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*American Iron & Steel Works*



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1904

American Iron and Steel

Association.

Statistics of the American  
and foreign iron trades ...

Annual statistical report o

STATISTICS  
OF THE  
AMERICAN AND FOREIGN IRON TRADES  
FOR 1904.

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ANNUAL STATISTICAL REPORT  
OF THE  
AMERICAN  
IRON AND STEEL ASSOCIATION,

CONTAINING  
COMPLETE STATISTICS OF THE IRON AND STEEL INDUSTRIES OF THE UNITED STATES FOR 1904 AND IMMEDIATELY PRECEDING YEARS; ALSO STATISTICS OF THE COAL, COKE, AND SHIPBUILDING INDUSTRIES OF THE UNITED STATES, IMMIGRATION, ETC.; ALSO STATISTICS OF THE IRON AND STEEL INDUSTRIES OF CANADA, GREAT BRITAIN, AND ALL OTHER COUNTRIES.

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TO WHICH IS ADDED A STATISTICAL ABSTRACT  
COVERING A LONG PERIOD OF YEARS.

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PRESENTED TO THE MEMBERS, JUNE 10, 1905.

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PHILADELPHIA:  
THE AMERICAN IRON AND STEEL ASSOCIATION,  
No. 261 SOUTH FOURTH STREET.  
1905.

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Entered, according to Act of Congress, in the year 1905,  
BY THE AMERICAN IRON AND STEEL ASSOCIATION,  
In the office of the Librarian of Congress, at Washington.

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Printed by  
ALLEN, LANE & SCOTT,  
Nos. 1211-1213 Clover Street,  
Philadelphia.

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## LETTER TO THE PRESIDENT.

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JOSEPH WHARTON, Sc. D., LL. D.,

*President of the American Iron and Steel Association, Philadelphia.*

DEAR SIR : I submit herewith the Annual Statistical Report of the American Iron and Steel Association for 1904, containing full details of the production and prices of iron and steel and the shipments of iron ore in the United States in that year and in immediately preceding years ; also statistics of the imports and exports of iron and steel, iron ore, and coal and coke for the same periods, statistics of steel shipbuilding in 1904, immigration in that year and in recent years, etc.

In line with the rapid development of our iron and steel industries our Annual Reports in late years have been devoted more and more to the details of such statistical information as we have been accustomed to give in the aggregate ; in the present Report such detailed information will be found to be much more complete than in any preceding Annual Reports. Our price tables must especially commend themselves to all who are connected with the iron trade. So also must the tables relating to our production of steel, which give in detail the annual growth in recent years of every kind of steel, including all kinds of steel castings. Our statistics of rail production in 1904 are given in more than usual detail. There are other new features. Included in the Report will be found tables showing the production of all kinds of iron and steel and iron ore and coke by the United States Steel Corporation in 1902, 1903, and 1904, compared with the production by independent companies and by the country at large in the same years.

Full and detailed statistics of the production of all kinds of iron and steel in Canada in 1904 and in other recent years are given in the Report, compiled from information which we have ourselves collected directly from the Canadian manufacturers. Canada having now entered upon an active career as an iron and steel producer the statistics of its progress in this direction will possess increased interest from year to year. Statistics of the iron and steel industries of Great Britain, Germany, France, and Belgium in 1903 and 1904 are also given. Our own pre-eminent position among the world's iron and steel and iron ore and coal producers is shown in the Report in a series of comprehensive tables covering the year 1903.

Following the Report proper for 1904 there will be found a Statistical Abstract of all trustworthy statistics, mainly of our own collection, relating to every branch of the iron trade and going as far back in each instance as such statistics are available. The large number of tables we give in this Abstract and their comprehensive character combine to make this feature of the present Report a most valuable contribution to the history of the American iron trade and to national and international economic literature. We have never printed so valu-

able a statistical summary as is contained in this Abstract. The great cost of its preparation and publication will prevent its annual appearance in future Reports of the Association, and hence the present copy should be carefully preserved by all who receive it.

Since the appearance of our last Annual Report at the end of October, 1904, seven months ago, the work of this office in addition to our large miscellaneous correspondence, which is a daily feature, has embraced the preparation of a Directory to the Iron and Steel Works of Canada, the publication and circulation of a pamphlet protest against a revision of the Dingley tariff by the Fifty-ninth Congress, the regular publication of the Bulletin, and the collection of statistics for this Report. The columns of the Bulletin have been devoted in late years more than formerly to the prompt presentation of statistical information of interest to the iron trade. It may be added that there is now in the trade a wider appreciation of the value of our statistical work than at any previous time, and that, in addition to our published statistical statements, we are frequently called upon for special statistical information which could not be obtained elsewhere.

The discussion of such political and economic questions as directly or indirectly affect the prosperity of the iron trade continues to be a leading feature of the Bulletin. In the last few months we have not hesitated to condemn in its pages the unwise policy of reopening tariff agitation at a time when the whole country is phenomenally prosperous under existing tariff legislation. The Bulletin is sent not only to all iron and steel manufacturers but also to many public men and to the editors of many newspapers.

The financial condition of the Association during the year 1904 is shown by the following abstract of the statement of our Treasurer, Mr. Andrew Wheeler, Jr., on December 31, 1904: On January 1, 1904, there was a balance in the hands of the Treasurer of \$4,132.06; the receipts from members and from advertisements in the Bulletin during the year 1904 were \$14,802; the expenditures during the year were \$14,281.10; leaving a balance in the Treasury on December 31, 1904, of \$4,652.96. The above figures do not include the receipts from the sale of our Directory and Annual Report to brokers and others who are not members of the Association, or the payments from the fund thus derived in defraying in part the cost of printing these publications.

My thanks are due to Mr. William G. Gray and his assistant, Mr. John F. Hayes, for careful attention to the details of our statistical work during the past year, and to the other members of our office force for faithful service in the performance of their respective duties. I am also under additional obligations to Hon. O. P. Austin, Chief of the Bureau of Statistics of the Department of Commerce and Labor, for valuable assistance in the presentation of statistics of our imports and exports of iron and steel, iron ore, coal, coke, etc. Credit is given in the body of the Report to other friends for information without which this Report could not have been as complete as it is. Very Truly Yours,

JAMES M. SWANK, *General Manager.*

No. 261 SOUTH FOURTH STREET, PHILADELPHIA, June 1, 1905.

## IRON AND STEEL NECROLOGY.

FROM NOVEMBER, 1904, TO JUNE, 1905.

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(1904.) Joel Farist, president of the Farist Steel Company, died on November 12, at Bridgeport, Connecticut, aged 72 years. He founded in 1868 the company of which he was president. He was a native of Sheffield, England.—Dr. Thomas Messinger Drown, president of Lehigh University, November 16, at St. Luke's Hospital, in South Bethlehem. Dr. Drown was born on March 19, 1842. In 1873 he was elected secretary of the American Institute of Mining Engineers and retained that position until 1883. In 1874 he became professor of chemistry at Lafayette College, at Easton, where he remained for seven years. In 1887 he became professor of chemistry at the Massachusetts Institute of Technology, whence he came to Lehigh University as its president in 1895. The degree of doctor of laws was conferred upon Dr. Drown by Columbia University in June, 1895.—C. A. Parker, second vice president of the Cincinnati, Hamilton, and Dayton Railway, and vice president of the Pere Marquette Railroad, in charge of traffic, committed suicide at his office in Cincinnati on November 16. He was recently traffic manager of the Colorado Fuel and Iron Company.—Joshua B. Lessig, a member of the Ellis and Lessig Steel and Iron Company, at Pottstown, Pa., November 21, of apoplexy. He was for years treasurer of the old Ellis & Lessig firm, the senior member of which, William S. Ellis, dropped dead several years ago while on a fishing trip.—Franklin Dundore, of the firm of F. Dundore & Co., bankers and brokers, of Philadelphia, November 27, from apoplexy, at his home at Chestnut Hill. Mr. Dundore was 66 years old. Thirty years ago he was a prominent iron merchant in Philadelphia.—Nelson Stow, the inventor of the flexible shaft, November 27, at Binghamton, N. Y., aged 76 years. He built and operated the first street car line in that city.—William Ellery Channing Coxe, prominent for many years in connection with our iron and steel industries, December 17, at Toledo, Ohio. Mr. Coxe was born at Philadelphia on June 12, 1837. He was connected with the Fairmount Rolling Mill until the outbreak of the civil war, in which he served as a private in the Commonwealth Artillery. Of late years he had been sales agent in Toledo for the Cambria Steel Company.—Sir Lowthian Bell, the most eminent English metallurgist since the death of Sir Henry Bessemer, at his home in England, December 19, aged about 88 years.—Abner Doble, founder of the Abner Doble Company, of San Francisco, in that city, December 22, aged 75 years. He was born in Indiana, going to California in 1850.—General William Henry Powell, at Belleville, Illinois, December 26. He was born in South Wales on May 10, 1825, and came to the United States in 1830, removing to Wheeling in 1843. He was identified with various iron

enterprises all his life. He entered the Union army in 1861 and had a distinguished war record.—Harry M. Capp, general manager of the West End Rolling Mill Company, of Lebanon, Pa., December 30, aged 52 years. He was one of the founders of the company's rolling mills and chain works.

(1905.) Henry V. Poor, widely known for many years as a railroad authority and as an expert on financial affairs, at his home in Brookline, Massachusetts, January 4. He was born in Maine in 1812. He was the oldest graduate of Bowdoin College. Mr. Poor was the senior member of the well-known firm of H. V. & H. W. Poor, publishers of Poor's Manual of the Railroads of the United States.—Charles H. Moorhead, January 7, at Philadelphia. For many years he was associated with his father, the late J. Barlow Moorhead, in the manufacture of pig iron at West Conshohocken. He was 65 years old.—Davis Keeley, long a prominent furnace manager, most of the time in Eastern Pennsylvania, at Phoenixville, Pa., January 18. He was born in 1820.—William Sellers, the head of the widely known firm of William Sellers & Co., Incorporated, manufacturers of machine tools, January 24, at the University Hospital, Philadelphia. Mr. Sellers was born in Delaware county, Pa., September 19, 1824.—Charles Lockhart, one of the most prominent and successful business men that has ever been identified with the industries of Pittsburgh, at his home in that city, January 26, in his 87th year. He was born at Cairn Head, near Whithorn, in Wigtownshire, Scotland, on August 2, 1818. He was one of the founders and was for a time the president of the Standard Oil Company. He owned and was for many years president of the Vulcan Forge and Iron Works of the Lockhart Iron and Steel Company, of McKees Rocks, and he owned the controlling interest in the American Axe and Tool Company, of Glassport, Pa.—Hon. Leonard Myers, for twelve years a Representative in Congress from Philadelphia, February 11, at Philadelphia, in his 78th year. Mr. Myers was born near Attleborough, Bucks county, Pa., November 13, 1827.—Dr. Frank Cowan, physician, lawyer, naturalist, horticulturist, editor, historian, novelist, traveler, one of the most versatile and remarkable men ever born in Pennsylvania, at his home in Greensburg, Westmoreland county, Pa., February 12, aged over 60 years. He was born on December 11, 1844, and was a son of the Hon. Edgar Cowan, United States Senator from Pennsylvania from 1861 to 1867.—William H. Braddon, a member of the editorial staffs of *The Iron Age* and *The Metal Worker*, suddenly, at his home on the Jericho Road, at Queens, Long Island, February 13, aged 49 years.—J. Wesley Gephart, president of the Bellefonte Furnace Company, of Bellefonte, Pa., February 14, of apoplexy, at Bellefonte. Mr. Gephart was born at Millheim, Pa., on May 25, 1853. He was a lawyer by profession.—Edward Lewis, a pioneer ironmaster of Ohio, at Cleveland, February 15, aged 86 years. Mr. Lewis was born in Malmesbury, England, in 1819. Early in life he located in Cleveland and began his business career in the store of W. A. Otis in 1841. He was long associated with the Otises and Scofields in the manufacture of iron and steel at Cleveland.—Jay Cooke, the noted financier, at

his home at Ogontz, Montgomery county, Pa., February 16, in his 84th year. He was born at Sandusky, Ohio, on August 10, 1821.—Many of the readers of this Report have been entertained and instructed by frequent contributions to the columns of the Bulletin from Professor T. J. Chapman, of Ingram, Allegheny county, Pa., all on historical subjects. His last contribution was published on January 15. It was entitled "The Lost Industries of Pittsburgh." Mr. Chapman died at Ingram, February 19, at the age of about 68 years. He was born at Blairsville, Indiana county, Pa.—Henry Tod, one of the best known iron men and capitalists of Youngstown, Ohio, February 20, aged 67 years. He was the second son of the late Governor David Tod and was born at Warren, Ohio, on June 14, 1838. He was vice president of the Brier Hill Iron and Coal Company.—Eugene F. Phillips, of Providence, R. I., president of the Washburn Wire Company and general manager of the allied company, the American Electrical Works, suddenly, February 22, aged 61 years.—Edward Longstreth, for many years general superintendent of the Baldwin Locomotive Works, and a retired member of the firm of Burnham, Williams & Co., February 24, at his home in Philadelphia. Mr. Longstreth was born in Bucks county, Pa., on June 22, 1839. He worked his way up from an apprentice.—Edward Cooper, once mayor of New York, and a son of Peter Cooper, the philanthropist and founder of Cooper Union, at New York, February 25, from a stroke of apoplexy. Mr. Cooper was born in New York on October 26, 1824.—Roland C. Luther, second vice president of the Philadelphia and Reading Coal and Iron Company, at his home in Pottsville, Pa., March 6. He was born at Port Carbon, Pa., in January, 1846. His ancestors were direct descendants of the great reformer, Martin Luther, the first of whom settled in Lancaster county, Pennsylvania, in pioneer days.—George Huey, a pioneer ironmaker of Western Pennsylvania, March 8, at his home in Fayette county, Pa., aged 87 years.—Andrew G. Curtin, Jr., a nephew of Andrew G. Curtin, Pennsylvania's noted War Governor, March 18, at his home at Torresdale, near Philadelphia. Mr. Curtin was born at Bellefonte about 58 years ago. Until recently he was secretary of the Consolidated Iron and Steel Company, which operated a rolling mill at Bristol, Pa., but which is now idle.—General Joseph R. Hawley, General in the Union Army, Governor of Connecticut, Representative in Congress, United States Senator, and President of the United States Centennial Commission, at Washington, March 18, 1905. He was born at Stewartsville, North Carolina, October 31, 1826.—Henry Hanna, at Cincinnati, March 27, aged 93 years. Mr. Hanna was a large stockholder in the Newport Rolling Mill Company and the Addyston Pipe Foundry.—James Selden Scranton, the last of the children of George W. Scranton, one of the founders of the Lackawanna Iron and Steel Company, at Scranton, Pa., April 7, aged 64 years. He was identified with the iron trade all his life.—James McQuiston, sole owner of the works of the Pittsburgh Galvanizing Company, suddenly, in April. He was born in Ireland in 1827 and went to Pittsburgh in 1845.—Jacob S. Cramp, for many years foreman of the joiner department of

