870
Argentina.....	42,566,022	57,717,927	58,976,566	35,038,434	14,738,380
Brazil.....	3,445,921	5,607,694	11,816,043	5,057,706	3,687,386
Chile.....	16,789,703	56,133,495	38,647,253	36,610,655	16,028,330
Uruguay.....	370,024	4,118,208	7,880,711	3,804,269	3,379,340
British India....	4,718,902	19,337,184	37,429,777	8,435,213	14,696,644
Japan.....	16,630,685	60,995,259	114,274,697	16,241,961	7,337,316
Australia and Tasmania....	30,323,718	39,545,905	54,615,810	33,255,418	39,400,016
Philippine Islands.....	20,804,370	25,572,936	22,915,201	35,098,712	18,036,432
Other countries.	34,168,662	55,902,901	115,546,846	65,197,302	53,000,439
Total.....	614,926,510	834,114,386	1,224,207,668	1,038,073,401	627,413,557

EXPORTS OF CUT AND WIRE NAILS.

EXPORTS OF CUT NAILS TO LEADING COUNTRIES, CALENDAR YEARS, 1911-1914.

Countries.	1911.	1912.	1913.	1914.
Canada.....	53,763	61,344	304	223
Panama.....	17,431	3,222	296	2,804
Mexico.....	30,049	18,731	7,037	1,512
Cuba.....	40,031	22,055	13,393	13,351
Brazil.....	112	11,107	1,734	21
Chile.....	80,480	66,786	40,450	43,785
Colombia.....	1,246	2,947	462	265
Santo Domingo.....	4,025	3,120	1,763	1,182
Australia and Tasmania.....	4,963	4,372	3,489	3,436
New Zealand.....	1,105	5,131	1,720	675
All other countries.....	22,649	9,753	14,237	9,422
Total .....Kegs of 100 pounds.	255,854	208,568	84,885	76,676

EXPORTS OF WIRE NAILS TO LEADING COUNTRIES, CALENDAR YEARS, 1911-1914.

Countries.	1911.	1912.	1913.	1914.
England.....	73,871	166,484	99,683	250,306
Canada.....	10,158	44,533	34,632	21,374
Panama.....	9,757	25,460	16,822	18,785
Cuba.....	38,365	45,994	58,711	52,177
China.....	143,338	146,029	155,389	50,007
British India.....	58,353	118,723	79,858	48,382
Dutch East Indies.....	35,662	89,955	65,934	51,611
Japan.....	553,776	535,211	102,913	18,877
New Zealand.....	41,933	65,985	57,445	44,547
Philippine Islands.....	33,142	56,762	39,942	41,424
All other countries.....	202,602	235,217	266,148	211,677
Total...Kegs of 100 pounds.	1,200,957	1,530,353	977,477	809,167

IMPORTS AND EXPORTS OF TINPLATES
AND TERNE PLATES.QUANTITIES AND VALUES OF TINPLATES AND TERNE PLATES
IMPORTED INTO THE UNITED STATES, 1889-1915.

Fiscal years.	United Kingdom.		All other countries.		Total.	
	Pounds.	Values.	Pounds.	Values.	Pounds.	Values.
1889	734,211,853	\$21,174,529	1,568,135	\$48,124	735,779,988	\$21,222,653
1890	678,933,940	20,891,062	1,126,985	37,088	680,060,925	20,928,150
1891	1,033,531,124	35,645,076	2,957,950	101,844	1,036,489,074	35,746,920
1892	421,838,482	12,304,233	337,720	11,329	422,176,202	12,315,562
1893	628,095,497	17,554,310	330,405	11,330	628,425,902	17,565,640
1894	453,880,341	11,961,524	280,485	7,994	454,160,826	11,969,518
1895	507,075,599	12,119,083	963,339	24,997	508,038,938	12,144,080
1896	383,882,250	8,915,083	1,256,733	35,573	385,138,983	8,950,656
1897	229,208,495	5,320,238	865,188	24,400	230,073,683	5,344,638
1898	170,872,133	3,786,626	790,212	22,522	171,662,345	3,809,148
1899	107,831,639	2,592,106	653,187	21,458	108,484,826	2,613,564
1900	147,321,985	4,772,629	641,819	27,167	147,963,804	4,799,796
1901	116,829,478	3,733,480	1,050,834	36,582	117,880,312	3,770,062
1902	197,232,677	5,995,515	1,763,409	70,109	198,996,086	6,065,624
1903	109,605,243	3,195,624	308,050	14,291	109,913,293	3,209,915
1904	126,502,829	3,459,124	406,531	14,330	126,909,360	3,473,454
1905	160,827,056	4,550,335	239,764	8,540	161,066,820	4,558,875
1906	120,627,726	3,402,987	192,006	9,256	120,819,732	3,412,243
1907	142,273,310	4,637,211	256,096	14,121	142,529,406	4,651,332
1908	140,502,522	4,279,862	237,450	12,091	140,739,972	4,291,953
1909	116,860,827	3,202,311	451,347	23,040	117,312,174	3,225,351
1910	153,704,447	4,315,459	862,152	39,670	154,566,599	4,355,129
1911	94,759,014	2,993,670	560,716	28,782	95,319,730	3,022,452
1912	5,954,894	249,626	658,359	37,321	6,613,253	286,947
1913	27,993,475	946,538	350,768	25,282	28,344,243	971,820
1914	48,501,287	1,460,792	376,660	20,666	48,877,947	1,481,458
1915	10,462,673	339,373	179,564	14,101	10,642,237	353,474

RE-EXPORTS OF TINPLATES.

Virtually all the tinplates imported from 1898 to 1912 were re-exported, thus obtaining the benefit of the drawback of 99 per cent. of the duty paid. In the fiscal year ended on June 30, 1914, the re-exports of tinplates under the drawback provision amounted to 7,142,322 pounds, in 1913 to 3,799,549 pounds, in 1912 to 32,227,748 pounds, in 1911 to 122,812,588 pounds, in 1910 to 141,732,141 pounds, in 1909 to 116,829,347 pounds, and in 1908 to 158,911,418 pounds.

EXPORTS OF TINPLATES AND TERNE PLATES.

In the calendar year 1914 our exports of domestic tinplates and terne plates amounted to 59,549 gross tons, valued at

\$4,337,779, against 57,812 tons in 1913, valued at \$4,608,551. In 1912 the exports amounted to 81,694 tons, valued at \$6,315,763; in 1911 to 61,381 tons, valued at \$4,776,256; and in 1910 to 12,445 tons, valued at \$996,984. Exports reached their maximum in 1912, when over 8.4 per cent. of the total output was sent to foreign countries.

EXPORTS OF TINPLATES AND TERNE PLATES BY COUNTRIES,
CALENDAR YEARS, IN POUNDS, 1910-1914.

Countries.	1910.	1911.	1912.	1913.	1914.
Canada.....	24,946,514	64,190,650	105,492,978	100,347,505	79,540,902
England.....	1,269	.....	668,310	.....	.....
Mexico.....	694,529	4,117,235	5,311,750	2,376,429	3,488,252
Cuba.....	401,438	3,190,173	4,563,785	5,590,089	3,794,387
Argentina.....	86,011	5,753,920	9,987,329	2,065,581	4,386,605
Brazil.....	132,173	2,775,208	5,986,914	4,453,963	2,568,127
Chile.....	129,241	2,537,966	3,252,254	5,680,684	2,146,899
China.....	.....	19,705,610	13,166,327	1,928,175	19,333,471
British India....	8,994	15,531,702	8,737,493	62,591	2,712,926
Hongkong.....	.....	7,896,380	7,144,481	894,399	5,640,152
Japan.....	.....	6,948,568	6,549,668	509,245	3,941,640
Other countries..	1,476,911	4,846,829	12,133,630	5,590,642	5,835,887
Total.....	27,877,080	137,494,241	182,994,919	129,499,303	133,389,248

IMPORTS AND EXPORTS OF AGRICULTURAL
IMPLEMENTS.

IMPORTS OF AGRICULTURAL IMPLEMENTS, 1910-1914.

The value of the agricultural implements imported for consumption into the United States in the calendar year 1914, including plows, harrows, harvesters, reapers, drills, etc., amounted to \$740,195, as compared with \$86,151 in 1913, \$86,273 in 1912, \$122,728 in 1911, and \$157,843 in 1910.

EXPORTS OF AGRICULTURAL IMPLEMENTS, 1889-1914.

Years.	Values.	Years.	Values.	Years.	Values.
1889.....	\$4,246,079	1898.....	\$9,073,384	1907.....	\$25,597,272
1890.....	3,264,995	1899.....	13,594,524	1908.....	25,264,939
1891.....	3,310,183	1900.....	15,979,909	1909.....	27,327,428
1892.....	4,210,684	1901.....	16,714,308	1910.....	31,291,351
1893.....	5,191,223	1902.....	17,981,597	1911.....	36,241,683
1894.....	4,765,793	1903.....	22,951,805	1912.....	41,436,327
1895.....	5,319,885	1904.....	21,654,892	1913.....	35,453,643
1896.....	4,643,729	1905.....	22,124,312	1914.....	21,649,523
1897.....	5,302,807	1906.....	24,744,762	.....	.....

AVERAGE MONTHLY AND YEARLY PRICES.

DOMESTIC PRICES OF IRON AND STEEL.

YEARLY PRICES OF LEADING PRODUCTS OF IRON AND STEEL.

[Compiled from quotations in the Iron Age and from other authoritative sources.]

Years.	Bessemer pig iron, at Pittsburgh.	Basic pig iron, in the Valleys.	Southern No. 2, at Cincinnati.	Local No. 2, at Chicago.	Bessemer steel rails, at mills in Pennsylvania.	Bessemer billets, at Pittsburgh.	Soft steel bars, at Pittsburgh.	Iron bars, at Pittsburgh.	Tank plate, at Pittsburgh.	Beams, at Pitts- burgh.
1886..	\$18.96	.....	\$16.77	.....	\$34.52	\$31.64	.....	\$1.70	.....	.....
1887..	21.37	.....	20.05	.....	37.08	31.82	.....	1.95	.....	.....
1888..	17.38	.....	16.82	\$17.19	29.83	28.75	.....	1.77	.....	.....
1889..	18.00	.....	14.85	15.77	29.25	29.33	.....	1.71	.....	.....
1890..	18.87	.....	15.11	16.66	31.78	30.29	.....	1.84	.....	.....
1891..	15.95	.....	13.78	14.95	29.92	25.33	.....	1.71	.....	.....
1892..	14.37	.....	12.74	13.88	30.00	23.63	.....	1.64	.....	.....
1893..	12.87	.....	11.42	12.80	28.12	20.44	.....	1.50	.....	.....
1894..	11.38	.....	9.93	10.56	24.00	16.58	.....	1.20	.....	.....
1895..	12.72	.....	10.86	11.80	24.33	18.48	.....	1.25	.....	.....
1896..	12.14	.....	10.29	11.64	28.00	18.83	.....	1.21	.....	.....
1897..	10.13	.....	9.42	10.68	18.75	15.08	.....	1.10	.....	.....
1898..	10.33	.....	9.46	11.32	17.62	15.31	\$0.95	1.07	\$1.08	\$1.17
1899..	19.03	.....	16.58	18.40	28.12	31.12	1.84	1.95	2.21	1.81
1900..	19.49	.....	17.04	19.47	32.29	25.06	1.59	2.15	1.54	1.91
1901..	15.93	.....	13.61	15.38	27.33	24.13	1.42	1.80	1.55	1.58
1902..	20.67	.....	20.00	20.86	28.00	30.57	1.58	1.94	1.70	1.81
1903..	18.98	.....	17.08	19.25	28.00	27.91	1.56	1.77	1.61	1.62
1904..	13.76	*\$12.59	12.73	14.37	28.00	22.18	1.33	1.48	1.54	1.54
1905..	16.36	15.25	15.57	17.65	28.00	24.03	1.48	1.87	1.58	1.62
1906..	19.54	18.10	18.37	20.43	28.00	27.45	1.51	1.93	1.61	1.70
1907..	22.84	20.86	23.10	24.50	28.00	29.25	1.60	1.94	1.70	1.70
1908..	17.07	15.16	15.54	17.57	28.00	26.31	1.49	1.60	1.64	1.64
1909..	17.41	15.48	16.12	17.49	28.00	24.62	1.33	1.62	1.42	1.42
1910..	17.19	14.76	15.16	17.09	28.00	25.38	1.44	1.65	1.47	1.45
1911..	15.71	13.07	13.67	14.83	28.00	21.46	1.26	1.41	1.31	1.32
1912..	15.94	13.92	14.93	15.32	28.00	22.38	1.29	1.44	1.33	1.32
1913..	17.13	14.71	14.90	15.85	28.00	25.79	1.55	1.69	1.50	1.50
1914..	14.89	12.87	13.41	13.60	28.00	20.09	1.15	1.32	1.14	1.15

Pig iron per gross ton; bars, tank plate, and beams, per 100 pounds. * 7 months only. † All muck bar iron to 1892; best refined since.