the Cramp Shipbuilding Company, and a nephew of William Cramp, the founder of the company, April 15, aged 69 years.—Asel S. Gates, father of John W. Gates, at St. Charles, Illinois, April 18, aged 82 years.—Wilmer W. Marshall, at Germantown, Pa., April 20, aged 58 years. Mr. Marshall was born at Marshallton, Delaware, in 1847. He was for many years a member of the firm of Marshall Brothers & Co., proprietors of the Penn Treaty Iron Works, in Philadelphia.—James Meily, at Atlantic City, April 20. Mr. Meily was born at Lebanon, Pa., on May 17, 1853. For many years he was the senior member of the firm of J. & R. Meily, former owners of Lebanon Valley Furnace, at Lebanon.—United States Senator Orville Hitchcock Platt, of Connecticut, at his summer home in Washington, Connecticut, April 21, in his 78th year. He was born at Washington on July 19, 1827.—Joseph Jefferson, the actor, at Palm Beach, Florida, April 23, in his 77th year. He was born at the southwest corner of Sixth and Spruce streets, Philadelphia, on February 20, 1829.—John Brinton Hastings, at Parkersburg, W. Va., April 19, aged 69 years. He was born at Bellefonte, Pa. For the greater part of his life he was identified with the rolling mills at Ironton, Ohio.—William Brewster Wood, April 24, at Philadelphia. Mr. Wood was 52 years old and was a son of Thomas Wood and a grandson of Alan Wood, who founded the Alan Wood Company many years ago.—Henry P. Ford, ex-mayor of Pittsburgh, at Pittsburgh, late in April. For ten years Mr. Ford was connected with the accounting department of Singer, Nimick & Co., steel manufacturers, and for five years was a partner in the firm of Emerson, Ford & Co., saw makers, at Beaver Falls.—William Tod, president of the William Tod Company, of Youngstown, Ohio, April 27, aged 62 years. He was a son of the late David Tod, former Governor of Ohio, and was born at Warren, Ohio, on July 30, 1843. Mr. Tod was also interested in the Brier Hill Iron and Coal Company and the Youngstown Steel Company.—General Fitzhugh Lee, U. S. A., retired, April 28, at Providence Hospital, Washington, D. C. General Lee was born at Clermont, Fairfax county, Virginia, on November 19, 1835.—Samuel P. Harbison, chairman of the Harbison-Walker Refractories Company, May 10, at his residence in Allegheny City, Pa. He was born at Bakerstown, Pa., in 1840.—Sir Bernhard Samuelson, once president of the Iron and Steel Institute, May 10. He was born in 1820.—In the terrible accident near Harrisburg, Pa., on the Pennsylvania Railroad, on May 11, Victor L. Crabbe, John W. Anderson, and his son, Frank W. Anderson, all officers of the Carbon Steel Company, Paul Bright, mechanical engineer, of Pittsburgh, and James R. Phillips, until recently resident manager in the Pittsburgh district of the American Sheet and Tin Plate Company, lost their lives.—S. Frank Eagle, blast furnace manager, at Chicago, May 25. He was born in Philadelphia on January 14, 1845.—Charles B. Forney, at Lebanon, Pa., May 26, aged 84 years. As far back as 1856 Mr. Forney was the general manager of George Dawson Coleman's three anthracite furnaces at North Lebanon.—Peter L. Kimberly, of Sharon, Pa., of apoplexy, at Chicago, June 4. He was born in 1846.

# STATISTICS OF THE AMERICAN IRON TRADE FOR 1904.

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## GENERAL REVIEW OF THE AMERICAN IRON TRADE.

OUR last Annual Report gave in sufficient detail the leading facts bearing on the reaction in general business conditions in this country which began in the first half of 1903 and continued until August and September of 1904, when unmistakable signs of the end of the reaction were visible on every hand. In October business confidence was entirely re-established. Before the close of this month railroad and industrial stocks had greatly advanced in price and the manufacturing industries of the country were again as active as if nothing had happened to interrupt their prosperity. The railroads were busy moving the good crops of the year and the products of our mines, forests, and manufacturing establishments. This favorable condition of business continued all through the winter, notwithstanding its exceptional severity, and has been continued without abatement through the spring months of the present year. In April railroad and other stocks reached still higher figures than during the preceding fall and winter. Prices of farm products have continued in the main to be satisfactory to the farmers. This review closes with April.

The improvement in general trade conditions noted above has particularly affected the iron trade, so much so that for several months the demand for iron and steel products in this country has never been equaled. It has taxed and is still taxing our manufacturing plants to their utmost available capacity. This extraordinary activity is probably of more general application to all branches of the iron trade than any similar demand in other years. Certainly our manufacturers of pig iron, steel rails, structural steel, plates and sheets, cars and locomotives, (including railroad shops,) and general machinery and foundry products were never more actively employed than they are to-day. The whole country urgently wants iron and steel for a thousand uses. Our export trade in some iron and steel branches is also contributing to the general activity. But the greatest demand for iron and steel comes from the railroads. The fact is now generally recognized that our railroad managers have not kept abreast of the

country's marvelous industrial development in the last few years. More tracks, more cars, and more locomotives have been needed than had been built, and also more bridges and better terminal facilities. Some of these managers awakened to the necessity of meeting these deficiencies before the general revival of prosperous conditions last year, but others did not awaken to the needs of their roads until the present year, and it is to the suddenness of this awakening that we owe much of the existing unprecedented demand for iron and steel.

The decline in the production of iron and steel which began in the second half of 1903 was not generally arrested in the first half of 1904 and was particularly noticeable in June and July, but it was entirely checked in August and September. The production during the year was less in many lines than in 1903, the increased activity in the last few months of the year falling very far short of equaling the losses in production during the remainder of the year. The production in all lines in 1905 promises to be much the largest in our history.

Naturally and properly prices of iron and steel have advanced since the improvement in demand began in August and September of last year, but this advance has wisely been kept within reasonable bounds. Steel rails have not been advanced at all. Such advances as have taken place have been justified in large part by advances in the prices of raw materials. Prices in 1904 were at their lowest ebb in the third quarter; some prices were the lowest that had been reached since the reaction in 1903 began. The average monthly price of Bessemer pig iron at Pittsburgh fell in September, 1904, to \$12.69 per ton, from which there was a gradual advance to an average of \$16.72 in December and January. At the end of April the price was \$16.35.

The workingmen employed at our iron and steel works and in auxiliary mining operations and at coke works have shared in the general revival of prosperity. They have had steady employment and their wages have been increased from ten to twenty per cent.

It is gratifying to be able to present the foregoing favorable report of the complete restoration of prosperous business conditions in 1904, following the great shrinkage in the stock market in 1903 and the accompanying interruption to industrial activity. The outlook for a continuance of the present favorable business situation is very hopeful. There is absolutely no cloud visible upon the industrial and financial horizon, unless it is to be seen in the threatened revision of the Dingley tariff, to which

much of the country's present prosperity is undoubtedly due, but this cloud can be easily dissipated during the present summer, and it ought to be. As a rule our Senators and Representatives in Congress represent States and industrial communities whose prosperity would be more or less seriously affected by a revival of tariff agitation, and they will certainly listen to appeals from employers of labor and workingmen to let well enough alone. We hope that these appeals will be made. We have yet to hear of one American industry that has been injured by the Dingley tariff; all have been materially helped by it.

We are indebted to the Philadelphia News Bureau for the following table, which gives the range of prices of the preferred and common stock of the United States Steel Corporation from January 1, 1903, to April 30, 1905. This table illustrates the depth of the depression in the stock market in 1903 and 1904 and the completeness of the recovery that has since taken place.

Months.	Preferred stock.		Months.	Common stock.	
	Low.	High.		Low.	High.
January, 1903.....	86½	89½	January, 1903.....	36½	39
February.....	87	89½	February.....	37½	39½
March.....	84½	87½	March.....	35½	38½
April.....	83	87½	April.....	33½	36½
May.....	80	85½	May.....	30½	35½
June.....	78½	82½	June.....	28½	32½
July.....	68½	82½	July.....	21½	31½
August.....	67	73½	August.....	20½	24½
September.....	58½	71½	September.....	14½	23½
October.....	57½	66	October.....	12½	18½
November.....	49½	59½	November.....	10	13½
December.....	51½	59	December.....	10	12½
January, 1904.....	54½	60	January, 1904.....	9½	12½
February.....	54½	58½	February.....	10½	11½
March.....	54½	59½	March.....	10½	11½
April.....	55½	62½	April.....	10½	12
May.....	51½	56½	May.....	8½	10½
June.....	52½	56½	June.....	8½	10
July.....	55½	63½	July.....	9½	12½
August.....	57½	61½	August.....	11½	12½
September.....	61½	74½	September.....	12½	18½
October.....	71½	83½	October.....	17½	22½
November.....	79½	90½	November.....	19½	32½
December.....	84	95½	December.....	23½	33½
January, 1905.....	91½	95½	January, 1905.....	28½	31½
February.....	94½	96	February.....	30	35½
March.....	93½	97½	March.....	33½	37½
April.....	95½	104½	April.....	30½	38½

One of the most hopeful signs of the future is to be found in the liquidation during the last two years of large blocks of indigestible securities which precipitated the depression of 1903—the so-called rich men's panic. Inflated stock values will be with us again, of course; they can not be prevented; but the wild speculation in stocks without any value whatever which prevailed for several years after the beginning of the boom of 1899 is practically at an end. As we close this general review at the end of April the stock market is in a healthy condition, most stocks being quoted at conservative figures.

#### GENERAL STATISTICAL SUMMARY.

The following table gives the shipments in 1903 and 1904 of Lake Superior iron ore, the shipments of coke and of anthracite coal, the total production of iron ore, coal, and coke and of all iron and steel, the imports and exports of iron and steel, etc. The statistics of the production of iron ore, coal, and coke in 1904, received from the Geological Survey, are subject to revision.

Articles—Gross tons, except for coke and nails.	1903.	1904.
Shipments of iron ore from Lake Superior.....	24,289,878	21,822,839
Total production of iron ore.....	35,019,308	27,600,000
Shipments of Pennsylvania anthracite coal.....	59,362,831	57,492,522
Total production of all kinds of coal.....	319,068,229	314,421,255
Total production of coke, in net tons.....	25,262,360	23,621,520
Shipments of Connellsville coke, in net tons.....	13,345,230	12,427,468
Shipments of Pocahontas Flat Top coke, in net tons.....	1,693,403	1,617,801
Production of pig iron, including spiegel and ferro.....	18,009,252	16,497,033
Production of spiegel, ferro-mang., and ferro-phos....	192,661	220,392
Production of Bessemer steel ingots and castings.....	8,592,829	7,859,140
Production of open-hearth steel ingots and castings.....	5,829,911	5,908,166
Production of all kinds of steel ingots and castings.....	14,534,978	13,859,887
Production of structural shapes, not including plates.....	1,095,813	949,146
Production of plates and sheets, except nail plate....	2,599,665	2,421,398
Production of all rolled iron and steel, except rails..	10,215,220	9,728,670
Production of Bessemer steel rails.....	2,946,756	2,137,957
Production of all kinds of rails.....	2,992,477	2,284,711
Production of iron and steel wire rods.....	1,503,455	1,699,028
Production of all rolled iron and steel, including rails.....	13,207,697	12,013,381
Production of iron and steel cut nails, in kegs.....	1,435,893	1,283,362
Production of iron and steel wire nails, in kegs.....	9,631,661	11,926,661
Imports of iron ore.....	980,440	487,613
Exports of iron ore.....	80,611	213,865
Imports of iron and steel, foreign value.....	\$41,255,864	\$21,621,970
Exports of iron and steel, home value.....	\$99,035,865	\$128,553,613
Miles of new railroad built (estimated for 1904).....	4,715	4,252
Tonnage of steel vessels built in the calendar year..	295,840	160,809

An examination of the foregoing table will show how general was the reaction in the iron trade and auxiliary industries in 1904. There was a shrinkage in that year in nearly all lines of production as compared with 1903. The decrease in the production of pig iron was 1,512,219 tons; in Bessemer steel ingots and castings, 733,689 tons; and in all kinds of rails, 707,716 tons. The decrease in the shipments of Pennsylvania anthracite coal was 1,870,309 tons; in Lake Superior iron ore, 2,467,039 tons; and in Connellsville coke, 917,762 net tons. The only noteworthy increases in production in 1904 as compared with 1903 were in open-hearth steel, 78,255 tons; in wire rods, 195,573 tons; and in wire nails, 2,295,000 kegs. The decline in our imports of iron and steel in 1904 as compared with 1903 and the increase in our exports were features of the iron trade in 1904 which helped to mitigate the severity of the reaction in that year.

#### SHIPMENTS OF ANTHRACITE COAL AND CUMBERLAND COAL.

The shipments of anthracite coal from the Pennsylvania mines in 1904 amounted to 57,492,522 gross tons, against 59,362,831 tons in 1903, a decrease of 1,870,309 tons, 31,200,890 tons in 1902, (the year of the great anthracite coal strike,) 53,568,601 tons in 1901, and 45,107,484 tons in 1900. These figures are furnished to us by Mr. W. W. Ruley, of Philadelphia, the anthracite coal statistician.

The shipments of Cumberland coal from the mines of Western Maryland and West Virginia in 1904 amounted to 5,905,388 gross tons, against 6,032,176 tons in 1903, 6,288,867 tons in 1902, 6,139,329 tons in 1901, 5,171,916 tons in 1900, 6,131,461 tons in 1899, 5,533,636 tons in 1898, and 5,303,489 tons in 1897.

#### SHIPMENTS OF CONNELLSVILLE AND POCAHONTAS COKE.

Mr. H. P. Snyder, the editor of the *Connellsville Courier*, reports that the shipments of coke from the Connellsville region in 1904 amounted to 12,427,468 net tons, against 13,345,230 tons in 1903 and 14,138,740 tons in 1902.

The average price of all coke shipped from the Connellsville region in 1904 was \$1.75 per net ton, against \$3 in 1903 and \$2.37 in 1902. The gross revenue received from the sale of Connellsville coke in 1904 was \$21,748,069, against \$40,035,690 in 1903 and \$33,508,714 in 1902. In the first quarter of 1904 the average price of all coke was \$1.80 per ton. Toward the latter part of March the price dropped as low as \$1.50 a ton for standard Connellsville furnace coke. The average of all coke for the

second quarter was \$1.60 and for the third quarter \$1.65 per ton. Late in September there was a general stiffening of prices. They improved steadily, and as a result the last quarter of the year ended with an average price for all coke of \$2.25. There was little advance, however, until December. Then, with furnaces blowing in, the demand for coke became acute. Prices soon ran over \$3 for furnace coke and to \$3.25 and \$3.35 for foundry coke.

Mr. Snyder advises us that the prices of Connellsville furnace coke for the first five months of 1905 were as follows, per net ton: January, \$2.50; February, \$2.45; March, \$2.35; April, \$2; and May, \$2. The prices of foundry coke were about 35 cents per ton higher than the above prices.

The shipments of Pocahontas Flat Top coke in 1904, for which we are indebted to the Norfolk and Western Railway Company, amounted to 1,617,801 net tons, against 1,693,403 tons in 1903, 1,191,436 tons in 1902, 1,279,949 tons in 1901, 1,341,444 tons in 1900, 1,317,246 tons in 1899, and 1,276,172 tons in 1898.

#### LAKE SUPERIOR IRON ORE SHIPMENTS.

The *Iron Trade Review* gives full details of the shipments of iron ore from the Lake Superior region in 1904 and in preceding years. The total shipments by water and by all-rail routes in 1904 amounted to 21,822,839 gross tons, against 24,289,878 tons in 1903, a decrease of 2,467,039 tons, or over 10 per cent.

The *Review* says that the list of shipping mines in the Lake Superior ranges contained 135 names in 1904, against 142 in 1903, as follows: Marquette, 20; Menominee, 30; Gogebic, 22; Vermilion, 6; Mesabi, 55; Iron Ridge, Wisconsin, 1; Illinois mine, Baraboo district, 1. More than 135 mines shipped ore in 1904. In a few cases two or more mines are included under one name.

The following tables give the shipments in gross tons of Lake Superior iron ore in the last four years by ranges and by ports and all-rail. The figures include all shipments to local furnaces.

Ranges—Gross tons.	1901.	1902.	1903.	1904.
Marquette Range.....	3,245,346	3,868,025	3,040,245	2,843,703
Menominee Range.....	3,619,083	4,612,509	3,749,567	3,074,848
Gogebic Range.....	2,938,155	3,663,484	2,912,912	2,398,287
Vermilion Range.....	1,786,063	2,084,263	1,676,699	1,282,513
Mesabi Range.....	9,004,890	13,342,840	12,892,542	12,156,008
Miscellaneous.....	.....	.....	17,913	67,480
Total.....	20,593,537	27,571,121	24,289,878	21,822,839

Ports—Gross tons.	1901.	1902.	1903.	1904.
Escanaba.....	4,022,668	5,413,704	4,277,561	3,644,267
Marquette.....	2,354,284	2,595,010	2,007,346	1,907,301
Ashland.....	2,886,252	3,553,919	2,823,119	2,288,400
Two Harbors.....	5,018,197	5,605,185	5,120,656	4,566,542
Gladstone.....	117,089	92,375	85,816	553
Superior.....	2,321,077	4,180,568	3,978,579	4,169,990
Duluth.....	3,437,955	5,598,408	5,356,473	4,649,611
All-rail.....	436,015	531,952	640,328	596,175
Total.....	20,593,537	27,571,121	24,289,878	21,822,839

Under "miscellaneous" in 1903 the shipments from the Iron Ridge mine only are included, but in 1904 the shipments from the Baraboo district and from the Iron Ridge mine are included.

The Marquette range is wholly in Michigan, the Menominee and Gogebic ranges are partly in Michigan and partly in Wisconsin, and the Vermilion and Mesabi ranges are in Minnesota. The Iron Ridge mine is located in Dodge county, Wisconsin, and the newly developed Baraboo district is in the adjoining counties of Sauk and Columbia—all in Southern Wisconsin. Prior to 1903 the shipments from the Iron Ridge mine, which amounted to 17,913 tons in 1903 and to 19,558 tons in 1904, were not included in Lake Superior statistics. The production of the Baraboo district in 1903 was a little less than 19,000 tons but no ore was shipped. Shipments from this district began in 1904, in which year they amounted to 47,922 tons.

The decline in iron ore shipments in 1904 as compared with 1903 was chiefly in the Mesabi, the Menominee, and the Gogebic ranges, the decrease in the three ranges being as follows: Mesabi, 736,534 tons; Menominee, 674,719 tons, and Gogebic, 514,625 tons: total, 1,925,878 tons. In the Vermilion and Marquette ranges the falling off amounted to 590,728 tons, of which 394,186 tons were in the Vermilion range and 196,542 tons were in the Marquette range.

The shipments from the Lake Superior mines of the United States Steel Corporation in 1904 amounted to 11,746,409 gross tons, or 53.8 per cent. of the total, as compared with similar shipments of 14,293,083 tons, or 58.8 per cent., in 1903. In each year the figures include the ore shipped from the Iron Ridge mine of the Illinois Steel Company, in Wisconsin, although, strictly speaking, this mine is not in the Lake Superior region.

The total shipments in 1904 from the Helen mine on the Ca-

nadian side amounted to 116,968 tons and are not included in the above tables. Of these shipments 76,421 tons were shipped to Lake Erie ports in the United States and 40,547 tons to Canada. In 1903 the Helen mine shipments amounted to 203,419 tons, of which 170,672 tons were shipped to the United States.

#### LARGEST SHIPPERS OF LAKE SUPERIOR IRON ORE.

The Lake Superior mines which shipped the largest quantities of iron ore in 1904 were the following: Norrie, in the Gogebic range, 618,638 tons; Ashland, in the Gogebic range, 344,102 tons; Aurora, in the Gogebic range, 212,920 tons; Tilden, in the Gogebic range, 204,581 tons; Pioneer, in the Vermilion range, 505,432 tons; Chandler, in the Vermilion range, 422,162 tons; Chapin, in the Menominee range, 541,324 tons; Aragon, in the Menominee range, 374,944 tons; Pewabic, in the Menominee range, 372,791 tons; Cleveland-Cliffs, in the Marquette range, 743,263 tons; Lake Superior, in the Marquette range, 590,339 tons; Queen, in the Marquette range, 311,479 tons; Lake Angeline, in the Marquette range, 262,486 tons; Stevenson, in the Mesabi range, 1,652,021 tons; Lake Superior group, in the Mesabi range, 1,415,884 tons; Mountain Iron, in the Mesabi range, 1,168,855 tons; Fayal, in the Mesabi range, 975,102 tons; Adams, in the Mesabi range, 940,105 tons; Mahoning, in the Mesabi range, 706,325 tons; Biwabik, in the Mesabi range, 647,614 tons; and Spruce, in the Mesabi range, 589,319 tons.

#### RECEIPTS OF IRON ORE AT LAKE ERIE PORTS.

The *Iron Trade Review* annually publishes full statistics of the receipts of Lake Superior iron ore at Cleveland, Ashtabula, Conneaut, Buffalo, and other ports on Lake Erie, the principal receipts being at Conneaut, Ashtabula, and Cleveland; also the quantity left on the docks at the close of navigation. From these statistics we compile the following summary from 1890 to 1904.

Years.	Receipts. Gross tons.	On dock. Gross tons.	Years.	Receipts. Gross tons.	On dock. Gross tons.
1890.....	6,874,664	3,893,487	1898.....	11,028,321	5,136,407
1891.....	4,939,684	3,508,489	1899.....	15,222,187	5,530,283
1892.....	6,660,734	4,149,451	1900.....	15,797,787	5,904,670
1893.....	5,333,061	4,070,710	1901.....	17,014,076	5,859,663
1894.....	6,350,825	4,834,247	1902.....	22,649,424	7,074,254
1895.....	8,112,228	4,415,712	1903.....	19,681,731	6,371,085
1896.....	8,026,432	4,954,984	1904.....	17,932,814	5,763,399
1897.....	10,120,906	5,923,755	.....	.....	.....

The receipts of Lake Superior iron ore at Lake Erie ports in the last six years are given by the *Review* as follows, in gross tons. The figures for Buffalo include the receipts at Tonawanda. This table is now printed by us for the first time.

Ports.	1899.	1900.	1901.	1902.	1903.	1904.
Toledo.....	792,348	645,147	798,298	1,037,571	652,305	508,793
Sandusky.....	87,499	154,542	33,017	165,556	130,532	48,356
Huron.....	263,600	321,914	431,311	520,646	486,106	231,364
Lorain.....	1,112,946	1,090,235	721,662	1,442,417	990,490	972,931
Cleveland.....	3,222,582	3,376,644	3,831,060	4,873,318	4,434,160	3,572,228
Fairport.....	1,241,013	1,085,554	1,181,776	1,538,744	1,434,342	1,157,858
Ashtabula.....	3,341,526	3,709,486	3,981,170	4,796,805	4,242,160	3,639,250
Conneaut.....	2,320,696	2,556,631	3,181,019	4,300,301	3,903,937	4,083,655
Erie.....	1,309,961	1,240,715	1,379,377	1,717,268	1,257,798	1,284,778
Buffalo.....	1,530,016	1,616,919	1,475,386	2,256,798	2,149,901	2,433,601
Total.....	15,222,187	15,797,787	17,014,076	22,649,424	19,681,731	17,932,814

## SHIPMENTS OF IRON ORE FROM LEADING DISTRICTS.

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

Shipments of iron ore from leading districts.	1902. Gross tons.	1903. Gross tons.	1904. Gross tons.
Lake Superior mines of Michigan and Wis...	12,144,018	* 9,720,637	* 8,384,318
Vermilion and Mesabi mines of Minnesota....	15,427,103	14,569,241	13,438,521
Missouri mines .....	65,645	57,477	38,420
Cornwall mines, Pennsylvania.....	594,177	401,469	174,331
New Jersey mines .....	399,984	472,490	502,506
Chateaugay mines, on Lake Champlain.....	83,688	65,707	287,315
Port Henry mines.....	365,437	373,565	299,817
Salisbury region, Connecticut.....	23,276	24,255	15,092
Cranberry mines, North Carolina.....	30,810	60,108	61,996
Tennessee Coal, Iron, and Railroad Company's Inman mines in Tennessee .....	4,948	24,347	None.
The same company's mines in Alabama.....			
Total of the above districts.....	30,416,055	27,071,503	24,364,685

\* Includes 17,913 tons shipped from the Iron Ridge mine in 1903 and 19,558 tons shipped from the Iron Ridge mine and 47,922 tons from the Baraboo district in 1904.

## IMPORTS OF IRON ORE IN 1902, 1903, AND 1904.

The following table, for which we are indebted to the Bureau of Statistics of the Department of Commerce and Labor, gives the quantities and values of iron ore imported into the United States in the calendar years 1902, 1903, and 1904.

## 22 STATISTICS OF THE AMERICAN IRON TRADE FOR 1904.

Customs districts.	1902.		1903.		1904.	
	Gross tons.	Values.	Gross tons.	Values.	Gross tons.	Values.
Baltimore.....	600,711	\$1,401,326	490,920	\$1,232,546	321,920	\$738,010
New York.....	14,546	39,800	6,940	19,759	15,263	38,765
Philadelphia..	338,848	597,895	303,722	560,880	82,186	143,892
Puget Sound..	5,661	9,312	525	789	.....	.....
Vermont.....	18	72	760	1,190	1,183	2,457
All other.....	205,686	534,672	177,573	445,844	67,061	178,260
Total .....	1,165,470	\$2,583,077	980,440	\$2,261,008	487,613	\$1,101,384

The imports of iron ore in 1904 included 77,887 tons from Canada, valued at \$177,966, received chiefly at Lake Erie ports. There were also imported in 1904 from Newfoundland into the customs district of Philadelphia 5,400 tons, valued at \$5,400.

For the following table, which gives the countries from which iron ore was imported into the United States during the calendar years 1902, 1903, and 1904, we are also indebted to the Bureau of Statistics of the Department of Commerce and Labor.

Countries.	1902.		1903.		1904.	
	Tons.	Values.	Tons.	Values.	Tons.	Values.
Cuba .....	696,375	\$1,576,617	613,585	\$1,501,480	364,630	\$822,413
Spain.....	153,527	338,261	94,720	196,139	36,810	89,218
French Africa.....	19,167	35,707	7,830	14,586	.....	.....
Greece.....	.....	.....	.....	.....	2,500	2,535
Newfoundland.....	81,920	81,918	86,730	86,680	5,400	5,400
United Kingdom...	1,269	17,882	6,843	31,868	178	2,093
British Columbia..	5,661	9,312	525	789	.....	.....
Germany.....	361	3,478	207	1,820	2	70
Quebec, Ont., etc..	203,824	509,711	169,681	424,440	77,882	177,966
Belgium .....	500	4,850	300	2,964	210	1,671
France.....	2,866	5,341	.....	.....	.....	8
Other countries....	.....	.....	19	242	1	10
Total .....	1,165,470	\$2,583,077	980,440	\$2,261,008	487,613	\$1,101,384

## SHIPMENTS OF IRON ORE FROM CUBA.

In the calendar year 1904 two companies shipped iron ore from Cuba, namely, the Juragua Iron Company and the Spanish-American Iron Company, the shipments by the Juragua Company amounting to 31,162 tons and the shipments by the Spanish-American Company amounting to 356,111 tons: total, 387,273 tons. Of the total shipments by the Spanish-American Company 350,574 tons were sent to the United States, (of which 3,100

tons were lost at sea,) 2,854 tons to England, and 2,683 tons to Santiago, Cuba, where it was used as a flux in a copper smelter. All the shipments of the Juragua Company were made to the United States. In 1903 these two companies were the only shippers of iron ore from Cuba, the total shipments of the Juragua Iron Company, Ltd., and its successor, the Juragua Iron Company, amounting to 157,230 tons, and the shipments by the Spanish-American Company to 467,628 tons, a total of 624,858 tons. Of the total shipments by the latter company in 1903 456,826 tons were sent to the United States and 10,802 tons to England.

The total shipments of iron ore by companies from Cuba to all countries from the opening of the mines in 1884 to the close of 1904 were as follows, in gross tons: The Juragua Iron Company, Limited, and the Juragua Iron Company, 4,100,187 gross tons; the Sigua Iron Company, 20,438 tons; the Spanish-American Iron Company, 2,600,857 tons; and the Cuban Steel Ore Company, 41,241 tons: total since 1884, 6,762,723 tons.

With the exception of 5,932 tons of iron ore shipped by the Juragua Iron Company, Limited, in 1897, to Pictou, Nova Scotia, and 51,537 tons shipped to foreign countries by the Spanish-American Iron Company in 1897, 4,200 tons shipped in 1899, 12,849 tons in 1901, 10,802 tons in 1903, and 5,537 tons in 1904, all the iron ore referred to above was shipped to the United States. The total shipments to foreign countries, including the 2,683 tons shipped to Santiago in 1904, amounted to 90,857 tons, and the total shipments to the United States to 6,671,866 tons.