PRICES OF BESSEMER PIG IRON AT PITTSBURGH.

The following table gives the average monthly and yearly prices of Bessemer pig iron at Pittsburgh from 1905 to 1914, compiled from weekly quotations in the *Iron Age* :

Months.	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.
January . . .	\$16.72	\$18.35	\$23.35	\$19.00	\$17.34	\$19.90	\$15.90	\$15.09	\$18.15	\$15.00
February . . .	16.20	18.35	23.25	17.90	16.77	19.34	15.90	14.90	18.15	15.09
March	16.35	18.35	22.95	17.86	16.34	18.60	15.90	15.09	18.15	15.09
April	16.35	18.19	23.55	17.49	15.80	18.34	15.90	15.15	17.90	14.90
May	16.16	18.10	24.05	16.96	15.84	17.52	15.90	15.15	17.74	14.90
June	15.65	18.47	24.50	16.90	16.02	16.62	15.90	15.15	17.11	14.90
July	14.97	18.60	23.80	16.83	16.40	16.40	15.90	15.15	16.70	14.90
August	15.25	19.10	22.95	16.26	17.02	16.09	15.90	15.45	16.52	14.90
September . . .	15.87	19.66	22.85	15.90	18.05	15.90	15.90	16.15	16.65	14.90
October	16.54	20.51	22.90	15.75	19.52	15.90	15.44	17.80	16.60	14.85
November . . .	17.90	23.00	20.35	16.59	19.90	15.80	15.00	18.02	16.02	14.59
December . . .	18.35	23.85	19.60	17.40	19.90	15.90	15.02	18.15	15.90	14.70
Average . . .	\$16.36	\$19.54	\$22.84	\$17.07	\$17.41	\$17.19	\$15.71	\$15.94	\$17.13	\$14.89

PRICES OF BASIC PIG IRON AT PHILADELPHIA AND PITTSBURGH.

The following table, which has been compiled from weekly quotations in the *Iron Age*, gives the average monthly and yearly prices of basic pig iron at Philadelphia and Pittsburgh from 1910 to 1914, per gross ton of 2,240 pounds :

Months.	Average prices at Philadelphia.					Average prices at Pittsburgh.				
	1910.	1911.	1912.	1913.	1914.	1910.	1911.	1912.	1913.	1914.
January . . .	\$18.75	\$14.50	\$14.25	\$18.10	\$14.00	\$17.77	\$14.15	\$13.27	\$17.31	\$13.40
February . . .	18.50	14.44	14.25	18.00	14.13	17.21	14.52	13.15	17.20	14.09
March	18.25	15.20	14.37	17.69	14.19	16.90	14.65	13.64	17.01	13.90
April	17.56	15.19	14.87	16.75	14.25	16.84	14.65	13.90	16.77	13.90
May	16.69	14.75	15.15	16.50	14.06	16.09	14.30	13.90	16.22	13.90
June	16.10	14.50	15.25	15.94	14.00	15.60	13.96	14.02	15.40	13.90
July	15.69	14.37	15.50	15.20	14.00	15.40	14.02	14.27	15.29	13.90
August	15.12	14.65	15.95	15.19	14.00	15.02	13.90	14.75	14.96	13.90
September . . .	15.00	14.69	16.25	15.12	14.00	14.60	13.70	15.27	14.90	13.90
October	15.00	14.50	17.43	15.30	14.00	14.05	13.42	16.78	14.80	13.75
November . . .	14.75	14.50	18.12	15.00	14.00	14.15	13.29	17.27	13.99	13.42
December . . .	14.75	14.31	18.25	14.81	13.50	14.30	13.15	17.36	13.65	13.45
Average . . .	\$16.35	\$14.63	\$15.80	\$16.13	\$14.01	\$15.66	\$13.98	\$14.80	\$15.62	\$13.78

PRICES OF LAKE SUPERIOR CHARCOAL PIG IRON AT CHICAGO.

The following table, which has been compiled from weekly quotations in the *Iron Age*, gives the average monthly and yearly prices of Lake Superior charcoal pig iron at Chicago during the last twenty-six years, per gross ton :

Years.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Average.
	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
1889..	20.00	19.50	19.50	19.25	18.75	18.50	18.50	18.50	18.75	19.50	20.00	22.00	19.40
1890..	23.00	23.00	22.50	21.50	21.00	20.50	20.00	20.25	20.25	19.75	19.25	18.75	20.81
1891..	18.50	18.25	18.00	18.00	17.00	16.75	17.00	17.00	17.25	17.00	17.00	16.75	17.37
1892..	17.25	17.00	17.00	16.75	16.50	16.50	16.50	16.50	16.50	16.75	16.50	16.50	16.69
1893..	16.50	16.50	16.50	16.50	16.50	16.00	16.00	16.00	16.00	16.00	15.75	15.50	16.15
1894..	15.50	15.40	15.25	15.25	15.25	15.25	15.00	14.50	14.25	14.00	13.50	13.00	14.68
1895..	13.00	13.00	13.00	12.75	13.00	13.00	13.50	13.50	14.50	15.50	15.50	16.00	13.85
1896..	14.50	14.00	13.50	13.50	13.50	13.50	13.50	13.50	13.50	13.50	13.50	13.50	13.62
1897..	13.50	13.50	13.50	13.50	13.00	13.00	13.00	13.00	12.50	12.50	12.50	12.50	13.00
1898..	12.50	11.50	11.50	11.50	11.50	11.50	11.50	11.50	11.50	11.50	11.50	11.50	11.58
1899..	11.50	12.50	15.75	17.00	17.25	19.50	21.50	22.50	24.25	25.00	25.50	25.50	19.81
1900..	25.50	25.50	25.50	25.50	24.50	23.00	22.00	20.00	18.50	18.00	17.00	18.25	21.94
1901..	19.00	17.50	17.50	18.00	17.50	17.00	17.00	17.00	17.00	17.00	17.50	18.00	17.50
1902..	19.25	20.25	20.65	21.50	22.80	23.50	25.00	25.75	26.00	26.00	26.00	25.25	23.50
1903..	25.60	26.50	26.50	25.30	24.12	24.00	22.20	20.62	19.00	18.10	17.12	16.50	22.13
1904..	16.62	15.87	15.00	15.19	15.00	14.70	14.50	14.87	14.75	15.31	16.37	17.80	15.50
1905..	18.50	18.50	18.50	18.50	17.75	17.00	16.50	16.40	16.87	18.25	19.20	20.00	18.00
1906..	20.40	20.13	19.75	19.44	19.05	19.00	19.06	19.35	20.13	21.50	24.63	26.13	20.71
1907..	26.80	27.00	26.75	26.50	27.40	27.50	27.00	27.20	27.00	26.20	25.12	24.25	26.56
1908..	22.50	21.38	21.25	20.30	20.00	20.00	20.00	19.50	19.50	19.50	19.50	19.50	20.24
1909..	19.50	19.50	19.50	19.50	19.50	19.50	19.50	19.50	19.50	19.50	19.50	19.50	19.50
1910..	19.50	19.50	19.30	19.00	18.62	18.50	18.50	18.50	18.40	18.12	18.00	18.00	18.66
1911..	17.87	17.50	17.50	17.50	17.25	16.80	16.50	16.50	16.50	16.50	16.50	16.37	16.94
1912..	16.00	15.95	15.75	15.75	15.75	16.25	16.25	16.25	17.12	18.45	18.62	18.75	16.74
1913..	18.15	18.00	18.00	18.00	18.00	16.81	15.65	14.81	14.87	15.25	15.25	15.25	16.50
1914..	15.25	15.25	15.25	15.45	15.75	15.75	15.75	15.75	15.75	15.75	15.75	15.75	15.60

AVERAGE PRICES OF NO. 2 FOUNDRY PIG IRON AT CINCINNATI.

The following table, for which we are also indebted to the *Iron Age*, gives the average monthly and yearly prices of Southern No. 2 foundry pig iron at Cincinnati in the ten years from 1905 to 1914, per gross ton of 2,240 pounds :

Months.	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.
January....	\$16.25	\$16.75	\$26.00	\$16.15	\$16.25	\$17.25	\$14.25	\$13.25	\$16.95	\$13.88
February....	16.25	16.75	26.00	15.75	16.13	17.06	14.25	13.31	16.69	13.81
March.....	16.25	16.65	26.00	15.50	15.05	16.30	14.25	13.50	16.31	14.00
April.....	16.25	16.63	25.06	15.20	14.25	15.37	14.25	13.75	15.65	13.75
May.....	15.81	16.75	24.25	14.75	14.50	15.00	13.95	14.15	14.94	13.75
June.....	14.65	16.44	24.10	15.25	14.70	14.85	13.44	14.25	14.06	13.63
July.....	13.94	16.06	23.85	15.00	15.75	14.75	13.25	14.70	13.75	13.30
August.....	14.40	17.30	23.00	15.25	16.38	14.31	13.45	15.06	14.06	13.25
September..	14.37	18.69	21.50	15.65	17.35	14.25	13.31	15.87	14.25	13.25
October....	15.31	20.00	20.95	15.75	17.88	14.25	13.25	16.80	14.35	12.90
November...	16.60	23.38	19.50	16.00	17.75	14.25	13.20	17.25	13.87	12.90
December...	16.75	25.00	17.00	16.25	17.45	14.25	13.19	17.25	13.95	12.50
Average...	\$15.57	\$18.37	\$23.10	\$15.54	\$16.12	\$15.16	\$13.67	\$14.93	\$14.90	\$13.41

PRICES OF FORGE PIG IRON AT PITTSBURGH.

The following table gives the average monthly and yearly prices of forge pig iron at Pittsburgh since 1905, per gross ton, compiled from weekly quotations in the *Iron Age*:

Months.	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.
January....	\$16.11	\$17.30	\$22.58	\$17.00	\$15.40	\$17.40	\$14.09	\$13.40	\$17.15	\$13.65
February...	15.99	17.29	22.20	15.99	15.09	17.02	14.27	13.40	17.15	13.65
March.....	16.00	16.91	21.76	15.90	14.65	16.15	14.40	13.44	16.92	13.65
April.....	15.77	16.66	21.72	15.45	14.40	16.09	14.40	13.65	16.30	13.65
May.....	15.57	16.49	22.88	14.90	14.40	15.90	14.27	13.82	15.20	13.65
June.....	15.18	16.35	23.15	14.90	14.77	15.20	14.00	13.90	14.71	13.65
July.....	14.55	16.41	22.96	14.90	14.85	14.52	13.90	13.90	14.55	13.65
August....	14.36	17.75	21.90	14.71	15.21	14.30	13.90	14.25	14.25	13.65
September..	14.72	18.35	21.15	14.46	16.15	14.15	13.84	14.65	14.25	13.65
October....	15.66	19.47	20.40	14.40	17.02	14.15	13.65	16.27	14.36	13.55
November...	16.58	22.45	19.17	14.90	17.27	14.09	13.47	16.67	14.25	13.45
December...	16.97	22.85	18.40	15.25	17.40	13.90	13.40	17.15	13.96	13.45
Average...	\$15.62	\$18.19	\$21.52	\$15.23	\$15.55	\$15.24	\$13.97	\$14.54	\$15.25	\$13.61

In the first five months of 1915 the average monthly price was \$13.45 ; in June it was \$13.40 ; and in July it was \$13.43.

PRICES OF NO. 2 FOUNDRY PIG IRON AT BIRMINGHAM.

The following table, for which we are indebted to the *Iron Trade Review*, gives the average monthly prices of No. 2 foundry pig iron at Birmingham, Alabama, since 1905 :

Months.	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.
January....	\$13.50	\$14.00	\$23.00	\$12.80	\$13.00	\$14.00	\$11.00	\$10.00	\$13.70	\$11.00
February....	13.50	14.00	23.00	12.50	12.70	13.88	11.00	10.00	13.50	11.00
March.....	13.50	13.70	22.75	12.12	11.75	13.00	11.00	10.06	13.00	10.75
April.....	13.25	13.65	22.00	11.90	11.00	12.12	11.00	10.50	12.50	10.50
May.....	12.75	13.75	21.40	11.50	11.00	11.81	10.75	10.95	11.75	10.50
June.....	11.85	13.50	21.25	12.00	11.31	11.60	10.25	11.00	10.60	10.31
July.....	11.00	13.00	20.50	11.60	12.30	11.38	10.00	11.25	10.50	10.15
August....	11.65	14.15	19.80	12.06	13.00	11.00	10.05	11.65	11.00	10.00
September..	11.75	16.00	18.12	12.50	14.00	11.00	10.10	12.50	11.00	10.00
October....	12.50	17.15	17.65	12.50	14.50	11.00	10.00	13.45	11.00	10.00
November...	14.00	21.25	16.00	12.50	14.50	11.00	9.75	13.75	10.75	10.00
December...	14.00	22.00	14.91	13.00	14.00	11.00	10.00	13.50	11.00	9.65
Average...	\$12.77	\$15.51	\$20.03	\$12.25	\$12.75	\$11.90	\$10.41	\$11.55	\$11.69	\$10.32

In January and February, 1915, the average monthly price of No. 2 foundry pig iron at Birmingham was \$9.50 ; in March, \$9.37 ; in April, \$9.50 ; in May, \$9.75 ; in June, \$9.56 ; and in July, \$9.50.

PRICES OF NO. 2 FOUNDRY AND LOW-PHOSPHORUS PIG IRON
AT PHILADELPHIA.

The following table gives the average monthly and yearly prices at Philadelphia of No. 2 foundry and low-phosphorus pig iron from 1910 to 1914, compiled from weekly quotations in the *Iron Age*, per gross ton of 2,240 pounds :

Months.	No. 2 foundry at Philadelphia.					Low-phosphorus at Philadelphia.				
	1910.	1911.	1912.	1913.	1914.	1910.	1911.	1912.	1913.	1914.
January...	\$19.00	\$15.50	\$14.85	\$18.50	\$14.72	\$22.81	\$21.75	\$19.19	\$24.50	\$21.00
February...	18.69	15.50	14.85	18.25	14.94	22.94	21.25	19.00	24.50	21.00
March.....	18.00	15.50	14.92	17.77	15.00	23.00	21.35	19.00	24.50	21.00
April.....	17.75	15.50	15.00	17.50	15.00	23.00	21.50	19.44	23.62	21.00
May.....	17.00	15.50	15.22	16.80	14.81	23.00	21.00	19.55	23.50	21.00
June.....	16.65	15.25	15.31	16.19	14.75	22.90	20.60	19.75	23.50	20.62
July.....	16.25	15.00	15.69	15.60	14.75	22.56	20.50	20.00	23.40	20.50
August.....	16.00	15.00	15.85	15.60	14.75	22.50	20.00	20.65	23.00	20.75
September..	16.00	15.00	16.59	15.84	14.75	22.50	20.00	21.50	23.00	21.00
October....	15.81	15.00	17.60	15.95	14.65	22.50	20.00	22.60	23.00	20.90
November...	15.69	14.95	18.31	15.56	14.50	22.50	19.55	23.75	22.31	20.12
December...	15.50	14.85	18.50	15.25	14.25	22.40	19.25	24.00	21.75	20.00
Average...	\$16.86	\$15.21	\$16.06	\$16.57	\$14.74	\$22.72	\$20.56	\$20.70	\$23.38	\$20.74

SPIEGELEISEN AND FERRO-MANGANESE PRICES AT PITTSBURGH.

The following table gives the average monthly prices of spiegeleisen and ferro-manganese at Pittsburgh from 1910 to 1914. The prices for spiegeleisen have been compiled from weekly quotations in the *Industrial World* and *Steel and Iron*, of Pittsburgh, and for ferro-manganese from the *Iron Age* :

Months.	Spiegeleisen—Gross tons.					Ferro-manganese—Gross tons.				
	1910.	1911.	1912.	1913.	1914.	1910.	1911.	1912.	1913.	1914.
January...	\$26.25	\$23.90	\$21.50	\$26.65	\$25.00	\$47.55	\$40.45	\$42.95	\$72.85	\$46.36
February..	26.50	23.90	21.50	25.90	25.00	46.17	39.70	42.85	66.45	39.91
March.....	26.50	23.90	21.50	25.90	25.00	46.05	39.45	43.71	65.87	40.41
April.....	26.50	23.90	21.50	25.90	25.00	44.09	38.55	44.95	63.15	40.76
May.....	26.50	23.90	22.50	25.90	23.50	42.07	38.20	53.85	62.70	40.66
June.....	26.50	23.90	22.50	25.90	22.00	41.70	37.95	52.95	61.16	39.78
July.....	25.46	23.90	22.50	25.00	25.00	41.15	38.55	51.20	60.16	39.86
August....	24.30	23.00	22.50	25.00	25.38	41.57	38.82	53.75	57.28	86.66
September.	23.90	23.50	22.50	25.00	26.80	41.26	38.55	58.45	57.76	89.66
October....	23.90	23.25	22.50	25.00	26.20	40.85	38.87	67.85	52.66	71.96
November..	23.90	21.50	25.70	25.00	25.00	40.45	39.57	76.45	52.16	66.16
December..	23.90	21.50	26.90	25.00	25.00	40.35	40.05	76.70	49.16	70.16
Average..	\$25.34	\$23.34	\$22.80	\$25.51	\$24.91	\$42.77	\$39.06	\$55.47	\$60.11	\$56.03

AVERAGE PRICES OF FERRO-SILICON AT PITTSBURGH.

The following table, compiled from quotations in the *Industrial World* and *Steel and Iron*, gives the average monthly prices of 10 and 50 per cent. ferro-silicon at Pittsburgh since 1910 :

Months.	50 per cent. ferro-silicon.					10 per cent. ferro-silicon.				
	1910.	1911.	1912.	1913.	1914.	1910.	1911.	1912.	1913.	1914.
January...	\$62.37	\$54.50	\$69.50	\$73.00	\$72.20	\$23.00	\$24.90	\$22.65	\$25.90	\$25.90
February..	62.00	54.75	68.00	71.46	71.75	23.00	24.40	21.90	25.90	25.90
March.....	62.00	54.37	68.60	71.98	72.00	23.00	23.90	21.90	25.90	25.90
April.....	61.20	54.50	68.70	74.50	71.75	23.36	23.90	21.90	25.90	25.90
May.....	59.25	53.00	70.00	73.40	71.00	24.15	23.90	21.90	25.90	24.50
June.....	58.50	52.00	69.00	73.00	70.50	24.40	24.90	21.90	25.90	20.90
July.....	57.50	52.10	70.25	73.00	71.00	24.50	24.90	22.15	25.90	20.90
August....	57.50	52.87	70.50	73.00	71.00	24.40	24.90	21.90	25.90	20.90
September.	57.50	55.00	70.75	73.00	71.00	23.90	24.90	21.90	25.90	20.90
October....	55.40	58.12	71.12	73.00	71.00	23.90	24.15	23.40	25.90	20.90
November..	54.75	63.25	74.00	73.00	71.00	23.90	23.90	25.90	25.90	20.97
December..	54.90	67.60	74.25	73.00	71.00	24.10	23.50	25.90	25.90	21.00
Average..	\$58.57	\$56.00	\$70.39	\$72.94	\$71.27	\$23.80	\$24.35	\$22.77	\$25.90	\$22.88

PRICES OF BESSEMER STEEL BILLETS AT PITTSBURGH.

The following table, which has been compiled from weekly quotations in the *Iron Age*, gives the average monthly and yearly prices of Bessemer steel billets at mills at Pittsburgh from 1905 to 1914, per gross ton of 2,240 pounds :

Months.	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.
January...	\$22.50	\$26.25	\$29.40	\$28.00	\$25.00	\$27.50	\$23.00	\$20.00	\$28.30	\$20.10
February..	23.37	26.75	29.50	28.00	25.00	27.50	23.00	20.00	28.50	21.00
March.....	23.70	26.80	29.00	28.00	23.00	27.50	23.00	19.75	28.50	21.00
April.....	23.75	27.00	30.25	28.00	23.00	26.75	23.00	20.00	28.50	20.80
May.....	23.50	26.40	30.30	28.00	23.00	26.12	23.00	20.80	27.50	20.00
June.....	22.40	26.62	29.62	25.75	23.00	25.30	21.00	20.87	26.50	19.50
July.....	22.50	27.25	30.00	25.00	23.40	24.87	21.00	21.50	26.70	19.00
August....	24.00	27.80	29.40	25.00	24.12	24.50	21.00	22.00	26.00	20.25
September.	25.00	28.00	29.37	25.00	25.00	24.40	20.75	23.62	24.87	21.00
October....	25.62	28.00	28.20	25.00	26.25	23.75	20.00	26.00	23.10	20.20
November..	26.00	29.00	28.00	25.00	27.12	23.37	19.50	27.00	21.00	19.25
December..	26.00	29.50	28.00	25.00	27.50	23.00	19.25	27.00	20.00	19.00
Average..	\$24.03	\$27.45	\$29.25	\$26.31	\$24.62	\$25.38	\$21.46	\$22.38	\$25.79	\$20.09

The average monthly price of Bessemer steel billets at Pittsburgh was \$19.12 in January, 1915; \$19.50 in February; \$19.62 in March; \$20 in April and May; \$20.37 in June; and \$21.30 in July.

PRICES OF BESSEMER STEEL RAILS IN PENNSYLVANIA.

The following table, which has been compiled from weekly quotations in the *Iron Age*, gives the average monthly and yearly prices of standard sections of Bessemer steel rails at mills in Pennsylvania from 1905 to 1914, per gross ton :

Months.	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.
January....	\$28.00	\$28.00	\$28.00	\$28.00	\$28.00	\$28.00	\$28.00	\$28.00	\$28.00	\$28.00
February..	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00
March.....	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00
April.....	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00
May.....	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00
June.....	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00
July.....	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00
August....	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00
September.	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00
October....	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00
November..	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00
December..	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00	28.00
Average..	\$28.00	\$28.00	\$28.00	\$28.00	\$28.00	\$28.00	\$28.00	\$28.00	\$28.00	\$28.00

QUARTERLY PRICES OF BEAMS AND CHANNELS AT PITTSBURGH.