#### CONSUMPTION OF IRON ORE IN BLAST FURNACES.

We estimate our total consumption of domestic and foreign iron ore in the manufacture of pig iron in 1904 at 28,870,000 gross tons, against 31,516,000 tons in 1903, 31,187,000 tons in 1902, 27,787,000 tons in 1901, and 24,131,000 tons in 1900. The mill cinder, scale, scrap, etc., consumed in the manufacture of pig iron in the census year 1900 amounted to 1,600,313 tons. Our production of pig iron in the census year was 14,452,234 tons.

To the above estimates may be added the iron ore annually consumed in open-hearth steel furnaces and in rolling mills, etc., which amounted in the census year 1900 to 340,028 gross tons.

#### EXPORTS OF IRON AND STEEL.

We are indebted to the Bureau of Statistics of the Department of Commerce and Labor for the statistics of our exports of iron and steel in the calendar years 1903 and 1904, as follows.

Articles—Gross tons.	1903.		1904.	
	Gross tons.	Values.	Gross tons.	Values.
Pig iron.....	20,379	\$384,334	49,025	\$764,543
Scrap and old.....	8,034	117,972	26,785	373,329
Bar iron.....	19,380	796,631	29,582	1,133,128
Steel bars or rods, other than wire rods.....	17,802	929,915	25,894	1,240,728
Steel wire rods.....	22,360	713,718	20,073	695,448
Iron rails.....	181	8,808	1,405	23,870
Steel rails.....	30,656	937,779	414,845	10,661,222
Billets, ingots, and blooms.....	5,445	141,924	314,324	6,150,035
Hoop, band, and scroll.....	2,141	101,839	3,435	162,039
Iron sheets and plates.....	4,782	273,618	4,728	248,120
Steel sheets and plates.....	13,312	657,713	50,477	2,064,241
Tinplates and terne plates.....	292	28,481	7,898	651,774
Structural iron and steel.....	30,641	1,788,556	55,514	2,777,768
Wire.....	108,521	5,528,726	118,581	5,935,093
Cut nails and spikes.....	8,890	424,985	9,274	416,455
Wire nails and spikes.....	31,453	1,410,105	32,788	1,599,005
All other, including tacks.....	2,321	288,395	3,046	350,837
Car-wheels.....No.	18,966	136,569	24,763	175,947
Castings, not elsewhere specified.....		1,765,901		1,372,314
Cutlery.....		389,837		435,092
Fire-arms.....		1,206,951		1,486,151
Cash registers.....No.	20,260	1,825,503	20,070	1,871,100
Locks, hinges, etc.....		6,986,357		5,553,473
Saws.....		495,729		570,056
Tools, not elsewhere specified.....		4,658,972		5,053,084
Electrical machinery.....		5,104,502		6,675,766
Laundry machinery.....		552,291		512,542
Metal-working machinery.....		3,316,088		3,483,232
Printing presses, and parts of.....		1,143,122		1,450,993
Pumps and pumping machinery.....		2,729,288		2,733,625
Sewing machines.....		5,340,474		6,019,161
Shoemaking machinery.....		834,995		1,240,096
Fire engines.....No.	8	16,657	3	5,062
Locomotive engines.....“	287	3,099,521	517	4,697,340
Stationary engines.....“	1,730	714,508	2,155	1,099,690
Parts of engines and boilers.....		2,273,834		2,003,323
Typew'g machines, and parts of.....		4,537,396		4,138,651
Wood-working machinery*.....		359,338		628,714
All other machinery.....		20,068,810		22,918,952
Pipes and fittings.....		5,919,340		7,303,900
Safes.....No.	3,740	209,544	4,552	242,815
Scales and balances.....		762,305		608,513
Stoves, ranges, and parts of.....		981,475		810,971
All other manufactures.....		9,073,059		10,215,415
Total .....Gross tons.	326,590	\$99,035,865	1,167,674	\$128,553,613
Agricult. implements, additional.....		\$22,951,805		\$21,654,892
Iron ore.....Gross tons.	80,611	255,728	213,865	458,823

\*Included in "all other machinery, etc.," prior to July 1, 1903.

## EXPORTS OF AGRICULTURAL IMPLEMENTS.

Our exports of agricultural implements amounted in the calendar year 1904 to \$21,654,892, against \$22,951,805 in 1903, \$17,981,597 in 1902, \$16,714,308 in 1901, \$15,979,909 in 1900, \$13,594,524 in 1899, \$9,073,384 in 1898, and \$5,302,807 in 1897.

## IMPORTS OF IRON AND STEEL.

The following table, compiled from statistics obtained from the Bureau of Statistics of the Department of Commerce and Labor, gives the quantities and values of our imports of iron and steel and manufactures thereof in the calendar years 1903 and 1904.

Articles—Gross tons.	1903.		1904.	
	Tons.	Values.	Tons.	Values.
Pig iron, spiegel, ferro-mang., etc....	599,574	\$11,173,302	79,500	\$1,765,107
Scrap iron and scrap steel.....	82,921	1,273,941	13,461	189,506
Bar iron.....	43,393	1,904,469	20,911	918,842
Iron and steel rails.....	95,555	2,159,273	37,776	808,775
Hoop, band, and scroll iron or steel.	1,525	74,898	2,135	60,934
Steel ingots, billets, blooms, etc.....	261,570	7,331,299	10,801	1,535,943
Sheet, plate, and taggers' iron or steel.....	11,557	540,272	4,165	302,500
Building forms, and all other structural shapes, fitted for use.....	8,865	256,265	7,203	210,936
Tinplates and terne plates.....	47,360	2,999,252	70,652	4,354,761
Wire rods, of iron or steel.....	20,836	1,028,977	15,313	707,779
Wire, and articles made from.....	5,018	728,430	3,956	624,892
Anvils.....	250	35,378	167	24,192
Chains.....	373	62,481	358	50,583
Cutlery.....		1,903,895		1,811,511
Files, file blanks, rasps, and floats.....		82,939		80,994
Fire-arms.....		687,917		586,571
Shotgun barrels, in single tubes.....		198,126		186,945
Machinery.....		3,927,165		2,792,885
Needles.....		466,294		428,975
All other.....		4,421,291		4,179,339
Total.....	1,178,797	\$41,255,864	266,398	\$21,621,970

Our large imports of iron and steel in 1903 were caused by the abnormally large demand in 1902 and in the early part of 1903, many orders sent abroad in 1902 not being filled until 1903, while the great decline in our imports of iron and steel in 1904 was due to the reaction in the home demand in the second half of 1903, which continued into the summer of 1904.

Of the pig iron imported in recent years a large part was spiegeleisen and ferro-manganese, but in 1902 and 1903 there

was a great increase in the imports of foundry and Bessemer pig iron. This increase was not continued in 1904 but there will again be an increase in 1905.

In February, 1905, a cargo of 4,000 tons of English pig iron was received at Philadelphia to be exported back to England, with benefit of tariff drawback, as cast iron pipe. Other purchases of foreign pig iron have since been made to be used in our export trade in steel rails and other finished products.

#### PRODUCTION AND IMPORTS OF MANGANESE ORE.

The United States annually produces only a few thousand tons of manganese ore—11,771 tons in 1900, 11,995 tons in 1901, 7,477 tons in 1902, 2,825 tons in 1903, and 3,146 tons in 1904. Our supply of manganese ore is mainly derived from foreign sources. The following States produced manganese ore in 1903: California, 16 tons; Georgia, 500 tons; South Carolina, 25 tons; Utah, 483 tons; and Virginia, 1,801 tons: total, 2,825 tons.

The imports of manganese ore have been as follows in late years: In 1897, 119,961 tons; in 1898, 114,885 tons; in 1899, 188,349 tons; in 1900, 256,252 tons; in 1901, 165,722 tons; in 1902, 235,576 tons; in 1903, 146,056 tons; in 1904, 108,459 tons.

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

We are indebted to the Bureau of Statistics of the Department of Commerce and Labor for the quantities and values of ferro-manganese, spiegeleisen, and ferro-silicon which were imported for consumption in the calendar years 1902, 1903, and 1904. These imports are included in the statistics of imports of pig iron, spiegeleisen, ferro-manganese, etc., given on page 25.

Articles. Calendar years.	1902.		1903.		1904.	
	Gross tons.	Values.	Gross tons.	Values.	Gross tons.	Values.
Ferro-manganese.	50,388	\$1,818,036	41,518	\$1,699,666	21,814	\$707,037
Spiegeleisen.....	62,813	1,473,853	122,016	2,709,317	4,623	132,461
Ferro-silicon.....	15,944	362,110	14,880	379,900	3,691	184,229
Total.....	129,145	\$3,653,999	178,414	\$4,788,883	30,128	\$1,023,727

#### IMPORTS AND EXPORTS OF COAL AND COKE.

Our domestic exports of anthracite coal in 1904 amounted to 2,228,392 gross tons, against 2,008,857 tons in 1903. Our domestic exports of bituminous coal in 1904 amounted to 6,345,126 tons, against 6,303,241 tons in 1903. The total domestic exports in

1904 amounted to 8,573,518 tons, against 8,312,098 tons in 1903. Our imports of anthracite coal in 1904 for consumption amounted to 72,529 tons, against 175,747 tons in 1903. Our imports of bituminous coal, including shale and slack, in 1904 for consumption amounted to 1,550,751 tons, against 3,303,683 tons in 1903. Our total imports of coal in 1904 for consumption amounted to 1,623,280 tons, against 3,479,430 tons in 1903.

Our domestic exports of coke in 1904 amounted to 585,872 net tons, against 466,351 tons in 1903. Our imports of coke for consumption in 1904 amounted to 180,853 tons, against 142,776 tons in 1903.

For all the above coal and coke figures we are indebted to the Bureau of Statistics of the Department of Commerce and Labor.

#### PRICES OF LAKE SUPERIOR IRON ORE.

We give below the prices at which Lake Superior iron ore was sold upon season contracts in 1903 and 1904, per gross ton, delivered at lower ports on Lake Erie; also the prices at which sales were made in the spring of 1905 for season delivery. These prices have been furnished to us for this Report by Mr. A. I. Findley, the editor of the *Iron Trade Review*.

Grades—Gross tons.	1903.	1904.	1905.
Old range Bessemer .....	\$4.50	\$3.00 @ \$3.25	\$3.75
Old range non-Bessemer .....	3.60	2.60 @ 2.80	3.20
Mesabi Bessemer.....	4.00	2.75 @ 3.00	3.50
Mesabi non-Bessemer .....	3.20	2.35 @ 2.50	3.00

The classification of ores given above conforms to that adopted by the Lake Superior Ore Association, which was organized on January 14, 1905, for statistical purposes by the ore selling firms located in Cleveland. The prices given for 1903 and 1905 are base prices. Those given for 1904 show more variation than in 1903 and 1905. In 1903, and in the sales for delivery in 1905, the bulk of the sales were made at the base prices.

The base Bessemer ore is an ore containing, when dried at 212 degrees Fahrenheit, 63 per cent. of metallic iron, 0.045 per cent. of phosphorus, and 10 per cent. of moisture. Other Bessemer ores brought higher or lower prices according as the three elements named varied from the analysis of the base ore. The base for non-Bessemer ores is an ore containing, when dried at 212 degrees Fahrenheit, 60 per cent. of metallic iron and 12 per cent. of moisture. This information we obtain from Mr. Findley.

Large sales of Lake Superior iron ore were made in the early months of 1905 on the basis of the prices given in the table. On some sales slight advances on these prices have since been realized. Silicious ores, containing when dried at 212 degrees Fahrenheit from 40 to 45 per cent. of metallic iron, sold in the spring of 1905 at about \$2, delivered at Lake Erie ports.

#### AVERAGE MONTHLY PRICES OF IRON AND STEEL.

In the following table we give the average monthly prices of leading articles of iron and steel in Pennsylvania in 1903 and 1904 and in the first four months of 1905. The prices named 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 mills.

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.	Steel rails, at mills, in Pennsylvania.	Steel billets, at mills, at Pittsburgh.	Best refined bar iron, from store, Phila.	Best refined bar iron, at mills, Pittsburgh.	Bar steel, at mills, at Pittsburgh.
January, 1903	\$23.50	\$24.00	\$20.50	\$20.50	\$22.85	\$28.00	\$29.60	\$2.20	\$2.00	\$1.64
February	23.75	23.75	20.00	20.50	21.91	28.00	30.00	2.20	2.00	1.60
March	24.50	23.50	19.50	20.87	21.85	28.00	30.62	2.20	2.00	1.60
April	24.90	22.70	19.10	20.45	21.28	28.00	30.20	2.20	2.00	1.60
May	24.50	21.37	18.62	19.87	20.01	28.00	30.25	2.16	2.00	1.60
June	23.50	20.62	18.00	18.87	19.72	28.00	28.87	2.08	1.77	1.60
July	22.00	19.00	17.50	17.90	18.93	28.00	27.40	2.01	1.70	1.60
August	19.37	18.00	15.81	16.04	18.35	28.00	27.00	1.93	1.70	1.60
September	18.75	17.50	14.94	15.25	17.22	28.00	27.00	1.81	1.70	1.60
October	17.50	16.70	14.05	14.20	16.00	28.00	27.00	1.81	1.70	1.60
November	16.37	16.00	13.75	13.00	15.19	28.00	24.00	1.71	1.34	1.37
December	15.40	15.85	13.75	12.80	14.40	28.00	23.00	1.71	1.30	1.30
January, 1904	15.87	15.50	13.50	12.81	13.90	28.00	23.00	1.71	1.30	1.30
February	15.00	15.50	13.50	12.75	13.66	28.00	23.00	1.71	1.31	1.30
March	16.70	15.45	13.50	13.17	14.03	28.00	23.00	1.71	1.38	1.33
April	18.37	15.75	13.75	13.09	14.19	28.00	23.00	1.71	1.50	1.35
May	15.85	15.40	13.55	12.62	13.60	28.00	23.00	1.71	1.50	1.32
June	14.50	15.19	13.31	12.27	12.81	28.00	23.00	1.71	1.50	1.30
July	14.12	14.94	13.12	11.92	12.46	28.00	23.00	1.71	1.50	1.30
August	14.55	15.00	13.00	11.89	12.76	28.00	23.00	1.71	1.50	1.31
September	15.50	15.00	12.87	11.75	12.69	28.00	21.25	1.71	1.50	1.33
October	16.25	15.12	13.19	12.30	13.10	28.00	19.50	1.71	1.50	1.30
November	17.70	16.40	14.75	14.25	15.15	28.00	20.40	1.71	1.52	1.32
December	20.25	17.62	16.00	15.85	16.72	28.00	21.00	1.81	1.76	1.38
January, 1905	22.00	17.75	16.06	16.11	16.72	28.00	22.50	1.91	1.80	1.45
February	23.00	17.75	15.62	15.99	16.20	28.00	23.37	1.91	1.80	1.45
March	24.20	18.00	16.00	16.00	16.35	28.00	23.70	1.91	1.90	1.50
April	24.50	18.25	16.00	15.77	16.35	28.00	23.75	1.91	1.82	1.50

## AVERAGE YEARLY PRICES OF IRON AND STEEL.

The following table gives the average yearly prices of leading articles of iron and steel in Pennsylvania and of wire nails at Chicago from 1900 to 1904. These prices are obtained by averaging monthly quotations, which have in turn been averaged from weekly quotations. The prices given are per ton of 2,240 pounds, except for bar iron and bar steel and cut and wire nails, which are quoted by the 100 pounds and in 100-pound kegs.