The following table, compiled by one of the leading manufacturers of structural shapes in Western Pennsylvania, gives the average quarterly prices of steel beams and channels at Pittsburgh from 1894 to June 30, 1915 :

Years.	Average price per 100 pounds.					Years.	Average price per 100 pounds.				
	First quarter.	Second quarter.	Third quarter.	Fourth quarter.	Average.		First quarter.	Second quarter.	Third quarter.	Fourth quarter.	Average.
1894....	\$1.21	\$1.20	\$1.27	\$1.25	\$1.23	1905....	\$1.55	\$1.60	\$1.63	\$1.70	\$1.62
1895....	1.21	1.25	1.56	1.58	1.40	1906....	1.70	1.70	1.70	1.70	1.70
1896....	1.44	1.49	1.55	1.50	1.49	1907....	1.70	1.70	1.70	1.70	1.70
1897....	1.55	1.33	.98	1.09	1.24	1908....	1.70	1.68	1.60	1.60	1.64
1898....	1.15	1.15	1.19	1.20	1.17	1909....	1.45	1.25	1.40	1.53	1.41
1899....	1.35	1.60	2.12	2.25	1.83	1910....	1.55	1.53	1.41	1.40	1.47
1900....	2.25	2.21	1.68	1.50	1.91	1911....	1.40	1.38	1.30	1.16	1.31
1901....	1.51	1.60	1.60	1.60	1.58	1912....	1.15	1.24	1.34	1.45	1.29
1902....	1.60	1.60	1.60	1.60	1.60	1913....	1.45	1.45	1.39	1.27	1.39
1903....	1.60	1.60	1.60	1.60	1.60	1914....	1.19	1.13	1.17	1.12	1.15
1904....	1.60	1.60	1.55	1.41	1.54	1915....	1.12	1.22	....	....	....

During the above period the lowest quarterly price was in the third quarter of 1897. The highest quarterly price was in the last quarter of 1899 and the first quarter of 1900.

PRICES OF STEEL WIRE RODS AT PITTSBURGH.

The following table, for which we are indebted to the *Iron Age*, gives the average monthly and yearly prices of Bessemer steel wire rods at Pittsburgh, per gross ton, since 1905 :

Months.	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.
January....	\$31.00	\$33.75	\$37.00	\$34.30	\$33.00	\$33.00	\$28.00	\$24.37	\$30.00	\$25.50
February...	31.00	34.00	37.00	35.00	33.00	33.00	28.75	25.00	30.00	26.38
March.....	31.70	34.00	37.00	35.00	33.00	33.00	29.00	25.00	30.00	26.50
April.....	34.00	34.12	37.00	35.00	29.00	32.50	29.00	25.00	30.00	26.00
May.....	34.00	34.40	37.00	35.00	27.50	32.00	29.00	25.00	30.00	25.50
June.....	33.30	34.00	37.12	33.50	27.50	30.80	28.25	25.00	29.50	24.50
July.....	31.87	34.00	36.50	33.00	29.40	29.25	27.00	25.00	28.30	24.50
August....	32.10	34.00	36.10	33.25	31.00	28.25	27.00	25.80	28.00	25.00
September..	31.12	34.00	36.00	33.00	31.50	28.00	27.00	27.00	27.37	26.20
October....	31.75	34.50	35.40	33.00	31.87	28.50	26.00	28.50	26.60	25.88
November..	32.10	35.50	34.00	33.00	32.50	28.12	25.30	29.75	25.87	25.25
December..	32.50	37.00	34.00	33.00	33.00	28.00	24.50	30.00	25.17	25.00
Average..	\$32.20	\$34.44	\$36.18	\$33.84	\$31.02	\$30.37	\$27.40	\$26.28	\$28.40	\$25.52

PRICES OF STEEL SHIP PLATES AT PITTSBURGH.

The following table, compiled by one of the leading manufacturers of steel plates in Western Pennsylvania, gives the average monthly prices of steel ship plates, per gross ton, free on board at Pittsburgh, from 1905 to 1914. In 1901 the average annual price was \$34.87; in 1902 and 1903, \$35.84; and in 1904, \$34.52.

Months.	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.
January...	\$33.60	\$35.84	\$38.08	\$38.08	\$35.84	\$34.72	\$31.36	\$25.85	\$32.48	\$26.88
February..	35.35	35.84	38.08	38.08	32.48	34.72	31.36	25.33	32.48	26.88
March.....	35.84	35.84	38.08	38.08	29.12	34.72	31.36	26.23	32.48	26.43
April.....	35.84	35.84	38.08	38.08	28.67	34.72	31.36	27.22	32.48	25.76
May.....	35.84	35.84	38.08	38.08	28.22	34.72	31.36	28.00	32.48	25.54
June.....	35.84	35.84	38.08	36.59	29.12	33.38	30.24	28.22	32.48	24.86
July.....	35.84	35.84	38.08	35.84	30.02	31.85	29.57	29.14	32.48	25.09
August....	35.84	35.84	38.08	35.84	31.36	31.36	29.12	30.24	32.48	26.66
September.	35.84	35.84	38.08	35.84	32.93	31.36	28.54	30.91	30.24	26.88
October....	35.84	35.84	38.08	35.84	33.60	31.36	25.70	32.26	29.79	26.43
November..	35.84	35.84	38.08	35.84	34.34	31.36	24.47	32.48	27.55	24.86
December...	35.84	35.84	38.08	35.84	34.72	31.36	26.57	32.48	26.88	23.74
Average..	\$35.61	\$35.84	\$38.08	\$36.84	\$31.70	\$32.97	\$29.25	\$29.03	\$31.19	\$25.83

In January and February, 1915, the average monthly price was \$24.64; March, \$25.20; April and May, \$26.32; June, \$27.44; and July, \$28.67.

MONTHLY PRICES OF SOFT STEEL BARS AT PITTSBURGH.

The following table, compiled from quotations in the *Iron Age*, gives the average monthly prices of soft steel bars, per 100 pounds, at mills in Pittsburgh from 1905 to 1914. In June, 1898, the average price of soft steel bars at Pittsburgh was 90 cents per 100 pounds, the lowest price recorded.

Months.	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.
January...	\$1.40	\$1.50	\$1.60	\$1.60	\$1.40	\$1.50	\$1.40	\$1.15	\$1.70	\$1.20
February...	1.40	1.50	1.60	1.60	1.35	1.50	1.40	1.12	1.70	1.20
March.....	1.50	1.50	1.60	1.60	1.20	1.45	1.40	1.10	1.85	1.20
April.....	1.50	1.50	1.60	1.60	1.15	1.45	1.40	1.16	1.84	1.15
May.....	1.50	1.50	1.60	1.60	1.19	1.45	1.37	1.20	1.70	1.14
June.....	1.46	1.50	1.60	1.45	1.20	1.45	1.25	1.20	1.60	1.11
July.....	1.50	1.50	1.60	1.40	1.27	1.45	1.23	1.25	1.50	1.12
August....	1.50	1.50	1.60	1.40	1.32	1.40	1.20	1.30	1.40	1.19
September..	1.50	1.50	1.60	1.40	1.39	1.40	1.19	1.37	1.40	1.20
October....	1.50	1.50	1.60	1.40	1.51	1.40	1.12	1.45	1.39	1.15
November..	1.50	1.54	1.60	1.40	1.50	1.40	1.08	1.55	1.29	1.10
December..	1.50	1.60	1.60	1.40	1.50	1.40	1.12	1.60	1.21	1.07
Average..	\$1.48	\$1.51	\$1.60	\$1.49	\$1.33	\$1.44	\$1.26	\$1.29	\$1.55	\$1.15

PRICES OF BEST REFINED BAR IRON AT PITTSBURGH.

The following table, for which we are indebted to a leading Pittsburgh iron manufacturer, gives the average monthly and yearly prices of best refined bar iron at mills at Pittsburgh from 1905 to 1914, in lots of 100 pounds:

Months.	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.
January...	\$1.80	\$2.20	\$1.90	\$1.70	\$1.55	\$1.75	\$1.50	\$1.35	\$1.75	\$1.40
February...	1.80	2.15	1.90	1.70	1.55	1.75	1.50	1.35	1.75	1.35
March.....	1.90	2.10	1.90	1.70	1.55	1.75	1.45	1.35	1.75	1.35
April.....	1.82	1.80	1.90	1.70	1.55	1.70	1.45	1.35	1.75	1.35
May.....	1.80	1.80	2.00	1.70	1.60	1.70	1.40	1.35	1.75	1.30
June.....	1.80	1.85	2.00	1.65	1.60	1.65	1.40	1.35	1.75	1.30
July.....	1.80	1.85	2.00	1.50	1.60	1.65	1.40	1.40	1.75	1.30
August....	1.80	1.85	2.00	1.50	1.60	1.60	1.40	1.40	1.70	1.30
September..	1.84	1.85	2.00	1.50	1.70	1.60	1.35	1.45	1.70	1.30
October....	1.85	1.90	1.90	1.50	1.70	1.55	1.35	1.50	1.70	1.30
November..	2.03	1.90	1.90	1.50	1.75	1.55	1.35	1.65	1.50	1.35
December..	2.20	1.90	1.90	1.50	1.75	1.50	1.35	1.75	1.40	1.30
Average..	\$1.87	\$1.93	\$1.94	\$1.60	\$1.62	\$1.65	\$1.41	\$1.44	\$1.69	\$1.32

In January, 1915, the average monthly price was \$1.35; in February, \$1.40; in March, \$1.45; in April and May, \$1.40; in June, \$1.45; and in July, \$1.50.

PRICES OF BAR IRON FROM STORE AT PHILADELPHIA.

The following table gives the average monthly and yearly prices from store at Philadelphia of best refined bar iron from 1905 to 1914, in lots of 100 pounds. These prices have been furnished by Mr. Walter W. Cook, Secretary of the Iron Merchants' Association, of Philadelphia.

Months.	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.
January...	\$1.91	\$1.96	\$2.08	\$1.76	\$1.74	\$1.96	\$1.67	\$1.62	\$2.06	\$1.66
February...	1.91	1.96	2.16	1.76	1.73	1.96	1.67	1.62	2.06	1.66
March.....	1.91	1.96	2.16	1.76	1.62	1.96	1.67	1.62	2.06	1.66
April.....	1.91	1.96	2.16	1.76	1.62	1.90	1.67	1.62	1.96	1.57
May.....	1.91	1.96	2.16	1.76	1.62	1.86	1.69	1.64	1.96	1.57
June.....	1.91	1.96	2.16	1.66	1.67	1.86	1.62	1.67	1.96	1.57
July.....	1.91	1.96	2.16	1.66	1.67	1.86	1.62	1.71	1.96	1.57
August....	1.91	1.96	2.16	1.66	1.76	1.76	1.62	1.71	1.96	1.66
September..	1.91	1.96	2.16	1.66	1.81	1.76	1.62	1.81	1.86	1.66
October....	1.91	1.96	2.06	1.66	1.91	1.76	1.62	1.96	1.76	1.52
November...	1.96	2.06	1.96	1.66	1.96	1.76	1.62	1.96	1.76	1.52
December..	1.96	2.06	1.96	1.66	1.96	1.76	1.62	2.06	1.66	1.52
Average..	\$1.92	\$1.98	\$2.11	\$1.70	\$1.76	\$1.85	\$1.64	\$1.75	\$1.92	\$1.59

In January, February, and March, 1915, the average monthly price was \$1.52; in April and May, \$1.57; and in June, \$1.62.

AVERAGE MONTHLY PRICES OF CUT NAILS AT PHILADELPHIA.

The following table gives the average monthly base prices of iron and steel cut nails, per keg of 100 pounds, from store at Philadelphia, as reported by the Duncannon Iron Company from 1905 to 1907, by the Williamsport Iron and Nail Company from 1908 to 1910, and by Edward L. Hand & Co., Philadelphia, from 1911 to 1914:

Months.	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.
January...	\$2.05	\$2.05	\$2.30	\$2.35	\$2.00	\$2.15	\$2.00	\$1.90	\$2.00	\$1.90
February...	2.10	2.10	2.35	2.35	2.00	2.15	2.05	1.90	2.00	1.90
March.....	2.10	2.10	2.35	2.35	2.00	2.15	2.05	1.90	2.00	1.90
April.....	2.10	2.10	2.35	2.35	2.00	2.15	2.05	1.90	2.00	1.90
May.....	2.10	2.10	2.35	2.25	2.05	2.15	2.05	1.90	2.00	1.90
June.....	2.00	2.10	2.35	2.15	2.05	2.15	2.05	1.90	2.00	1.90
July.....	1.95	2.10	2.40	2.15	2.05	2.15	2.05	1.90	2.05	1.90
August....	1.90	2.10	2.40	2.15	2.10	2.10	2.00	1.90	2.00	1.90
September..	1.87	2.15	2.40	2.15	2.10	2.05	2.00	1.95	2.00	1.90
October....	1.92	2.20	2.40	2.10	2.10	2.05	2.00	1.95	2.00	1.90
November...	1.95	2.20	2.35	2.05	2.10	2.00	1.95	1.95	1.95	1.90
December..	2.01	2.30	2.35	2.00	2.10	1.90	1.95	2.00	1.90	1.90
Average..	\$2.00	\$2.13	\$2.36	\$2.20	\$2.05	\$2.10	\$2.02	\$1.92	\$1.99	\$1.90

AVERAGE MONTHLY PRICES OF WIRE NAILS AT PITTSBURGH.

The following table, for which we are indebted to the *Iron Age*, gives the average monthly and yearly prices of wire nails, per keg of 100 pounds, at Pittsburgh, from 1905 to 1914:

Months.	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.
January...	\$1.75	\$1.85	\$2.00	\$2.05	\$1.95	\$1.85	\$1.71	\$1.57	\$1.75	\$1.54
February...	1.80	1.85	2.00	2.05	1.95	1.85	1.75	1.60	1.75	1.60
March.....	1.80	1.85	2.00	2.05	1.95	1.85	1.79	1.60	1.76	1.60
April.....	1.80	1.85	2.00	2.05	1.87	1.85	1.80	1.60	1.80	1.60
May.....	1.80	1.85	2.00	2.05	1.65	1.82	1.80	1.60	1.80	1.56
June.....	1.74	1.85	2.00	1.97	1.70	1.80	1.75	1.60	1.80	1.50
July.....	1.70	1.84	2.00	1.95	1.72	1.75	1.70	1.62	1.70	1.52
August....	1.70	1.82	2.00	1.95	1.80	1.70	1.69	1.66	1.65	1.56
September.	1.74	1.86	2.05	1.95	1.80	1.70	1.65	1.70	1.65	1.60
October....	1.80	1.85	2.05	1.95	1.80	1.70	1.64	1.70	1.63	1.60
November..	1.80	1.88	2.05	1.95	1.80	1.70	1.55	1.70	1.59	1.50
December..	1.80	2.00	2.05	1.95	1.85	1.70	1.53	1.72	1.55	1.55
Average..	\$1.77	\$1.86	\$2.02	\$1.99	\$1.82	\$1.77	\$1.70	\$1.64	\$1.70	\$1.56

The average monthly price of wire nails at Pittsburgh in 1915 was \$1.54 in January, \$1.57 in February, \$1.60 in March, \$1.57 in April, \$1.55 in May and June, and \$1.59 in July.

AVERAGE MONTHLY PRICES OF WIRE NAILS AT CHICAGO.

The following table, compiled from quotations in the *Iron Age* and *Hardware Age*, gives the average monthly base prices of standard sizes of wire nails, per keg of 100 pounds, in carload lots, free on board at Chicago, from 1905 to 1914:

Months.	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.
January...	\$1.90	\$1.94	\$2.15	\$2.23	\$2.13	\$2.03	\$1.89	\$1.74	\$1.93	\$1.71
February...	1.95	1.95	2.15	2.23	2.13	2.03	1.93	1.78	1.93	1.78
March.....	1.95	1.95	2.15	2.23	2.13	2.03	1.97	1.78	1.93	1.78
April.....	1.95	1.95	2.15	2.23	2.13	2.03	1.98	1.78	1.98	1.78
May.....	1.95	1.95	2.15	2.23	1.83	2.03	1.98	1.78	1.98	1.75
June.....	1.95	1.95	2.18	2.13	1.88	2.03	1.94	1.78	1.98	1.70
July.....	1.95	1.95	2.18	2.13	1.90	1.94	1.88	1.78	1.98	1.70
August....	1.87	1.95	2.18	2.13	1.98	1.88	1.88	1.84	1.86	1.74
September.	1.87	1.96	2.23	2.13	1.98	1.88	1.88	1.88	1.83	1.78
October....	1.95	2.00	2.23	2.13	1.98	1.88	1.87	1.88	1.82	1.78
November..	1.95	2.04	2.23	2.13	1.98	1.88	1.80	1.88	1.77	1.77
December..	1.95	2.15	2.23	2.13	2.00	1.88	1.73	1.90	1.73	1.74
Average..	\$1.93	\$1.98	\$2.18	\$2.17	\$2.00	\$1.96	\$1.89	\$1.82	\$1.89	\$1.75

The average monthly price of wire nails at Chicago in 1915 was \$1.71 in January, \$1.78 in February, \$1.79 in March and April, \$1.74 in May and June, and \$1.76 in July.

AVERAGE WHOLESALE MONTHLY PRICES OF TINPLATES.

The following table, compiled from weekly quotations in the *Industrial World* and *Steel and Iron*, gives the average monthly and yearly prices of domestic coke tinplates, 14 by 20, per box of 100 pounds, at tinplate mills in Pennsylvania, since 1905 :

Months.	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.
January....	\$3.55	\$3.47	\$3.90	\$3.74	\$3.70	\$3.60	\$3.60	\$3.40	\$3.60	\$3.60
February...	3.55	3.50	3.90	3.70	3.70	3.60	3.67	3.40	3.60	3.60
March.....	3.55	3.50	3.90	3.70	3.53	3.60	3.70	3.40	3.60	3.60
April.....	3.55	3.57	3.90	3.70	3.40	3.60	3.70	3.40	3.60	3.60
May.....	3.55	3.66	3.90	3.70	3.40	3.60	3.70	3.42	3.60	3.60
June.....	3.55	3.75	3.90	3.70	3.40	3.60	3.70	3.50	3.60	3.60
July.....	3.55	3.75	3.90	3.70	3.40	3.60	3.70	3.50	3.60	3.60
August....	3.55	3.75	3.90	3.70	3.40	3.60	3.70	3.50	3.60	3.60
September.	3.55	3.75	3.90	3.70	3.40	3.60	3.67	3.58	3.60	3.52
October....	3.36	3.75	3.90	3.70	3.50	3.60	3.52	3.60	3.60	3.25
November..	3.34	3.90	3.90	3.70	3.56	3.60	3.40	3.60	3.60	3.17
December..	3.40	3.90	3.90	3.70	3.60	3.60	3.40	3.60	3.60	3.20
Average..	\$3.50	\$3.69	\$3.90	\$3.70	\$3.50	\$3.60	\$3.62	\$3.49	\$3.60	\$3.49

ENGLISH PRICES OF PIG IRON AND RAILS.

AVERAGE MONTHLY AND YEARLY PRICES OF BESSEMER PIG IRON IN THE NORTHWEST OF ENGLAND.

The following table, which we have compiled from quotations in the British Blue Book and in the London *Iron and Coal Trades Review*, gives the average monthly and yearly prices of Bessemer pig iron in the northwest of England from 1905 to 1914. The prices are per gross ton.

Months.	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.
January....	\$13.52	\$17.63	\$19.95	\$15.97	\$14.23	\$15.79	\$16.60	\$16.28	\$21.02	\$15.67
February....	14.17	17.15	19.77	14.49	13.94	16.20	16.58	16.28	20.99	15.88
March.....	14.19	16.54	19.32	15.02	13.86	16.52	16.26	16.28	20.83	15.91
April.....	14.23	16.26	18.77	15.08	14.08	17.07	15.99	16.83	20.65	15.73
May.....	14.19	16.34	19.95	15.04	14.25	16.66	15.81	17.45	20.30	15.60
June.....	13.88	16.42	19.85	14.80	14.23	16.46	15.57	17.68	19.65	15.55
July.....	13.86	16.18	19.95	14.35	14.23	16.12	15.33	18.62	18.88	15.55
August....	13.94	16.14	19.81	14.13	14.41	16.16	15.43	19.05	18.13	17.15
September..	14.82	16.62	19.03	14.66	15.06	16.46	15.57	19.93	17.52	18.12
October....	16.93	16.91	18.24	14.80	15.18	16.36	15.39	20.65	17.11	17.25
November..	17.31	17.37	17.13	14.55	15.14	16.18	15.20	20.73	16.46	15.88
December..	17.43	20.13	16.58	14.25	15.24	16.08	15.75	21.02	15.64	16.96
Average...	\$14.87	\$16.97	\$19.03	\$14.76	\$14.49	\$16.34	\$15.79	\$18.40	\$18.93	\$16.27

In the first seven months of 1915 the average monthly prices of Bessemer pig iron in the northwest of England were as follows: January, \$20.33; February, \$22.17; March, \$23.22; April, \$26.00; May, \$25.66; June, \$25.51; and July, \$25.76.

AVERAGE PRICES OF NO. 3 CLEVELAND PIG IRON.

The following table, which we have compiled from quotations in the British Blue Book and in the London *Iron and Coal Trades Review*, gives the average monthly and yearly prices of No. 3 Cleveland pig iron, at Cleveland, England, during the last ten years, per gross ton of 2,240 pounds:

Months.	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.
January....	\$11.88	\$13.09	\$14.70	\$11.78	\$11.88	\$12.65	\$12.14	\$12.16	\$16.27	\$12.38
February...	11.53	12.30	13.74	12.00	11.70	12.54	11.96	12.00	15.48	12.51
March.....	11.88	11.88	13.33	12.56	11.39	12.56	11.78	12.39	15.72	12.41
April.....	11.90	11.98	13.68	12.58	11.63	12.42	11.43	12.95	16.32	12.50
May.....	11.90	12.28	14.94	12.54	11.76	12.18	11.29	13.21	16.10	12.51
June.....	11.07	12.30	14.13	12.44	11.84	12.02	11.33	13.33	13.80	12.51
July.....	11.05	12.34	14.04	12.32	11.80	11.96	11.41	13.99	13.67	12.49
August.....	11.35	12.95	14.00	12.48	12.28	12.12	11.51	14.83	13.54	12.70
September..	11.82	13.35	13.52	12.62	12.50	12.02	11.43	16.13	13.44	12.49
October....	12.83	13.84	13.31	12.04	12.60	12.08	11.35	16.20	12.89	12.21
November...	12.81	14.33	12.32	12.00	12.40	12.08	11.57	16.38	12.05	12.15
December..	12.95	15.24	12.12	11.94	12.34	12.14	12.08	16.42	12.21	12.89
Average..	\$11.91	\$12.99	\$13.65	\$12.27	\$12.01	\$12.23	\$11.61	\$14.17	\$14.29	\$12.48

In the first seven months of 1915 the average monthly prices of No. 3 Cleveland pig iron, at Cleveland, England, were as follows: January, \$13.54; February, \$13.75; March, \$14.52; April, \$16.29; May \$16.08; June, \$16.19; and July, \$16.33.

AVERAGE MONTHLY PRICES OF ENGLISH STEEL RAILS.

The following table gives the average monthly and yearly prices of steel rails in England from 1905 to 1914, per gross ton. The averages have been compiled from weekly quotations in the *London Iron and Coal Trades Review*.

Months.	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.
January....	\$22.14	\$29.35	\$32.23	\$29.80	\$26.91	\$26.15	\$27.21	\$27.52	\$32.84	\$31.63
February...	24.57	29.95	32.84	29.80	26.76	26.15	27.97	27.97	32.84	31.63
March.....	24.57	30.41	32.84	29.35	26.61	26.15	27.97	27.97	32.84	31.16
April.....	26.15	30.41	32.84	28.82	26.15	26.30	27.97	28.12	32.39	30.41
May.....	26.15	30.89	32.84	28.58	26.15	26.76	27.67	29.56	32.23	29.95
June.....	26.15	31.02	32.84	28.58	26.15	26.76	27.37	30.71	32.23	29.80
July.....	26.15	31.02	32.84	28.58	26.15	26.76	27.37	31.02	32.23	28.58
August.....	26.15	31.02	33.45	28.28	26.15	26.76	27.37	31.14	32.23	30.25
September..	26.15	31.02	32.84	27.98	26.15	26.76	27.37	31.78	32.07	32.84
October....	26.15	31.02	32.84	27.97	26.15	26.76	27.37	32.23	31.63	31.99
November...	28.82	31.02	31.63	27.82	26.15	26.76	27.37	32.23	31.63	31.02
December..	29.44	31.63	31.02	27.37	26.15	26.76	27.37	32.53	31.63	31.02
Average..	\$26.05	\$30.73	\$32.59	\$28.58	\$26.30	\$26.57	\$27.53	\$30.23	\$32.23	\$30.86

In 1915 the average monthly prices of English steel rails were as follows: January, \$31.75; February, \$33.45; March, \$35.28; April and May, \$37.10; June, \$38.31; and July, \$43.18.