Articles.	1900.	1901.	1902.	1903.	1904.
Old iron T rails, at Philadelphia.....	\$19.51	\$19.32	\$23.83	\$21.17	\$16.22
No. 1 foundry pig iron, at Philadelphia.....	19.98	15.87	22.19	19.92	15.57
Gray forge pig iron, at Philadelphia.....	16.49	14.08	19.20	17.13	13.67
Gray forge pig iron, at Pittsburgh.....	16.90	14.20	19.49	17.52	12.89
Bessemer pig iron, at Pittsburgh.....	19.49	15.93	20.67	18.98	13.76
Steel rails, at mills, in Pennsylvania.....	32.29	27.33	28.00	28.00	28.00
Steel billets, at mills, at Pittsburgh.....	25.06	24.13	30.57	27.91	22.18
Best bar iron, from store, at Philada.....	1.96	1.84	2.13	2.00	1.72
Best bar iron, at mills, at Pittsburgh.....	2.15	1.80	1.94	1.77	1.48
Steel bars, at mills, at Pittsburgh.....	1.63	1.47	1.67	1.56	1.32
Cut nails, from store, at Philadelphia.....	2.46	2.29	2.29	2.36	2.01
Wire nails, base price, at Chicago.....	2.76	2.41	2.15	2.13	1.96

## AVERAGE MONTHLY PRICES OF STEEL BARS AT PITTSBURGH.

The following table, compiled from weekly quotations in the *American Manufacturer*, gives the average monthly prices of steel bars, per 100 pounds, at mills in Pittsburgh from 1898 to 1904.

Months.	1898.	1899.	1900.	1901.	1902.	1903.	1904.
January....	\$1.00	\$1.07	\$2.25	\$1.20	\$1.58	\$1.64	\$1.30
February..	1.00	1.09	2.25	1.27	1.50	1.60	1.30
March.....	.99	1.48	2.25	1.44	1.50	1.60	1.33
April.....	.95	1.75	2.12	1.50	1.67	1.60	1.35
May.....	.95	1.71	1.94	1.50	1.80	1.60	1.32
June.....	.95	2.05	1.79	1.50	1.80	1.60	1.30
July.....	.95	2.00	1.24	1.52	1.72	1.60	1.30
August.....	.96	2.21	1.05	1.50	1.75	1.60	1.31
September	.99	2.50	1.12	1.50	1.75	1.60	1.33
October.....	1.00	2.60	1.15	1.52	1.69	1.60	1.30
November.	1.01	2.46	1.18	1.60	1.60	1.37	1.32
December..	1.00	2.25	1.20	1.60	1.68	1.30	1.38
Average.	\$0.98	\$1.93	\$1.63	\$1.47	\$1.67	\$1.56	\$1.32

The lowest quoted price at which steel bars were sold at Pittsburgh within the last seven years was 95 cents per 100 pounds, this price prevailing in April, May, June, and July, 1898.

## 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, since 1897, as reported to us by the Duncannon Iron Company.

Months.	1897.	1898.	1899.	1900.	1901.	1902.	1903.	1904.
January.....	\$1.60	\$1.35	\$1.40	\$2.80	\$2.25	\$2.30	\$2.33	\$2.05
February...	1.55	1.35	1.65	2.80	2.27	2.20	2.36	2.00
March.....	1.55	1.30	1.75	2.80	2.27	2.25	2.36	2.00
April.....	1.50	1.30	1.95	2.62	2.30	2.30	2.41	2.05
May.....	1.45	1.30	1.95	2.45	2.30	2.30	2.41	2.05
June.....	1.45	1.30	2.20	2.42	2.30	2.30	2.41	2.05
July.....	1.40	1.30	2.30	2.30	2.30	2.30	2.41	2.05
August.....	1.40	1.30	2.35	2.30	2.30	2.30	2.41	2.00
September..	1.45	1.30	2.60	2.25	2.35	2.30	2.41	1.95
October.....	1.45	1.30	2.75	2.28	2.30	2.30	2.41	1.90
November..	1.40	1.30	2.80	2.30	2.30	2.30	2.20	2.00
December...	1.40	1.30	2.80	2.25	2.30	2.30	2.20	2.05
Average..	\$1.47	\$1.31	\$2.21	\$2.46	\$2.29	\$2.29	\$2.36	\$2.01

## AVERAGE MONTHLY PRICES OF WIRE NAILS AT CHICAGO.

The following table, compiled from quotations in the *Iron 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, in the eight years from 1897 to 1904 inclusive.

Months.	1897.	1898.	1899.	1900.	1901.	1902.	1903.	1904.
January.....	\$1.50	\$1.55	\$1.59	\$3.53	\$2.35	\$2.16	\$2.08	\$2.04
February...	1.45	1.57	1.73	3.53	2.45	2.20	2.12	2.05
March.....	1.50	1.55	2.09	3.53	2.45	2.20	2.20	2.09
April.....	1.45	1.47	2.25	3.28	2.45	2.20	2.15	2.10
May.....	1.42	1.45	2.35	2.53	2.45	2.20	2.15	2.10
June.....	1.42	1.43	2.60	2.48	2.45	2.20	2.15	2.07
July.....	1.35	1.36	2.70	2.43	2.45	2.20	2.15	2.05
August.....	1.37	1.36	2.80	2.43	2.45	2.20	2.15	1.90
September..	1.50	1.45	3.10	2.35	2.45	2.15	2.15	1.75
October.....	1.52	1.47	3.20	2.35	2.42	2.05	2.15	1.75
November..	1.50	1.40	3.28	2.35	2.35	2.00	2.15	1.77
December...	1.50	1.37	3.53	2.35	2.25	2.00	2.00	1.88
Average..	\$1.46	\$1.45	\$2.60	\$2.76	\$2.41	\$2.15	\$2.13	\$1.96

## AVERAGE MONTHLY PRICES OF STEEL SHIP PLATES AT PITTSBURGH.

The following table gives the average monthly prices of steel ship plates free on board at Pittsburgh from October 1, 1900, to May 15, 1905. See prices of beams and channels on page 31.

Months.	Price.	Months.	Price.	Months.	Price.	Months.	Price.
Oct., 1900...	\$24.64	December..	\$35.84	February..	\$35.84	April.....	\$35.84
November..	28.00	Jan., 1902..	35.84	March .....	35.84	May.....	35.84
December...	30.24	February..	35.84	April.....	35.84	June.....	35.84
Jan., 1901...	31.36	March.....	35.84	May.....	35.84	July.....	35.84
February....	31.36	April.....	35.84	June.....	35.84	August....	35.84
March.....	33.15	May.....	35.84	July.....	35.84	September	32.48
April.....	35.84	June .....	35.84	August.....	35.84	October....	31.36
May.....	35.84	July.....	35.84	September	35.84	November	31.36
June .....	35.84	August.....	35.84	October....	35.84	December..	32.37
July.....	35.84	September.	35.84	November..	35.84	Jan., 1905..	33.60
August.....	35.84	October....	35.84	December..	35.84	February...	35.35
September..	35.84	November	35.84	Jan., 1904..	35.84	March.....	35.84
October.....	35.84	December..	35.84	February..	35.84	April.....	35.84
November...	35.84	Jan., 1903..	35.84	March .....	35.84	May 15....	35.84

The average annual price of steel ship plates was \$34.87 in 1901, \$35.84 in 1902, \$35.84 in 1903, and \$34.52 in 1904.

AVERAGE QUARTERLY PRICES OF BEAMS AND CHANNELS  
AT PITTSBURGH.

The following table, which gives the average quarterly prices of steel beams and channels at Pittsburgh from 1894 to 1905, has been compiled for this Report by one of the leading manufacturers of structural shapes in Western Pennsylvania.

Years.	Price per 100 pounds.					Years.	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	1900...	\$2.25	\$2.21	\$1.68	\$1.50	\$1.91
1895...	1.21	1.25	1.56	1.58	1.40	1901...	1.51	1.60	1.60	1.60	1.58
1896...	1.44	1.49	1.55	1.50	1.49	1902...	1.60	1.60	1.60	1.60	1.60
1897...	1.55	1.33	.98	1.09	1.24	1903...	1.60	1.60	1.60	1.60	1.60
1898...	1.15	1.15	1.19	1.20	1.17	1904...	1.60	1.60	1.55	1.41	1.54
1899...	1.35	1.60	2.12	2.25	1.83	1905...	1.55	.....	.....	.....	.....

During the above eleven years the lowest average quarterly price for beams and channels 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 it was \$2.25 per 100 pounds.

AVERAGE WHOLESALE MONTHLY PRICES OF TINPLATES.

The following table gives the average wholesale monthly prices of American Bessemer tinplates, I. C., 14 by 20, per box of 100 pounds, at mills in Pennsylvania, from 1901 to 1904.

Months.	Price.	Months.	Price.	Months.	Price.	Months.	Price.
Jan., 1901..	\$4.00	Jan., 1902..	\$4.00	Jan., 1903..	\$3.60	Jan., 1904..	\$3.56
February ...	4.00	February ...	4.00	February ...	3.60	February ...	3.45
March.....	4.00	March.....	4.00	March.....	3.80	March.....	3.45
April.....	4.00	April.....	4.00	April.....	3.80	April.....	3.45
May.....	4.00	May.....	4.00	May.....	3.80	May.....	3.45
June.....	4.00	June.....	4.00	June.....	3.80	June.....	3.45
July.....	4.00	July.....	4.00	July.....	3.80	July.....	3.41
August.....	4.00	August.....	4.00	August.....	3.80	August.....	3.30
September...	4.00	September..	4.00	September..	3.80	September..	3.30
October.....	4.00	October.....	4.00	October.....	3.80	October.....	3.30
November..	4.00	November...	3.60	November...	3.65	November...	3.39
December...	4.00	December...	3.60	December...	3.60	December...	3.47
Average..	\$4.00	Average..	\$3.93	Average..	\$3.74	Average..	\$3.41

The average monthly price of tinplates at mills in Pennsylvania was \$3.55 per box in January, 1905, \$3.55 in February, \$3.55 in March, \$3.55 in April, and \$3.55 in May.

#### AVERAGE YEARLY PRICES OF FOREIGN TINPLATES.

The following table gives the average yearly prices of imported coke Bessemer tinplates, I. C., 14 x 20, per box of 108 pounds, at New York, freight and duty paid, from 1890 to 1898.

Years.	Price.	Years.	Price.	Years.	Price.
1890.....	\$4.80	1893.....	\$5.37	1896.....	\$3.80
1891.....	5.34	1894.....	4.89	1897.....	3.90
1892.....	5.30	1895.....	3.87	1898.....	4.00

In recent years tinplates have been imported chiefly by the oil and canning interests to obtain the benefit of the drawback.

#### AVERAGE YEARLY PRICES OF DOMESTIC TINPLATES.

The following table gives the average yearly prices of domestic Bessemer tinplates, I. C., 14 x 20, per box of 100 pounds, at mills in Pennsylvania, from 1899 to 1904.

Years.	Price.	Years.	Price.	Years.	Price.
1899.....	\$4.06	1901.....	\$4.00	1903.....	\$3.74
1900.....	4.47	1902.....	3.93	1904.....	3.41

#### TOTAL PRODUCTION OF PIG IRON.

Twenty States made pig iron in 1904, against 22 in 1903. The total production of pig iron in 1904 was 16,497,033 gross tons, against 18,009,252 tons in 1903. The following table gives the half-yearly production of pig iron in the last six years.

Periods.	1899. Gross tons.	1900. Gross tons.	1901. Gross tons.	1902. Gross tons.	1903. Gross tons.	1904. Gross tons.
First half...	6,289,167	7,642,569	7,674,613	8,808,574	9,707,367	8,173,438
Second half.	7,331,536	6,146,673	8,203,741	9,012,733	8,301,885	8,323,595
Total...	13,620,703	13,789,242	15,878,354	17,821,307	18,009,252	16,497,033

The production of pig iron in 1904 was 1,512,219 tons less than in 1903. The last months of 1904 showed a steady increase.

The following table gives the half-yearly production of pig iron by States in 1904, arranged according to geographical position.

States—Gross tons.	First half, 1904.	Second half, 1904.	States—Gross tons.	First half, 1904.	Second half, 1904.
Massachusetts.....	1,242	1,907	Kentucky.....	17,516	19,590
Connecticut.....	4,325	4,597	Tennessee.....	165,883	136,213
New York.....	250,980	354,729	Ohio.....	1,540,743	1,437,186
New Jersey.....	121,294	141,000	Illinois.....	798,221	857,770
Pennsylvania.....	3,713,867	3,930,454	Michigan.....	138,744	94,481
Maryland.....	135,416	158,025	Wisconsin.....	104,437	105,967
Virginia.....	186,037	124,489	Minnesota.....		
Georgia.....	40,508	29,648	Missouri.....	46,982	104,794
Alabama.....	800,256	653,257	Colorado.....		
Texas.....	3,834	1,696			
West Virginia.....	103,153	167,792	Total.....	8,173,438	8,323,595

The following table gives the production of pig iron by States in 1903 and 1904, in the order of their prominence in 1903.

States—Gross tons.	1903.	1904.	States—Gross tons.	1903.	1904.
Pennsylvania.....	8,211,500	7,644,321	Michigan.....	244,709	233,225
Ohio.....	3,287,434	2,977,929	New Jersey.....	211,667	262,294
Illinois.....	1,692,375	1,655,991	West Virginia....	199,013	270,945
Alabama.....	1,561,398	1,453,513	Kentucky.....	102,441	37,106
New York.....	552,917	605,709	North Carolina }	75,602	70,156
Virginia.....	544,034	310,526	Georgia.....		
Tennessee.....	418,368	302,096	Connecticut.....	14,501	8,922
Maryland.....	324,570	293,441	Texas.....	11,653	5,530
Wisconsin.....	283,516	210,404	Massachusetts....	3,265	3,149
Minnesota.....			.....	.....	.....
Missouri.....	270,289	151,776	.....	.....	.....
Colorado.....			.....	.....	.....
Washington.....			Total.....	18,009,252	16,497,033

#### PRODUCTION OF PIG IRON ACCORDING TO FUEL.

The production of pig iron in 1904, classified according to the fuel used, was as follows, compared with the four preceding years.