DOMESTIC PRICES OF LAKE SUPERIOR IRON ORE AND CONNELLSVILLE COKE.

PRICES OF LAKE SUPERIOR IRON ORE FROM 1904 TO 1915.

[From The Iron Trade Review.]

Years.	Old range Besse- mer.	Old range non- Besse- mer.	Mesabi Besse- mer.	Mesabi non- Besse- mer.	Years.	Old range Besse- mer.	Old range non- Besse- mer.	Mesabi Besse- mer.	Mesabi non- Besse- mer.
1904..	\$3.25	\$2.75	\$3.00	\$2.50	1910..	\$5.00	\$4.20	\$4.75	\$4.00
1905..	3.75	3.20	3.50	3.00	1911..	4.50	3.70	4.25	3.50
1906..	4.25	3.70	4.00	3.50	1912..	3.75	3.00	3.50	2.85
1907..	5.00	4.20	4.75	4.00	1913..	4.40	3.60	4.15	3.40
1908..	4.50	3.70	4.25	3.50	1914..	3.75	3.00	3.50	2.85
1909..	4.50	3.70	4.25	3.50	1915..	3.75	3.00	3.45	2.80

The above classification of iron ores conforms to that adopted by the Lake Superior Iron Ore Association. Down to 1907 the base for old range Bessemer iron ores was a hypothetical ore containing 63 per cent. of metallic iron, 0.045 per cent. of phosphorus, and 10 per cent. of moisture, giving a natural iron content of 56.70 per cent. The base for the non-Bessemer ores down to 1907 was an ore supposed to contain 60 per cent. of metallic iron and 12 per cent. of moisture, giving a natural iron content of 52.80 per cent., except for Mesabi non-Bessemer for 1905 and 1906, when the natural iron content was 53 per cent. Before the sales for delivery in 1907 were made the natural iron content for the base was changed to 55 per cent. for the old range and Mesabi Bessemer and 51.50 per cent. for the old range and Mesabi non-Bessemer. The prices given in the above table for 1907 and for all subsequent years relate to the new base schedule.

AVERAGE PRICES OF CONNELLSVILLE COKE, 1910-1914.

The following table gives the average monthly prices per net ton of 2,000 pounds of prompt Connellsville furnace and foundry coke at ovens in the last five years. The prices for furnace coke were compiled by the Connellsville *Courier*; for foundry coke they have been compiled from weekly quotations in the *Iron Age*.

Months.	Furnace coke—Per net ton.					Foundry coke—Per net ton.				
	1910.	1911.	1912.	1913.	1914.	1910.	1911.	1912.	1913.	1914.
January...	\$2.60	\$1.40	\$1.88	\$3.85	\$1.88	\$3.05	\$2.00	\$1.97	\$4.35	\$2.50
February..	2.25	1.47	1.84	2.60	1.90	2.75	2.10	2.06	3.25	2.50
March.....	2.00	1.57	2.04	2.47	1.92	2.60	2.15	2.41	3.00	2.47
April.....	1.80	1.58	2.53	2.20	1.90	2.40	2.10	2.71	3.00	2.41
May.....	1.70	1.50	2.32	2.15	1.83	2.25	2.00	2.58	2.87	2.40
June.....	1.65	1.45	2.21	2.20	1.80	2.20	1.95	2.42	2.75	2.33
July.....	1.65	1.45	2.34	2.50	1.75	2.15	1.90	2.40	2.75	2.27
August....	1.65	1.53	2.25	2.50	1.74	2.15	1.90	2.40	2.90	2.21
September.	1.60	1.50	2.42	2.37	1.70	2.15	1.85	2.57	2.90	2.09
October...	1.55	1.50	3.46	2.10	1.65	2.10	1.85	3.45	2.80	2.00
November..	1.45	1.50	3.95	1.88	1.60	2.00	1.90	4.06	2.60	1.92
December..	1.50	1.68	4.00	1.80	1.60	2.00	1.95	4.44	2.50	1.94
Average..	\$1.78	\$1.51	\$2.60	\$2.38	\$1.77	\$2.32	\$1.97	\$2.79	\$2.97	\$2.25

The average price of all coke shipped from the Connellsville region in 1914, both furnace and foundry, was \$2.00 per net ton, as compared with \$2.95 in 1913.

In 1915 the average monthly price of furnace coke at ovens for spot shipment, per net ton, was as follows : In January and February, \$1.55 ; in March, \$1.53 ; in April, \$1.55 ; in May and June, \$1.50 ; and in July, \$1.67. The average monthly price of prompt foundry coke at ovens was \$2.00 per net ton in January, February, March, and April ; \$1.92 in May ; \$1.97 in June ; and \$2.00 in July.

RAILWAY AND SHIPBUILDING STATISTICS.

RAILWAY STATISTICS.

NEW STEAM RAILROAD MAIN TRACK BUILT IN THE UNITED STATES, NOT INCLUDING DOUBLE TRACKS AND SIDINGS.

[Compiled from Poor's Manual and the Railway Age Gazette. Calendar years.]

Years.	Miles.	Years.	Miles.	Years.	Miles.	Years.	Miles.
1880.....	7,174	1889....	5,700	1898....	3,199	1907....	5,499
1881.....	9,779	1890....	5,657	1899....	4,513	1908....	3,654
1882.....	11,599	1891....	4,620	1900....	4,157	1909....	3,476
1883.....	6,819	1892....	4,584	1901....	4,912	1910....	3,918
1884.....	3,974	1893....	2,789	1902....	5,076	1911....	3,066
1885.....	3,131	1894....	2,264	1903....	4,675	1912....	2,997
1886.....	8,128	1895....	1,938	1904....	5,003	1913....	3,071
1887.....	12,984	1896....	2,068	1905....	5,050	1914....	1,532
1888.....	7,066	1897....	2,161	1906....	5,643	.....	.....

In addition to the new main line track laid in 1914 the *Railway Age Gazette* says there were 595 miles of second, third, fourth, or more tracks laid in the same year, as compared with 1,396 miles of similar track laid in 1913. Yard and side tracks are not included for either year.

MILEAGE OF STEAM RAILROAD TRACK COVERED BY REPORTS OF OPERATIONS, 1900-1914.

[From Reports of the Interstate Commerce Commission.]

Year ended June 30.	Single track. Miles.	Second track. Miles.	Third track. Miles.	Fourth track. Miles.	Yard track and sidings. Miles.	Total. Miles.
1900.....	192,556.03	12,151.48	1,094.48	829.29	52,153.02	258,784.30
1901.....	195,561.92	12,845.42	1,153.96	876.13	54,914.86	265,352.29
1902.....	200,154.56	13,720.72	1,204.04	895.11	58,220.93	274,195.36
1903.....	205,313.54	14,681.03	1,303.53	963.36	61,560.06	283,821.52
1904.....	212,243.20	15,824.04	1,467.14	1,046.50	66,492.46	297,073.34
1905.....	216,973.61	17,056.30	1,609.63	1,215.53	69,941.67	306,796.74
1906.....	222,340.30	17,936.25	1,766.07	1,279.66	73,760.91	317,083.19
1907.....	227,454.83	19,420.82	1,960.42	1,389.73	77,749.46	327,975.26
1908*....	230,494.02	20,209.05	2,081.16	1,408.99	79,452.64	333,645.86
1909*....	235,402.09	20,949.41	2,169.55	1,453.56	82,376.63	342,351.24
1910*....	240,830.75	21,658.74	2,206.39	1,488.78	85,581.93	351,766.59
1911*....	246,238.02	23,451.26	2,414.16	1,747.10	88,973.95	362,824.49
1912*....	249,852.06	24,951.65	2,511.76	1,903.32	92,019.13	371,237.92
1913*....	253,470.20	26,273.79	2,588.68	1,964.06	95,211.41	379,508.14
1914*....	256,547.10	27,608.66	2,696.03	2,071.45	98,285.07	387,208.31

* Excludes mileage of switching and terminal companies.

MILEAGE OF ELECTRIC AND STREET RAILWAYS.

Statistics compiled during 1915 by the *Electric Railway Journal* show that during 1914, 716 miles of electric or street railway tracks were built and 230 miles of steam railroad track were electrified in the United States and Canada, a total of 946 miles, as compared with 1,019 miles in 1913, 950 miles in 1912, and 1,191 miles in 1911. During 1914, 2,147 city cars, 384 interurban cars, and 479 freight and miscellaneous cars were bought by the electric railway companies of the United States or built in their own shops, a total of 3,010 cars, as compared with 5,514 cars in 1913, 6,001 cars in 1912, and 4,015 cars in 1911.

CARS AND LOCOMOTIVES BUILT IN 1913 AND 1914.

According to the *Railway Age Gazette* the number of railroad cars built in the United States and Canada in 1914 was 108,232, as compared with 210,980 in 1913, a decrease of 102,748 cars, or 48.7 per cent. Of the total in 1914, 104,541 were freight cars and 3,691 were passenger cars, against 207,684 freight cars and 3,296 passenger cars in 1913. Cars built in railroad shops and subway and elevated cars are included for both years, but not street railroad and interurban cars.

The total for freight cars for 1914 includes 44,098 of all-steel construction, 51,515 which had steel underframes, and 8,928 which were built of wood. Of the passenger cars built during the same year, 3,441 were all steel, 94 had steel underframes, and 156 were wood.

Returns received by the *Gazette* from the leading locomotive builders and from railroad shops show that 2,235 new locomotives were built in the United States and Canada in 1914, as compared with 5,332 in 1913. Of the total in 1914, 1,962 were for domestic use and 273 were for export, as compared with 4,561 for domestic use and 771 for export in 1913.

SHIPBUILDING STATISTICS.

NUMBER AND GROSS TONNAGE OF METAL VESSELS BUILT IN
THE UNITED STATES IN THE CALENDAR YEAR 1914.

[Furnished by the Commissioner of Navigation.]

Ports.	Sailing.		Steam.		Gas.		Barges.		Total.	
	No.	Gross tons.	No.	Gross tons.	No.	Gross tons.	No.	Gross tons.	No.	Gross tons.
Bath, Maine.....	1	87	..	.....	..	.....	..	.....	1	87
Boston, Mass.....	1	99	3	13,802	1	199	..	.....	5	14,100
Providence, R. I. . .	2	412	..	.....	..	.....	..	.....	2	412
New York, N. Y.	8	3,564	2	46	..	.....	10	3,610
Newark, N. J.	4	1,468	..	.....	..	.....	4	1,468
Philadelphia, Pa.	6	27,689	..	.....	2	2,065	8	29,754
Wilmington, Del.	6	5,661	..	.....	5	1,272	11	6,933
Baltimore, Md.	6	21,300	..	.....	1	241	7	21,541
Newport News, Va.	5	31,987	..	.....	..	.....	5	31,987
New Orleans, La.	6	2,605	..	.....	6	2,605
Memphis, Tenn.	2	19	..	.....	2	19
St Louis, Mo.	1	11	..	.....	1	11
Des Moines, Iowa.	1	51	..	.....	..	.....	1	51
Cincinnati, Ohio	1	62	..	.....	1	62
Pittsburgh, Pa.	4	913	..	.....	..	.....	4	913
Buffalo, N. Y.	3	55	2	77	1	532	6	664
Cleveland, Ohio.	11	26,693	..	.....	..	.....	11	26,693
Detroit, Mich.	4	11,359	..	.....	2	104	6	11,463
Grand Haven, Mich.	4	216	1	75	..	.....	5	291
Milwaukee, Wis.	2	223	..	.....	3	1,795	5	2,018
Los Angeles, Cal.	1	1,522	..	.....	..	.....	1	1,522
San Francisco, Cal.	4	12,927	..	.....	..	.....	4	12,927
Seattle, Wash.	1	580	..	.....	..	.....	1	580
Total.	4	598	73	160,010	16	3,094	14	6,009	107	169,711

The tonnage of vessels built for the United States Navy is not included. The term "gross ton" expresses in units of 100 cubic feet the entire cubical capacity of the vessel, including the space occupied by the crew and the engines, boilers, and bunker coal.

Practically all the vessels enumerated above were built of steel. Of the 107 vessels and barges launched in 1914, 27 steam and gas vessels and 6 barges were built at ports on the Great Lakes, their total tonnage amounting to 41,129 tons, against 38 vessels and 73,197 tons in 1913. The sailing vessels built in 1914 were all yachts; 7 yachts of 1,254 tons are also included in the steam and gas vessels built.

In the calendar year 1913 the total number of metal vessels built in the United States was 138 and the tonnage was 235,878 tons, a decrease in 1914 of 31 vessels and 66,167 tons.

NUMBER AND TONNAGE OF METAL VESSELS AND BARGES
BUILT IN THE UNITED STATES, 1888-1914.

From Reports of the Commissioner of Navigation. Fiscal years ended on June 30.

Year ended June 30.	Sailing.		Steam.		Barges.		Total.	
	No.	Gross tons.	No.	Gross tons.	No.	Gross tons.	No.	Gross tons.
1888.....	3	317	43	37,921	1	428	47	38,666
1889.....	2	95	52	62,261	..	.....	54	62,356
1890.....	2	184	61	79,342	5	5,133	68	84,659
1891.....	4	211	81	102,630	6	6,305	91	109,146
1892.....	5	415	52	45,896	4	4,958	61	51,269
1893.....	8	2,012	61	82,933	9	11,717	78	96,662
1894.....	2	4,647	38	46,889	..	.....	40	51,536
1895.....	3	5,267	37	43,335	5	704	45	49,306
1896.....	6	15,800	47	82,311	7	3,487	60	101,598
1897.....	10	31,424	48	83,140	13	11,521	71	126,085
1898.....	2	6,724	52	48,560	10	7,041	64	62,325
1899.....	5	16,152	83	112,781	4	2,823	92	131,756
1900.....	11	29,168	81	167,957	..	.....	92	197,125
1901.....	12	21,746	102	236,159	7	4,825	121	262,730
1902.....	3	8,406	102	270,932	2	1,024	107	280,362
1903.....	4	12,184	100	240,107	4	5,928	108	258,219
1904.....	4	15,290	88	222,307	6	3,483	98	241,080
1905.....	5	3,225	68	170,304	16	9,111	89	182,640
1906.....	4	3,077	100	289,094	11	5,199	115	297,370
1907.....	4	5,655	108	333,516	17	9,384	129	348,555
1908.....	..	.....	132	442,625	17	7,392	149	450,017
1909.....	9	7,985	67	123,142	13	5,796	89	136,923
1910.....	6	3,699	94	234,988	19	11,937	119	250,624
1911.....	1	1,290	112	195,964	13	4,719	126	201,973
1912.....	5	6,097	81	119,181	18	10,603	104	135,881
1913.....	6	13,000	104	205,675	22	12,987	132	231,662
1914.....	..	.....	101	195,611	21	9,820	122	205,431

STATISTICS FOR CANADA.

PIG IRON.

PRODUCTION OF PIG IRON BY GRADES, GROSS TONS, 1900-1914.

Years.	Basic.	Bessemer.	Foundry.*	All other.	Total
1900.....	9,720	3,781	72,589		86,090
1901.....	22,665	29,577	184,795	7,939	244,976
1902.....	107,315	9,253	165,466	37,523	319,557
1903.....	126,892	600	113,717	24,209	265,418
1904.....	70,133	26,016	155,035	19,758	270,942
1905.....	172,102	149,203	139,528	7,170	468,003
1906.....	246,228	165,609	124,361	5,759	541,957
1907.....	341,257	154,910	78,901	6,078	581,146
1908.....	335,410	112,811	109,471	5,980	563,672
1909.....	357,965	169,545	108,608	40,972	677,090
1910.....	365,090	221,494	143,986	9,640	740,210
1911.....	413,303	186,274	190,324	34,467	824,368
1912.....	489,799	228,742	194,208	129	912,878
1913.....	558,524	227,662	225,231	3,701	1,015,118
1914.....	331,456	184,053	174,346	16,117	705,972

* Includes ferro-silicon.

PRODUCTION OF PIG IRON BY FUELS, GROSS TONS, 1895-1914.

Years.	Coke.	Char-coal.*	Total.	Years.	Coke.	Char-coal.*	Total.
1895...	31,348	6,481	37,829	1905...	432,870	35,133	468,003
1896...	54,123	5,907	60,030	1906...	525,716	16,241	541,957
1897...	45,410	8,386	53,796	1907...	572,025	9,121	581,146
1898...	62,384	6,371	68,755	1908...	556,671	7,001	563,672
1899...	73,981	20,096	94,077	1909...	660,856	16,234	677,090
1900...	70,349	15,741	86,090	1910...	724,174	16,036	740,210
1901...	228,893	16,083	244,976	1911...	799,716	24,652	824,368
1902...	302,712	16,845	319,557	1912...	886,506	26,372	912,878
1903...	247,905	17,513	265,418	1913...	986,848	28,270	1,015,118
1904...	251,671	19,271	270,942	1914...	690,880	15,092	705,972

* Includes pig iron made with charcoal and coke, electricity, etc.

PRODUCTION OF PIG IRON BY GRADES, 1913-1914, SHOWING INCREASE OR DECREASE BY GRADES, GROSS TONS.

Grades.	1914.	Per cent.	1913.	Per cent.	Decrease.	Per cent.
Basic.....	331,456	46.95	558,524	55.02	227,068	40.65
Bessemer.....	184,053	26.07	227,662	22.43	43,609	19.15
Foundry.....	174,346	24.70	225,231	22.19	50,885	22.59
All other.....	16,117	2.28	3,701	.36	*12,416	*335.47
Total.....	705,972	100.00	1,015,118	100.00	309,146	30.45

* Increase.

PIG IRON MADE FOR SALE OR USE OF MAKERS, 1914.

Grades.	For sale.	For own use.	Total.
Foundry and ferro-silicon.....	*174,346	.....	174,346
Other grades.....	16,099	515,527	531,626
Total.....Gross tons.	190,445	515,527	705,972

* Sand cast, 164,394; machine cast, 9,952 tons.

METHODS BY WHICH ALL PIG IRON WAS CAST OR DELIVERED.

Years.	Molten condition.	Sand cast.	Machine cast.	Chill cast.	Direct castings.	Total. Gross tons.
1912.....	551,262	232,509	129,003	.....	104	912,878
1913.....	672,065	215,541	127,477	.....	35	1,015,118
1914.....	449,713	188,135	68,106	.....	18	705,972

HALF-YEARLY PRODUCTION OF PIG IRON, 1913-1914.

Provinces.	Blast furnaces.				Production—Gross tons. (Includes ferro-silicon, ferro-phosphorus, etc.)		
	In blast June 30, 1914.	December 31, 1914.			First half of 1914.	Second half of 1914.	Total for 1914.
		In.	Out.	Total.			
Ontario.....	7	3	8	11	309,765	193,449	503,214
Nova Scotia.....	4	3	5	8	132,665	70,093	202,758
Quebec.....	0	0	3	3			
Total, 1914...	11	6	16	22	442,430	263,542	705,972
Total, 1913...	13	10	12	22	545,981	469,137	1,015,118

PRODUCTION OF PIG IRON ACCORDING TO FUEL USED, 1914.

Coke.....	10	6	11	17	433,733	257,147	690,880
Charcoal *.....	1	0	5	5	8,697	6,395	15,092
Total.....	11	6	16	22	442,430	263,542	705,972

* Includes pig iron made with electricity.

RAW MATERIALS CONSUMED IN BLAST FURNACES, 1910-1914.

Years	Total consumption of—				Consumption per ton of iron made.			
	Ore, cinder, etc. Gross tons.	Lime-stone. Gross tons.	Coke. Net tons.	Charcoal. Bushels.	Ore, cinder, etc. Pounds.	Lime-stone. Pounds.	Coke. Pounds.	Char-coal. Bushels.
1910.	1,453,910	510,650	.....*	.....*	4,399.8	1,545.3	.....	.....
1911.	1,607,354	567,462	.....*	.....*	4,367.5	1,541.9	.....	.....
1912.	1,915,165	666,214	1,275,349	1,886,748	4,699.4	1,634.7	2,854.6	97.3
1913.	2,045,780	705,483	1,413,111	2,206,191	4,514.3	1,556.7	2,843.3	104.2
1914.	1,358,184	419,864	910,887	883,625	4,309.4	1,332.2	2,611.4	105.5

* Consumption of coke and charcoal not determined prior to 1912.

CAPACITY OF BLAST FURNACES, DECEMBER 31, 1914.

Provinces.	Coke.		Charcoal.		Total.	
	No. stacks.	Gross tons.	No. stacks.	Gross tons.	No. stacks.	Gross tons.
Ontario.....	9	857,000	2	58,000	11	915,000
Nova Scotia.....	8	635,000	0	.....	8	635,000
Quebec.....	0	.....	3	14,800	3	14,800
Total, 1914.....	17	1,492,000	5	72,800	22	1,564,800
Total, 1913.....	17	1,479,750	5	72,800	22	1,552,550

STEEL INGOTS AND CASTINGS.

PRODUCTION OF ALL KINDS OF STEEL INGOTS AND CASTINGS.

Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.
1894.....	25,685	1901.....	26,084	1908.....	509,957
1895.....	17,000	1902.....	182,037	1909.....	678,751
1896.....	16,000	1903.....	181,514	1910.....	741,924
1897.....	18,400	1904.....	148,784	1911.....	790,871
1898.....	21,540	1905.....	403,449	1912.....	853,031
1899.....	22,000	1906.....	570,889	1913.....	1,042,503
1900.....	23,577	1907.....	646,754	1914.....	694,447

Statistics for years prior to 1894 are not available.

PRODUCTION OF STEEL INGOTS AND CASTINGS, 1904-1914.

Years.	Ingots.	Castings.	Total.	Years.	Ingots.	Castings.	Total.
1904....	142,279	6,505	148,784	1910....	723,002	18,922	741,924
1905....	394,055	9,394	403,449	1911....	768,559	22,312	790,871
1906....	555,913	14,976	570,889	1912....	820,792	32,239	853,031
1907....	629,026	17,728	646,754	1913....	1,006,149	36,354	1,042,503
1908....	500,300	9,657	509,957	1914....	675,691	18,756	694,447
1909....	664,789	13,962	678,751	.....	.....	.....	.....

PRODUCTION OF STEEL INGOTS AND CASTINGS BY PROCESSES.

Years.	Open-hearth.	Bessemer.	Other kinds.	Total.
1904.....	106,046	42,738	.....	148,784
1905.....	238,681	164,488	280	403,449
1906.....	347,778	219,791	3,320	570,889
1907....	440,936	202,268	3,550	646,754
1908.....	401,119	108,433	405	509,957
1909.....	496,142	182,304	305	678,751
1910....	542,354	199,570	...	741,924
1911....	601,074	189,797	...	790,871
1912.....	645,062	207,569	400	853,031
1913.....	768,663	273,391	449	1,042,503
1914.....	549,716	144,447	284	694,447

The total for 1914 includes about 4,800 tons of alloy-treated steel ingots and castings, against about 1,850 tons in 1913.

ACTIVE AND IDLE STEEL WORKS.

In 1914, 17 works made steel ingots or castings, against 16 works in 1913. The number of idle steel works in 1914 was 5, as compared with 4 in 1913.

In 1914, 5 works made ingots and 14 made castings. In the same year 7 plants made Bessemer steel ingots or castings, 7 plants made open-hearth steel, 1 plant made crucible steel, and 3 plants made electric steel. One plant made both Bessemer and open-hearth steel, and one plant made duplex steel.