# 34 STATISTICS OF THE AMERICAN IRON TRADE FOR 1904.

Fuel used—Gross tons.	1900.	1901.	1902.	1903.	1904.
Bituminous, chiefly coke	11,727,712	13,782,386	16,315,891	15,592,221	14,931,364
Anthracite and coke.....	1,636,366	1,668,808	1,096,040	1,864,199	1,196,867
Anthracite alone.....	40,682	43,719	19,207	47,148	31,273
Charcoal.....	339,874	360,147	378,504	504,757	337,529
Charcoal and coke.....	44,608	23,294	11,665	927	.....
Total.....	13,789,242	15,878,354	17,821,307	18,009,252	16,497,033

The following table gives the production of bituminous pig iron by States in 1903 and 1904, according to their prominence in 1903.

States—Gross tons.	1903.	1904.	States—Gross tons.	1903.	1904.
Pennsylvania.....	6,591,729	6,550,087	Minnesota.....	283,503	153,745
Ohio.....	3,277,894	2,976,941	Missouri.....		
Illinois.....	1,692,375	1,655,991	Colorado.....		
Alabama.....	1,488,291	1,423,021	Wisconsin.....	209,012	218,342
Virginia.....	574,266	351,498	Michigan.....	.....	
North Carolina...			West Virginia...	199,013	
Georgia.....			Kentucky.....	102,441	37,106
New York.....	430,726	547,184	New Jersey.....	17,464	156,153
Tennessee.....	414,821	299,446	Total.....	15,592,221	14,931,364
Maryland.....	310,686	290,905			

The following table gives the production of pig iron with anthracite coal alone and with anthracite coal and coke mixed.

States. Gross tons.	1899.	1900.	1901.	1902.	1903.	1904.
Pennsylvania	1,420,618	1,440,139	1,518,535	919,775	1,615,701	1,091,641
New Jersey...	163,853	168,762	155,746	136,929	284,018	134,762
New York.....		50,859	35,508	58,543		
Maryland.....	15,081	17,288	2,738	.....	11,628	1,737
Total.....	1,599,552	1,677,048	1,712,527	1,115,247	1,911,347	1,228,140

The following table gives the production of charcoal pig iron by States in 1903 and 1904, according to their prominence in 1903.

States—Gross tons.	1903.	1904.	States—Gross tons.	1903.	1904.
Michigan.....	244,709	171,519	Connecticut.....	14,501	8,922
Alabama.....	73,107	30,492	Ohio.....	9,540	988
Wisconsin.....	60,363	51,799	Maryland.....	5,794	5,335
Missouri.....			Virginia.....		
Georgia.....	41,832	24,648	Pennsylvania....	4,070	2,593
New York.....	32,376	29,904	Massachusetts....	3,265	3,149
Tennessee.....	15,200	8,180	Total.....	504,757	337,529
Texas.....					

There were also produced in 1903 in Wisconsin and Washington 927 tons of pig iron made with mixed charcoal and coke.

#### PRODUCTION OF BESSEMER PIG IRON.

The production of Bessemer and low-phosphorus pig iron in 1904 amounted to 9,098,659 tons, against 9,989,908 tons in 1903. The following table gives the production of Bessemer pig iron by States in each year from 1899 to 1904. Bessemer pig iron made with charcoal is included. Low-phosphorus pig iron is included for 1901, 1902, 1903, and 1904, but not for 1899 and 1900. The production of low-phosphorus pig iron alone is given on page 41.

States—Gross tons.	1899.	1900.	1901.	1902.	1903.	1904.
Pennsylvania.....	4,473,493	4,242,397	4,885,877	5,130,022	5,213,143	4,511,999
Ohio.....	1,852,965	1,898,663	2,637,091	2,927,605	2,422,676	2,138,442
Illinois.....	1,330,169	1,178,241	1,394,430	1,495,298	1,386,683	1,424,030
Maryland.....	210,670	260,688	297,149	296,971	321,784	292,642
West Virginia ...	187,858	169,802	166,597	182,937	198,688	267,505
North Carolina..						
Colorado.....	96,364	118,146	147,216	201,580	176,116	112,318
Kentucky .....	22,756	13,430	.....	9,746	26,856	25,209
Tennessee .....						
Wisconsin.....	14,519	21,785	39,941	82,328	111,340	76,031
Michigan.....						
Minnesota.....						
New Jersey.....	13,984	40,300	28,492	66,681	129,323	250,483
New York.....	.....					
Virginia.....	.....	.....	.....	.....	3,299	.....
Alabama.....						
Total.....	8,202,778	7,943,452	9,596,793	10,393,168	9,989,908	9,098,659

Of the production of Bessemer and low-phosphorus pig iron in Pennsylvania in 1904 the Lehigh Valley made 64,494 tons; the Schuylkill Valley, 38,973 tons; the Lower Susquehanna Valley, 255,091 tons; Allegheny County, 2,975,596 tons; the Shenango Valley, 752,238 tons; and the remainder of the State, 425,607 tons: total, 4,511,999 tons.

In Ohio in 1904 the Mahoning Valley produced 914,445 tons of Bessemer and low-phosphorus pig iron; the Hanging Rock bituminous district, 101,656 tons; the Lake Counties, 596,932 tons; and other parts of Ohio, 525,409 tons: total, 2,138,442 tons.

#### PRODUCTION OF BASIC PIG IRON.

The production of basic pig iron in 1904, not including charcoal pig iron of basic quality, was 2,483,104 tons, against 2,040,-

726 tons in 1903, an increase of 442,378 tons. The production of basic pig iron by States since 1900 is given in the following table.

States—Gross tons.	1900.	1901.	1902.	1903.	1904.
New York and New Jersey...	4,929	34,320	90,736	117,802	113,688
Pennsylvania—Allegheny Co.	446,543	568,516	932,532	791,175	1,245,142
Pennsylvania—other counties..	344,065	442,744	596,216	626,078	560,605
Va., Tenn., and Alabama.....	179,717	301,444	295,191	267,999	319,329
Ohio, Ill., Wis., Mo., and Col..	97,122	101,826	123,915	237,672	244,340
Total.....	1,072,376	1,448,850	2,038,590	2,040,726	2,483,104

Maryland, Tennessee, Illinois, and Wisconsin did not make basic pig iron in 1901 or 1902, as in some previous years, and Maryland and Wisconsin did not make any in 1903 or 1904. Colorado made basic pig iron for the first time in 1903 but was not a producer in 1904.

A significant feature of the above statistics is the increased production of basic pig iron in 1904, a year of generally reduced production. In the same year the production of Bessemer pig iron declined 891,249 tons as compared with the production in 1903.

#### PRODUCTION OF SPIEGELEISEN, FERRO-MANGANESE, AND FERRO-PHOSPHORUS.

The production of spiegeleisen, ferro-manganese, and ferro-phosphorus in 1904, included in the total production of pig iron, was 220,392 tons, against 192,661 tons in 1903. The production of ferro-manganese alone in 1904 amounted to 57,076 tons, against 35,961 tons in 1903, and of spiegeleisen alone to 162,370 tons, against 156,700 tons in 1903. The spiegeleisen and ferro-manganese produced in 1904 were made by New Jersey, Pennsylvania, Illinois, and Colorado. Tennessee was the only State which made ferro-phosphorus in 1904, its production amounting to 946 tons, all made by one company. In 1903 no ferro-phosphorus was reported to us by pig iron manufacturers.

#### PRODUCTION OF PIG IRON IN PENNSYLVANIA BY DISTRICTS.

The production of pig iron in Pennsylvania by districts in 1904 was as follows: Lehigh Valley, 456,028 tons; Schuylkill Valley, 409,416 tons; Lower Susquehanna Valley, 397,156 tons; Juniata Valley, 120,471 tons; Allegheny County, 4,383,169 tons; Shenango Valley, 1,011,440 tons; Western Pennsylvania, except Allegheny County and the Shenango Valley, 864,048 tons; charcoal, (whole State,) 2,593 tons: total, 7,644,321 tons. Pig iron was not made in the Upper Susquehanna Valley in 1903 or 1904.

In 1904 the Shenango Valley lowered its output 126,721 tons as compared with 1903; Allegheny County increased its production 171,600 tons; Western Pennsylvania, outside of Allegheny County and the Shenango Valley, decreased 62,966 tons; the Lehigh Valley lost 192,793 tons; the Schuylkill Valley lost 141,144 tons; the Lower Susquehanna Valley lost 100,450 tons; the Juniata Valley lost 113,228 tons; and charcoal lost 1,477 tons.

In 1901, 1902, and 1903 Allegheny County made a little more than one-half the production of Pennsylvania but less than one-fourth the country's total production. In 1904 it made 57.3 per cent. of the total production of Pennsylvania and over 26 per cent. of the country's total production.

In each of the years 1902 and 1903 Pennsylvania made 45.5 per cent. of the country's total production of pig iron, and in 1904 it made a little over 46.3 per cent.

#### PRODUCTION OF PIG IRON IN OHIO BY DISTRICTS.

The production of pig iron in Ohio in 1904 by districts was as follows: Mahoning Valley, including the furnaces at Leetonia, 1,217,186 tons; Hocking Valley, 17,600 tons; Lake Counties, 807,257 tons; miscellaneous bituminous, 687,601 tons; Hanging Rock bituminous, 247,297 tons; Hanging Rock charcoal, 988 tons: total, 2,977,929 tons.

The decrease in production in the Mahoning Valley, including the furnaces at Leetonia, in 1904 compared with 1903 was 46,773 tons; in the Lake Counties the decrease was 21,647 tons; in the miscellaneous bituminous district it was 142,851 tons; in the Hanging Rock bituminous district the decrease was 80,382 tons; in the Hanging Rock charcoal district the decrease was 8,552 tons; and in the Hocking Valley the decrease was 9,300 tons.

Of the country's total production in 1904 Ohio made a little over 18 per cent., almost the same percentage as in 1903.

#### PRODUCTION IN THE SHENANGO AND MAHONING VALLEYS.

The production of pig iron in the Mahoning Valley in Ohio, which includes the furnaces at Leetonia, and in the Shenango Valley in Pennsylvania in 1898 was almost exactly the same, the former producing 769,334 tons and the latter 769,677 tons. In 1899 the Mahoning Valley made 932,165 tons and the Shenango Valley made 937,215 tons. In 1900 the Mahoning Valley went away ahead of its rival, making 1,002,362 tons, against 800,214 tons in the Shenango Valley. In 1901 the Mahoning Valley further increased its lead, producing 1,404,857 tons, against 979,875

tons in the Shenango Valley. In 1902 the Mahoning Valley increased its production to 1,438,087 tons, while the Shenango Valley jumped to 1,254,933 tons, the gain in the Mahoning Valley amounting only to 33,230 tons, while the Shenango Valley increased its production 275,058 tons, showing a comparative gain of 241,828 tons in favor of the Shenango Valley, although the Mahoning Valley was still 183,154 tons in the lead. In 1903 the Mahoning Valley produced 1,263,959 tons and the Shenango Valley produced 1,138,161 tons, a decrease of 174,128 tons in the Mahoning Valley and of 116,772 tons in the Shenango Valley as compared with 1902. In this year the Mahoning Valley led its rival by 125,798 tons. In 1904 the production in the Mahoning Valley fell to 1,217,186 tons, a loss as compared with 1903 of 46,773 tons. In the Shenango Valley the production also declined in 1904, falling to 1,011,440 tons, a loss of 126,721 tons. In that year the gain in the Mahoning Valley over its Pennsylvania rival amounted to 205,746 tons.

#### STOCKS OF UNSOLD PIG IRON.

Our half-yearly statistics of stocks of unsold pig iron do not include pig iron made by the owners of rolling mills or steel works for their own use, but only pig iron made for sale and which had not been sold. The stocks of pig iron which were unsold in the hands of manufacturers or which were under their control in warrant yards and elsewhere at the close of 1904, and were not intended for their own consumption, amounted to 408,792 tons, against 623,254 tons on June 30, 1904, and 591,438 tons on December 31, 1903. Warrant stocks not controlled by the makers are not included. The American Pig Iron Storage Warrant Company held 55,350 tons of pig iron in its yards on December 31, 1904, of which 17,700 tons, included above, were reported to us as being still controlled by the makers, leaving 37,650 tons in other hands. Adding this 37,650 tons to the 408,792 tons noted above gives us a total of 446,442 tons that were on the market at the close of 1904, against 598,489 tons in 1903, 49,951 tons in 1902, 73,647 tons in 1901, and 446,020 tons in 1900.

#### NUMBER OF COMPLETED FURNACES.

The whole number of completed furnaces in the United States at the close of 1904 was 429, against 425 at the close of 1903. The following table shows the number of furnaces at the end of each year since 1899, not counting abandoned furnaces.

STATISTICS OF THE AMERICAN IRON TRADE FOR 1904. 39

Fuel used.	1899.	1900.	1901.	1902.	1903.	1904.
Bituminous coal and coke.....	235	240	257	272	288	300
Anthracite and anth. and coke...	99	94	90	81	77	73
Charcoal and charcoal and coke..	80	72	59	59	60	56
Total.....	414	406	406	412	425	429

FURNACES IN BLAST IN 1904.

During the first six months of 1904 the number of furnaces actually in blast during a part or the whole of the period was 295, and during the last half of the year the number was 297.

In the following table we give by States the number of furnaces that were in blast in the first and second six months of 1904 as compared with the number of active furnaces on June 30 and December 31, 1904; also the number of completed furnaces on these two dates. The number of furnaces which were idle during the whole of the first half of the year was 130, while during the last half of the year the number was 132.

States.	Com- pleted June 30.	In blast.		States.	Com- pleted Dec. 31.	In blast.	
		June 30, 1904.	1st half 1904.			Dec. 31, 1904.	2d half 1904.
Massachusetts..	2	1	1	Massachusetts.	2	1	1
Connecticut....	3	1	2	Connecticut....	3	2	2
New York.....	22	10	12	New York.....	22	12	13
New Jersey....	12	5	7	New Jersey...	12	5	7
Pennsylvania..	155	83	109	Pennsylvania..	158	108	116
Maryland.....	6	3	4	Maryland.....	6	4	4
Virginia.....	26	12	16	Virginia.....	26	12	16
N. Carolina....	1	.....	.....	N. Carolina....	1	.....	.....
Georgia.....	4	3	4	Georgia.....	4	2	3
Alabama.....	49	25	33	Alabama.....	49	25	31
Texas.....	4	1	2	Texas.....	4	1	1
West Virginia.	4	4	4	West Virginia.	4	4	4
Kentucky.....	7	2	2	Kentucky.....	7	3	3
Tennessee.....	22	11	14	Tennessee.....	22	10	14
Ohio.....	59	31	48	Ohio.....	60	43	47
Illinois.....	22	13	17	Illinois.....	21	12	17
Michigan.....	11	4	11	Michigan.....	12	6	6
Wisconsin.....	6	3	5	Wisconsin.....	6	6	6
Minnesota.....	1	.....	.....	Minnesota.....	1	1	1
Missouri.....	2	2	2	Missouri.....	2	2	2
Colorado.....	5	2	2	Colorado.....	5	2	3
Oregon.....	1	.....	.....	Oregon.....	1	.....	.....
Washington....	1	.....	.....	Washington....	1	.....	.....
Total.....	425	216	295	Total.....	429	261	297

## FURNACES IN BLAST IN THE LAST SIX YEARS.

The whole number of furnaces in blast on December 31, 1904, was 261, against 216 on June 30, 1904, and 182 on December 31, 1903. The number of furnaces in blast at the end of 1904 was 45 larger than on June 30 of the same year and 79 larger than on December 31, 1903. The number of furnaces out of blast at the close of 1904 was 168, as compared with 243 at the end of 1903. The following table shows the number of furnaces in blast at the close of each year since 1899.

Fuel used.	1899.	1900.	1901.	1902.	1903.	1904.
Bituminous coal and coke.....	191	155	188	222	120	206
Anthracite and anth. and coke..	68	45	54	52	29	38
Charcoal and charcoal and coke.	30	32	24	33	33	17
Total.....	289	232	266	307	182	261

## ANNUAL CONSUMPTION OF PIG IRON.

Our consumption of pig iron in the last five years is approximately shown in the following table. Warrant stocks not controlled by the makers are included in unsold stocks for each year.

Pig iron—Gross tons.	1900.	1901.	1902.	1903.	1904.
Domestic production.....	13,789,242	15,878,354	17,821,307	18,009,252	16,497,033
Imported.....	52,565	62,930	619,354	599,574	79,500
Stocks unsold January 1...	68,309	446,020	73,647	49,951	598,489
Total supply.....	13,910,116	16,387,304	18,514,308	18,658,777	17,175,022
Deduct stocks Dec. 31.....	446,020	73,647	49,951	598,489	446,442
Also exports.....	286,687	81,211	27,487	20,379	49,025
Approximate consumption	13,177,409	16,232,446	18,436,870	18,039,909	16,679,555

Although the production of pig iron in 1904 fell below that of 1903 by 1,512,219 tons, the consumption in 1904 was only 1,360,354 tons less than in 1903, the stocks of unsold pig iron at the close of 1904 being 152,047 tons less than at the close of 1903, while imports of pig iron greatly declined in 1904.

## LIMESTONE CONSUMED IN MAKING PIG IRON.

The limestone consumed for fluxing purposes by the blast furnaces of the United States in the production of 16,497,033 tons of pig iron in 1904 amounted to 8,195,036 tons. The average consumption of limestone per ton of all kinds of pig iron produced was 1,112.6 pounds in 1904, against 1,193 pounds in 1903, 1,192.8 pounds in 1902, 1,186.5 pounds in 1901, and 1,205.6

pounds in 1900. The consumption in 1904 by the anthracite and bituminous furnaces was 1,128 pounds per ton of pig iron made, and by the charcoal furnaces it was 373.6 pounds.

#### PRODUCTION OF PIG IRON BY GRADES.

The following table gives the total production of pig iron in the United States in 1900, 1901, 1902, 1903, and 1904, by grades. Prior to 1900 the production of all grades was not ascertained.

Grades—Gross tons.	1900.	1901.	1902.	1903.	1904.
Bess. and low-phos.	7,979,327	9,596,793	10,393,168	9,989,908	9,098,659
Basic (mineral fuel)	1,072,376	1,448,850	2,038,590	2,040,726	2,483,104
Forge pig iron.....	793,092	639,454	833,093	783,016	550,836
Fdy. and high sil...	3,376,445	3,548,718	3,851,276	4,409,023	3,827,229
Malleable Bessemer	173,413	256,532	311,458	473,781	263,529
White, mottled, etc.	129,909	87,964	172,085	120,137	53,284
Spiegeleisen.....	207,505	231,822	168,408	156,700	162,370
Ferro-manganese ....	48,472	59,639	44,573	35,961	58,022
Direct castings .....	8,703	8,582	8,656	.....	.....
Total .....	13,789,242	15,878,354	17,821,307	18,009,252	16,497,033

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 are confined strictly to pig iron made with mineral fuel, and do not include the small quantity of basic iron that is annually made with charcoal. A few thousand tons of castings direct from the furnace are included in the totals for white and mottled and miscellaneous grades of pig iron for 1903 and 1904. Ferro-silicon and high-silicon pig iron are included in the foundry figures. Small quantities of ferro-phosphorus are included with ferro-manganese for 1902 and 1904.

In 1904 the production of Bessemer pig iron alone, omitting low-phosphorus pig iron, amounted to 8,907,713 tons, against 9,789,486 tons in 1903 and 10,228,922 tons in 1902. The production of low-phosphorus pig iron amounted to 190,946 tons in 1904, against 200,422 tons in 1903 and 164,246 tons in 1902. In 1900 and 1901 the production of low-phosphorus pig iron was not separately ascertained. In 1904 low-phosphorus pig iron was made in New York, Pennsylvania, and Tennessee.

The following table gives the production by States of Bessemer and low-phosphorus and basic pig iron in 1902, 1903, and 1904. A small quantity of basic pig iron made with charcoal as fuel is not included in the figures of basic production.

## 42 STATISTICS OF THE AMERICAN IRON TRADE FOR 1904.

States—Gross tons.	Bessemer and low-phosphorus.			Basic pig iron.		
	1902.	1903.	1904.	1902.	1903.	1904.
New York.....	60,818	129,323	250,483	15,766	34,516	1,233
New Jersey.....	5,863	.....	.....	74,970	83,286	112,455
Pennsylvania..	5,130,022	5,213,143	4,511,999	1,528,748	1,417,253	1,805,747
Maryland.....	296,971	321,784	292,642	.....	.....	.....
Virginia.....	.....	1,000	.....	95,776	90,543	45,742
West Virginia	182,937	198,688	267,505	.....	.....	.....
Tennessee.....	9,746	26,856	25,209	.....	5,176	.....
Alabama .....	.....	2,299	.....	199,415	172,280	273,587
Ohio .....	2,927,605	2,422,676	2,138,442	101,457	190,840	179,560
Illinois.....	1,495,298	1,386,683	1,424,030	.....	.....	53,338
Michigan.....	926	3,520	17,976	.....	.....	.....
Wisconsin.....	70,303	74,080	37,287	.....	.....	.....
Minnesota.....	11,099	33,740	20,768	.....	.....	.....
Missouri.....	.....	.....	.....	22,458	17,000	11,442
Colorado.....	201,580	176,116	112,318	.....	29,832	.....
Total.....	10,393,168	9,989,908	9,098,659	2,038,590	2,040,726	2,483,104

The production of foundry and forge pig iron by States in 1902, 1903, and 1904 was as follows, in gross tons. A comparatively small quantity of forge pig iron is now made.

States—Gross tons.	Foundry pig iron.			Forge pig iron.		
	1902.	1903.	1904.	1902.	1903.	1904.
Massachusetts...	3,360	3,265	3,149	.....	.....	.....
Connecticut.....	12,086	14,501	8,922	.....	.....	.....
New York.....	272,633	304,667	281,419	45,887	37,986	33,675
New Jersey .....	59,015	85,257	103,454	32,234	25,750	32,071
Pennsylvania...	845,472	948,957	840,407	399,962	433,925	297,307
Maryland.....	3,789	2,460	799	1,939	326	.....
Virginia.....	348,771	413,403	253,812	59,402	29,551	9,918
West Virginia...	68	43	13	.....	.....	3,427
Kentucky.....	93,699	98,600	36,297	15,381	2,453	600
Tennessee.....	328,975	350,966	253,185	41,137	23,159	19,743
North Carolina..	544	6,779	.....	71	619	.....
Georgia.....	30,762	59,910	52,658	.....	5,765	8,824
Texas.....	3,095	11,408	5,100	.....	.....	.....
Alabama .....	1,044,874	1,194,556	1,085,935	170,784	155,937	76,850
Ohio.....	403,880	416,850	459,354	52,418	61,904	66,148
Illinois .....	67,627	115,223	107,236	2,649	5,641	.....
Michigan.....	154,234	239,369	201,849	.....	.....	.....
Wisconsin.....	152,965	112,656	113,180	.....	.....	2,273
Mo., Col., and Washington... }	25,427	30,153	20,460	11,229	.....	.....
Total.....	3,851,276	4,409,023	3,827,229	833,093	783,016	550,836

Of the total production of pig iron in 1904 over 55.1 per cent. was Bessemer and low-phosphorus, as compared with over 55.4 per cent. in 1903; nearly 23.2 per cent. was foundry, against 24.4 per cent. in 1903; 15 per cent. was basic, against over 11.3 per cent. in 1903; 3.3 per cent. was forge; 1.3 per cent. was spiegeleisen and ferro-manganese; and almost 1.6 per cent. was malleable Bessemer. White and mottled and miscellaneous grades and furnace castings did not amount to 1 per cent. in 1903 and 1904.

Included in the 3,827,229 tons of foundry pig iron made in 1904 are 69,730 tons of ferro-silicon, made in Pennsylvania, Virginia, West Virginia, Kentucky, and Ohio, a small part of which was made with electricity. In 1903 51,516 tons of ferro-silicon were made. Pig iron containing 7 per cent. of silicon and over is classified as ferro-silicon. Virtually all the charcoal iron made is classified as foundry pig iron. Alabama is now the leading producer of foundry pig iron and Pennsylvania of forge pig iron.

The production of malleable Bessemer pig iron in 1904 amounted to 263,529 tons, against 473,781 tons in 1903, 311,458 tons in 1902, and 256,532 tons in 1901. In 1904 the production of white and mottled and other miscellaneous grades of pig iron and direct castings amounted to 53,284 tons, against 120,137 tons in 1903, 180,741 tons in 1902, and 96,546 tons in 1901.

The production of spiegeleisen, ferro-manganese, and ferro-phosphorus by States in 1902, 1903, and 1904 was as follows.

States—Gross tons.	Spiegeleisen.			Ferro-manganese and ferro-phos.		
	1902.	1903.	1904.	1902.	1903.	1904.
New Jersey.....	14,182	15,346	11,242	.....	.....	.....
Pennsylvania ...	99,383	76,493	103,773	44,453	34,871	57,076
Tennessee.....	.....	.....	.....	.....	.....	946
Alabama.....	475	24	.....	120	1,090	.....
Illinois.....	45,801	57,955	39,799	.....	.....	.....
Colorado.....	8,567	6,882	7,556	.....	.....	.....
Total.....	168,408	156,700	162,370	44,573	35,961	58,022

The figures given for ferro-manganese for 1902 and 1904 include a small quantity of ferro-phosphorus made in Alabama and Tennessee respectively. The production of ferro-phosphorus was not reported to us for 1901 and 1903. 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.

## PRODUCTION OF BESSEMER STEEL.

The total production of Bessemer steel ingots and castings in the United States in 1904 was 7,859,140 tons, against 8,592,829 tons in 1903, a decrease of 733,689 tons, or 8.5 per cent. The production in 1903 was 545,534 tons less than in 1902, in which year the production was the largest in our history.

The following table gives the production of Bessemer steel ingots and castings in the last five years by States. Of the production in 1904 16,051 tons were direct castings, against a similar production of 18,099 tons in 1903 and 12,548 tons in 1902.

States—Gross tons.	1900.	1901.	1902.	1903.	1904.
Pennsylvania .....	3,488,731	4,293,439	4,209,326	3,909,436	3,464,650
Ohio .....	1,388,124	2,154,846	2,528,802	2,330,134	2,050,115
Illinois .....	1,115,571	1,324,217	1,443,614	1,366,569	1,257,190
Other States .....	692,344	940,800	956,621	986,690	1,087,185
Total .....	6,684,770	8,713,302	9,138,363	8,592,829	7,859,140

There were no Clapp-Griffiths works in operation in 1904 and only 2 Robert-Bessemer plants were active. Eleven Tropenas plants were at work, as compared with 8 in 1903. In addition 2 plants made steel by the Bookwalter process and 5 plants in special converters. With the exception of the Clapp-Griffiths plant all these works make a specialty of steel castings.

The following table gives separately the production of Bessemer steel ingots and castings from 1898 to 1904, all made by the acid process. Prior to 1898 Bessemer castings were included with ingots. Basic Bessemer steel has not been made in this country since 1897, when about 69,000 tons of ingots were produced at Troy, New York, by the Troy Steel Company.

Years—Gross tons.	Ingots.	Castings.	Total.
1898 .....	6,605,478	3,539	6,609,017
1899 .....	7,582,415	3,939	7,586,354
1900 .....	6,678,303	6,467	6,684,770
1901 .....	8,706,538	6,764	8,713,302
1902 .....	9,125,815	12,548	9,138,363
1903 .....	8,574,730	18,099	8,592,829
1904 .....	7,843,089	16,051	7,859,140

## NEW BESSEMER STEEL CASTING PLANTS.

No new standard Bessemer plants were built in 1904. Nor was work commenced on any new standard Bessemer plants dur-

ing that year. A number of works to make steel by the Tropenas process were, however, completed and put in operation in 1904. Also one plant to make steel by the Bookwalter process and one plant to make steel in a special Bessemer converter.

The new Tropenas plants which were built and put in operation in 1904 were as follows: Watertown Arsenal, Watertown, Mass.; one 2-gross-ton converter; first steel made March 25, 1904. Massachusetts Steel Casting Company, Everett, Mass.; one 2-gross-ton converter; first steel made December 29, 1904. Providence Steel Casting Company, Providence, R. I.; one 2-gross-ton converter; first steel made in May, 1904; foundations are now ready for an additional 2-gross-ton converter, which may be completed in 1905. United States Navy Yard, Brooklyn, N. Y.; one 2-gross-ton converter; first steel made December 19, 1904. Southern Steel Works, Chattanooga, Tenn.; one 2-gross-ton converter; first steel made December 1, 1904. In addition to the above Isaac G. Johnson & Co., Incorporated, of Spuyten Duyvil, N. Y., added one 2-gross-ton Tropenas converter to its plant in the summer of 1904, and its works are now equipped with two 2-gross-ton converters.

The new plant to make steel by the Bookwalter process was erected by the Brylgon Steel Casting Company, at New Castle, Delaware. It is equipped with two 2-gross-ton converters. Steel was first made on September 22, 1904. The plant to make steel in a special converter was built by the Milwaukee Steel Foundry Company, at Milwaukee, Wis. Steel was first made on March 15, 1904. The converter has a capacity of one ton at each blow.