NEW STEEL WORKS.

Five new steel plants were built in Canada in 1914.

FINISHED ROLLED IRON AND STEEL.

PRODUCTION OF FINISHED ROLLED PRODUCTS, 1895-1909.

Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.
1895.....	66,402	1900.....	100,690	1905.....	385,826
1896.....	75,043	1901.....	112,007	1906.....	571,742
1897.....	77,021	1902.....	161,485	1907.....	600,179
1898.....	90,303	1903.....	129,516	1908.....	496,517
1899.....	110,642	1904.....	180,038	1909.....	662,741

PRODUCTION OF FINISHED ROLLED FORMS BY LEADING PRODUCTS.

Products.	1910.	1911.	1912.	1913.	1914.
Rails.....	366,465	360,547	423,885	506,709	382,344
Structural shapes and wire rods..	80,993	76,617	64,082	68,048	59,050
Plates and sheets, nail plate, merchant bars, tie-plate bars, etc..	292,353	344,760	373,257	392,340	218,125
Total.....Gross tons.	739,811	781,924	861,224	967,097	659,519

PRODUCTION OF FINISHED ROLLED FORMS, SHOWING IRON AND STEEL SEPARATELY, GROSS TONS, 1904-1914.

Years.	Iron.	Steel.	Total.	Years	Iron.	Steel.	Total.
1904....	53,188	126,850	180,038	1910....	83,918	655,893	739,811
1905....	67,421	318,405	385,826	1911....	86,383	695,541	781,924
1906....	78,898	492,844	571,742	1912....	109,012	752,212	861,224
1907....	81,093	519,086	600,179	1913....	95,881	871,216	967,097
1908....	65,505	431,012	496,517	1914....	47,309	612,210	659,519
1909....	79,636	583,105	662,741	.....	.....	.....	.....

PRODUCTION OF STEEL RAILS, 1895-1914.

Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.
1895...	600	1900..	700	1905...	178,885	1910...	366,465
1896...	600	1901..	891	1906...	312,877	1911...	360,547
1897...	500	1902..	33,950	1907...	311,461	1912...	423,885
1898...	600	1903..	1,243	1908...	268,692	1913...	506,709
1899...	*835	1904..	36,216	1909...	344,830	1914...	382,344

* Includes a few tons of iron rails.

In 1914, the output of steel rails amounted to 57.9 per cent. of the total finished rolled production, against 52.3 per cent. in 1913 and 49.2 per cent. in 1912.

Of the total in 1914, 211,490 tons weighed 50 but less than 85 pounds per yard, 149,549 tons weighed 85 but less than 100 pounds per yard, and 21,305 tons weighed 100 pounds and over. Included in the total were 1,548 tons of alloy-treated rails.

PRODUCTION OF FINISHED ROLLED FORMS, SHOWING IRON AND STEEL SEPARATELY, GROSS TONS, 1914.

Products.	Iron.	Steel.	Total.
Rails.....	.....	382,344	382,344
Structural shapes and wire rods.....	.....	59,050	59,050
Plates and sheets, nail plate, merchant bars, long tie-plate bars, etc.....	47,309	170,816	218,125
Total.....	47,309	612,210	659,519

ACTIVE AND IDLE ROLLING MILLS.

In 1914 there were 17 works in 5 Provinces which rolled iron or steel into finished forms, against 21 works in 5 Provinces in 1913.

In 1914 there were 6 idle rolling mills—1 in Quebec, 4 in Ontario, and 1 in Manitoba. In 1913 there were 2 idle plants—both in Ontario.

Of the 17 active rolling mills in 1914, 4 were in Nova Scotia, 4 in Quebec, 6 in Ontario, 2 in Alberta, and 1 in New Brunswick.

NEW ROLLING MILLS.

In 1914, 2 new rolling mills were built in Canada—1 in Quebec and 1 in Manitoba.

MISCELLANEOUS IRON AND STEEL STATISTICS.

PRODUCTION OF CUT AND WIRE NAILS.

We estimate the total production of iron and steel cut and wire nails in Canada in 1914 as amounting to 1,144,000 kegs of 100 pounds, as compared with an estimated production in 1913 of 1,520,000 kegs, a decrease of 376,000 kegs.

Cut or wire nails were made by 18 works in 5 Provinces in 1914. Fourteen works made wire nails but not cut nails, 1 works made cut but not wire nails, and 3 works made both wire and cut nails. In 1913, wire or cut nails were made by 16 works in 6 Provinces.

PRODUCTION OF FINISHED ANGLE SPLICE BARS, ETC.

The production of finished angle splice bars, tie plates, fish plates, and other rail joints and fastenings in Canada by rolling mills and steel works in 1914, all steel, not including spikes bolts, nuts, and similar fastenings, amounted to 34,165 gross tons, as compared with 54,839 tons in 1913 and 52,157 tons in 1912. Similar statistics for 1911 and prior years were not collected by the American Iron and Steel Association.

In 1914, 3 works were active, against 5 works in 1913.

PRODUCTION OF FORGED IRON AND STEEL BY ROLLING MILLS AND STEEL WORKS, 1906-1914.

Years.	Production—Gross tons.			Years.	Production—Gross tons.		
	Iron.	Steel.	Total.		Iron.	Steel.	Total.
1906....	579	7,831	8,410	1911....	787	18,045	18,832
1907....	12,511	20,553	33,064	1912....	867	21,548	22,415
1908....	2,300	12,438	14,738	1913....	2,578	20,827	23,405
1909....	2,650	13,876	16,526	1914....	1,792	6,346	8,138
1910....	1,258	16,907	18,165	.....	.....	.....	.....

PRODUCTION OF CAST IRON PIPE.

We estimate the total production of cast iron gas and water pipe and fittings and cast iron soil and plumbers' pipe and fittings in Canada in 1914 as amounting to 93,200 net tons of 2,000 pounds, as compared with an estimated production in 1913 of 96,800 net tons, a decrease of 3,600 tons.

In 1914, 12 works were active, as compared with the same number of works in 1913.

PRODUCTION OF COAL, COKE, IRON ORE, ETC.

PRODUCTION, IMPORTS, AND EXPORTS OF COAL, NET TONS.

Cal-endar years.	Produc-tion.	Imports.	* Exports.	Calendar years.	Produc-tion.	Imports.	* Exports.
1901..	6,486,325	4,810,213	1,573,661	1908...	10,886,311	10,195,424	1,729,833
1902..	7,466,681	5,165,938	2,090,268	1909...	10,501,475	9,711,826	1,588,099
1903..	7,960,364	5,491,870	1,954,629	1910...	12,909,152	10,438,123	2,377,049
1904..	8,254,595	6,909,651	1,557,412	1911...	11,323,388	14,424,949	1,500,639
1905..	8,667,948	7,343,880	1,635,287	1912...	14,512,829	14,595,810	2,127,133
1906..	9,762,601	7,398,906	1,835,041	1913...	15,012,178	18,201,953	1,562,020
1907..	10,511,426	10,549,503	1,894,074	1914...	13,637,529	14,721,057	1,423,126

* Exports of Canadian coal only.

PRODUCTION, IMPORTS, AND EXPORTS OF COKE, NET TONS.

Cal-endar years.	Produc-tion.	* Imports.	Exports.	Calendar years.	Produc-tion.	* Imports.	Exports.
1901..	365,531	308,786	57,505	1908...	858,257	619,269	58,708
1902..	502,043	267,142	62,568	1909...	862,011	661,425	74,067
1903..	561,318	256,723	32,608	1910...	902,715	737,088	57,971
1904..	554,083	221,050	102,463	1911...	935,651	751,389	9,852
1905..	700,488	371,593	116,071	1912...	1,406,028	628,174	57,744
1906..	782,055	480,222	37,003	1913...	1,517,133	723,906	68,235
1907..	842,003	1,400,536	70,617	1914...	1,015,253	553,046	67,838

* Fiscal years from 1901 to 1908; calendar years from 1909 to 1914. † For 9 months only.

SHIPMENTS, IMPORTS, AND EXPORTS OF IRON ORE, NET TONS.

Cal-endar years.	Ship-ments.	* Imported ore consumed.	Exports.	Calendar years.	Ship-ments.	* Imported ore consumed.	Exports.
1901..	313,646	361,010	†	1908...	238,082	1,051,445	†
1902..	404,003	559,381	†	1909...	268,043	1,235,000	21,956
1903..	264,294	485,911	†	1910...	259,418	1,377,035	114,499
1904..	219,046	454,671	†	1911...	210,344	1,628,368	37,686
1905..	291,097	861,847	†	1912...	215,883	2,019,165	118,129
1906..	248,831	982,740	74,778	1913...	307,634	2,110,828	126,124
1907..	312,856	1,117,260	25,901	1914...	244,854	1,324,326	135,451

* Imported iron ore consumed by Canadian blast furnaces. † Not available.
 ‡ Exports for these years, though available, are incorrect, owing to duplication of entries

Imports and Exports of Pig Iron, Ferro-manganese, etc.—
 In 1914 the imports of pig iron, ferro-manganese, etc., into Canada amounted to 100,827 net tons, against 267,124 tons in 1913. In 1914 the exports amounted to 19,063 net tons, against 6,326 tons in 1913.

SHIPMENTS OF IRON ORE FROM CUBA.

The total shipments of Cuban iron ore to all countries by companies from the opening of the mines in 1884 to the close of 1914 were as follows. Gross tons are used. With the exception of 92,351 tons, all the ore was shipped to the United States.

Years.	Juragua Iron Company.	Spanish- American Iron Co.	Sagua Iron Company.	Cuban Steel Ore Company.	Ponupo Manganese Company.	Total. Gross tons.
1884.....	25,295	.....	.....	.....	.....	25,295
1885.....	80,716	.....	.....	.....	.....	80,716
1886.....	112,074	.....	.....	.....	.....	112,074
1887.....	94,240	.....	.....	.....	.....	94,240
1888.....	206,061	.....	.....	.....	.....	206,061
1889.....	260,291	.....	.....	.....	.....	260,291
1890.....	363,842	.....	.....	.....	.....	363,842
1891.....	264,262	.....	.....	.....	.....	264,262
1892.....	335,236	.....	6,418	.....	.....	341,654
1893.....	337,155	.....	14,020	.....	.....	351,175
1894.....	156,826	.....	.....	.....	.....	156,826
1895.....	307,503	74,991	.....	.....	.....	382,494
1896.....	298,885	114,111	.....	.....	.....	412,996
1897.....	248,256	206,029	.....	.....	.....	454,285
1898.....	83,696	80,225	.....	.....	.....	163,921
1899.....	161,783	211,441	.....	.....	.....	373,224
1900.....	154,871	293,185	.....	.....	.....	448,056
1901.....	199,764	334,974	.....	17,651	.....	552,389
1902.....	221,039	455,106	.....	23,590	.....	699,735
1903.....	157,230	467,629	.....	.....	.....	624,859
1904.....	31,162	356,111	.....	.....	.....	387,273
1905.....	139,828	421,331	.....	.....	.....	561,159
1906.....	142,226	507,195	.....	.....	.....	649,421
1907.....	183,250	489,111	.....	.....	.....	672,361
1908.....	329,606	254,256	.....	.....	.....	583,862
1909.....	389,926	524,949	.....	.....	53,983	968,858
1910.....	296,448	973,480	.....	.....	159,420	1,429,348
1911.....	352,805	640,509	.....	.....	169,472	1,162,786
1912.....	354,514	909,708	.....	.....	127,989	1,392,211
1913.....	364,761	1,083,035	.....	.....	130,183	1,577,979
1914.....	262,981	513,456	.....	.....	40,003	816,440
Total....	6,916,532	8,910,832	20,438	41,241	681,050	16,570,093

Of the total shipments of iron ore in 1914 by the Spanish-American Iron Company 228,949 tons were shipped from the Mayari district on the northern coast of Cuba, against 491,713 tons in 1913. In 1912 the shipments from this district by the same company amounted to 446,176 tons, in 1911 to 387,792 tons, in 1910 to 302,505 tons, and in 1909, when ore was first shipped, to 5,196 tons.

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