All the plants enumerated above make a specialty of steel castings, although occasionally a few ingots are made. Some of these ingots are used in the production of forgings.

#### PRODUCTION OF OPEN-HEARTH STEEL.

The total production of open-hearth steel ingots and direct castings in the United States in 1904 was 5,908,166 gross tons, against 5,829,911 tons in 1903, an increase of 78,255 tons, or over 1.3 per cent. While this increase was not so great as had been looked for it should be remembered that any increase at all in a year which witnessed a general reaction in business, and especially in the iron trade, marks an important advance in the open-hearth branch of our iron and steel industries.

The following table gives the production of open-hearth steel ingots and castings by States since 1899, in gross tons.

States—Gross tons.	1899.	1900.	1901.	1902.	1903.	1904.
New England....	57,124	74,522	170,876	179,923	169,209	195,901
N. Y. and N. J..	61,461	67,361	82,985	92,763	104,598	165,986
Pennsylvania.....	2,393,811	2,699,502	3,594,763	4,375,364	4,442,730	4,306,498
Ohio.....	117,458	130,191	184,943	278,854	369,349	480,906
Illinois.....	246,183	285,551	398,522	435,461	422,919	358,215
Other States.....	71,279	141,008	224,220	325,364	321,106	400,660
Total.....	2,947,316	3,398,135	4,656,309	5,687,729	5,829,911	5,908,166

The open-hearth steel made in 1904, including both ingots and castings, was produced by 116 works in 16 States—Massachusetts, Connecticut, Rhode Island, New York, New Jersey, Pennsylvania, Maryland, Tennessee, Alabama, Ohio, Indiana, Illinois, Wisconsin, Missouri, Colorado, and California. One hundred and eleven works in 17 States made open-hearth steel in 1903, and 98 works in 16 States made open-hearth steel in 1902.

The production of open-hearth steel ingots in 1904, excluding castings, the latter to be noticed hereafter, amounted to 5,605,332 tons, against 5,429,563 tons in 1903, an increase of 175,769 tons.

#### PRODUCTION OF BASIC AND ACID OPEN-HEARTH STEEL INGOTS AND CASTINGS.

In the following table is given the production by States of both acid and basic open-hearth steel ingots and castings in 1904. The production of open-hearth steel by the basic and acid processes was first separately ascertained by us for the year 1896.

States—Gross tons.	Basic open-hearth steel.	Acid open-hearth steel.	Total. Gross tons.
New England.....	147,390	48,511	195,901
New York and New Jersey .....	139,791	26,195	165,986
Pennsylvania .....	3,667,673	638,825	4,306,498
Ohio .....	427,948	52,958	480,906
Illinois.....	341,073	17,142	358,215
Other States.....	382,492	18,168	400,660
Total for 1904.....	5,106,367	801,799	5,908,166
Total for 1903.....	4,734,913	1,094,998	5,829,911
Total for 1902.....	4,496,533	1,191,196	5,687,729
Total for 1901.....	3,618,993	1,037,316	4,656,309
Total for 1900.....	2,545,091	853,044	3,398,135
Total for 1899.....	2,080,426	866,890	2,947,316
Total for 1898.....	1,569,412	660,880	2,230,292
Total for 1897.....	1,056,043	552,628	1,608,671
Total for 1896.....	776,256	522,444	1,298,700

In 1903 4,734,913 tons of open-hearth steel were made by the

basic process and 1,094,998 tons were made by the acid process, while in 1904 the production by the basic process amounted to 5,106,367 tons and by the acid process to 801,799 tons. A loss in production by the acid process in 1904 of 293,199 tons is indicated by these figures, but they also show a gain of 371,454 tons in the production of basic steel. This gain is less than the gain of 442,378 tons in 1904 in the production of basic pig iron. In 1902 there were made 4,496,533 tons of open-hearth steel by the basic process and 1,191,196 tons by the acid process. These figures show a steady decline in the production of acid steel.

#### PRODUCTION OF OPEN-HEARTH STEEL INGOTS AND CASTINGS.

The following table gives separately the total production of open-hearth steel ingots and castings from 1898 to 1904.

Years—Gross tons.	Ingots.	Castings.	Total.
1898.....	2,109,705	120,587	2,230,292
1899.....	2,777,587	169,729	2,947,316
1900.....	3,220,644	177,491	3,398,135
1901.....	4,354,687	301,622	4,656,309
1902.....	5,319,850	367,879	5,687,729
1903.....	5,429,563	400,348	5,829,911
1904.....	5,605,332	302,834	5,908,166

#### PRODUCTION OF BASIC AND ACID OPEN-HEARTH STEEL INGOTS.

The following table gives the production of basic and acid open-hearth steel ingots in the United States from 1898 to 1904, direct castings being omitted. A table giving the production of basic and acid open-hearth steel castings will be found on page 48.

Years—Gross tons.	Basic open-hearth ingots.	Acid open-hearth ingots.	Total Gross tons.
1898.....	1,540,952	568,753	2,109,705
1899.....	2,040,737	736,850	2,777,587
1900.....	2,502,447	718,197	3,220,644
1901.....	3,524,052	830,635	4,354,687
1902.....	4,384,129	935,721	5,319,850
1903.....	4,600,034	829,529	5,429,563
1904.....	5,007,448	597,884	5,605,332

#### PRODUCTION OF BASIC AND ACID OPEN-HEARTH STEEL CASTINGS.

The total production of open-hearth steel castings in 1904, as already stated, amounted to 302,834 gross tons, of which 98,919 tons were made by the basic process and 203,915 tons were made by the acid process. In 1903 the production of open-hearth steel castings amounted to 400,348 tons, of which 134,879 tons were

made by the basic process and 265,469 tons by the acid process. The decrease in the production of castings in 1904 as compared with 1903 amounted to 97,514 tons, the decline in basic castings amounting to 35,960 tons and in acid castings to 61,554 tons.

The following table gives the production of open-hearth steel castings by both the acid and basic processes in 1904 by States.

States—Gross tons.	Basic castings.	Acid castings.	Total. Gross tons.
New England, New York, and New Jersey.	17,193	27,285	44,478
Pennsylvania.....	5,831	128,579	134,410
Ohio, Indiana, Illinois, and other States.....	75,895	48,051	123,946
Total for 1904.....	98,919	203,915	302,834
Total for 1903.....	134,879	265,469	400,348
Total for 1902.....	112,404	255,475	367,879
Total for 1901.....	94,941	206,681	301,622
Total for 1900.....	42,644	134,847	177,491
Total for 1899.....	39,689	130,040	169,729
Total for 1898.....	28,460	92,127	120,587

In addition to the States named in the table Massachusetts, Connecticut, Tennessee, Alabama, Wisconsin, Missouri, and California made open-hearth steel castings in 1904.

The production of open-hearth steel castings was first separately ascertained by the American Iron and Steel Association for the year 1898. The following table gives the production by States in each year since this separation was made, in gross tons.

States—Gross tons.	1898.	1899.	1900.	1901.	1902.	1903.	1904.
New England, } N. Y., & N. J. }	14,657	21,640	21,883	37,154	37,041	36,094	44,478
Pennsylvania.....	47,270	69,996	78,584	108,486	152,399	182,021	134,410
O., Ind., Ill., & } other States... }	58,660	78,093	77,024	155,982	178,439	182,233	123,946
Total.....	120,587	169,729	177,491	301,622	367,879	400,348	302,834

#### PRODUCTION OF CRUCIBLE STEEL.

The production of crucible steel in the United States in 1904 amounted to 83,391 gross tons, against 102,434 tons in 1903, a decrease of 19,043 tons, or 18.5 per cent. Eight States made crucible steel in 1904, namely, Massachusetts, Connecticut, New York, New Jersey, Pennsylvania, Indiana, Illinois, and Wisconsin. The direct castings produced in 1904, included above, amounted to 4,308 tons, against 5,409 tons in 1903. Pennsylvania made 60,815 tons

of crucible steel ingots and castings in 1904, against 75,437 tons in 1903. No other State made over 8,500 tons in 1904 or 10,500 tons in 1903. With the exception of New Jersey all the States named made crucible steel castings as well as ingots in 1904.

The following table gives separately the production of crucible steel ingots and castings from 1898 to 1904, in gross tons.

Years—Gross tons.	Ingots.	Castings.	Total.
1898.....	85,512	4,235	89,747
1899.....	97,713	3,500	101,213
1900.....	96,573	3,989	100,562
1901.....	94,586	3,927	98,513
1902.....	107,817	4,955	112,772
1903.....	97,025	5,409	102,434
1904.....	79,083	4,308	83,391

#### PRODUCTION OF MISCELLANEOUS STEEL.

The production of steel in the United States in 1904 by various minor processes amounted to 9,190 gross tons, against 9,804 tons in 1903. Three States made steel in 1904 by minor processes, namely, New Jersey, Pennsylvania, and Indiana. Blister, puddled, and "patented" steel, including "patented" steel castings, are included in these figures.

The following table gives the production of all kinds of miscellaneous steel from 1898 to 1904, ingots or bars being separated from castings. Production is given in gross tons of 2,240 pounds.

Years—Gross tons.	Ingots or bars.	Castings.	Total. Gross tons.
1898.....	225	3,576	3,801
1899.....	1,030	3,944	4,974
1900.....	6	4,856	4,862
1901.....	214	5,257	5,471
1902.....	2,833	5,553	8,386
1903.....	3,395	6,409	9,804
1904.....	2,172	7,018	9,190

#### PRODUCTION OF ALL KINDS OF STEEL INGOTS.

The total production of all kinds of steel ingots in 1904 amounted to 13,529,676 tons, against 14,104,713 tons in 1903, a decrease of 575,037 tons, or over 4 per cent. Fourteen States made steel ingots in 1904, against 16 States in 1903. The following table gives the production of all kinds of steel ingots by States in 1904. All direct castings are omitted.

States—Gross tons.	Bessemer ingots.	Open-hearth ingots.	Crucible and all other.	Total. Gross tons.
Mass., Rhode Island, and Conn.....	17	184,789	2,686	187,492
New York and New Jersey.....	361,020	132,620	14,272	507,912
Pennsylvania.....	3,463,654	4,172,088	62,847	7,698,589
Md., W. Va., Ky., and Alabama.....	612,046	208,874	.....	820,920
Ohio.....	2,049,009	443,301	.....	2,492,310
Indiana, Illinois, and Colorado.....	1,357,343	463,660	1,450	1,822,453
Total for 1904.....	7,843,089	5,605,332	81,255	13,529,676
Total for 1903.....	8,574,730	5,429,563	100,420	14,104,713
Total for 1902.....	9,125,815	5,319,850	110,650	14,556,315
Total for 1901.....	8,706,538	4,354,687	94,800	13,156,025
Total for 1900.....	6,678,303	3,220,644	96,579	9,995,526
Total for 1899.....	7,582,415	2,777,587	98,743	10,458,745
Total for 1898.....	6,605,478	2,109,705	85,737	8,800,920

Of the total production of steel ingots in 1904 Pennsylvania made over 56.9 per cent., Ohio over 18.4 per cent., and Illinois over 11.5 per cent. No other State made over 4 per cent.

#### PRODUCTION OF ALL KINDS OF STEEL CASTINGS.

In 1904 the production of all kinds of steel castings amounted to 330,211 gross tons, against 430,265 tons in 1903, a decrease of 100,054 tons, or over 23.2 per cent. The District of Columbia and 20 States made direct steel castings in 1904, against 18 States and the District of Columbia in 1903. The following table gives by States the production of all kinds of steel castings in 1904.

States—Gross tons.	Bessemer.	Open-hearth.	Crucible and all other.	Total. Gross tons.
Mass., R. I., Conn., N. Y., and N. J..	5,511	44,478	5,331	55,320
Pennsylvania .....	996	134,410	1,102	136,508
Delaware, Dist. of Col., Virginia, } Tennessee, Alabama, and Ohio... }	2,027	39,420	.....	41,447
Indiana, Illinois, and Michigan.....	5,340	66,960	3,063	75,363
Wis., Minn., Mo., Col., Oregon, and Cal.	2,177	17,566	1,830	21,573
Total for 1904.....	16,051	302,834	11,326	330,211
Total for 1903.....	18,099	400,348	11,818	430,265
Total for 1902.....	12,548	367,879	10,508	390,935
Total for 1901.....	6,764	301,622	9,184	317,570
Total for 1900.....	6,467	177,491	8,845	192,803
Total for 1899.....	3,939	169,729	7,444	181,112
Total for 1898.....	3,539	120,587	7,811	131,937

Of the total production of steel castings in 1904 Pennsylvania

made over 41 per cent., against over 43 per cent. in 1903; Illinois over 17 per cent., against nearly 23 per cent. in 1903; and Ohio over 11 per cent., against over 12 per cent. in 1903. No other State made 10 per cent. in 1904 or 5 per cent. in 1903.

#### PRODUCTION OF ALL KINDS OF STEEL INGOTS AND CASTINGS.

The production of all kinds of steel ingots and castings in 1904 amounted to 13,859,887 gross tons, against 14,534,978 tons in 1903, a decrease of 675,091 tons, or over 4.6 per cent. The maximum production of steel ingots and castings was reached in 1902; the year of next highest production was 1903. Puddled, "patented," and all other kinds of steel are included.

In the following table is given the production of all kinds of steel ingots and castings in 1904. Of the total production 13,529,676 tons were ingots and 330,211 tons were direct castings.

States—Gross tons.	Bessemer.	Open-hearth.	Crucible and all other.	Total. Ingots and castings.
Mass., Rhode Island, and Conn.....	495	195,901	3,237	199,633
New York and New Jersey.....	366,053	165,986	19,052	551,091
Pennsylvania.....	3,464,650	4,306,498	63,949	7,835,097
Del., Md., Dist. of Columbia, Va., } W. Va., Ky., Tenn., and Ala..... }	612,967	210,689	.....	823,656
Ohio.....	2,050,115	480,906	.....	2,531,021
Indiana and Illinois.....	1,257,190	445,767	4,513	1,707,470
Mich., Wis., Minn., Missouri, Col- } orado, Oregon, and California..... }	107,670	102,419	1,830	211,919
Total for 1904.....	7,859,140	5,908,166	92,581	13,859,887
Total for 1903.....	8,592,829	5,829,911	112,238	14,534,978
Total for 1902.....	9,138,363	5,687,729	121,158	14,947,250
Total for 1901.....	8,713,302	4,656,309	103,984	13,473,595
Total for 1900.....	6,684,770	3,398,135	105,424	10,188,329
Total for 1899.....	7,586,354	2,947,316	106,187	10,639,857
Total for 1898.....	6,609,017	2,230,292	93,548	8,932,857

Twenty-three States and the District of Columbia made steel ingots or castings in 1904, against the same number of States and the District of Columbia in 1903. In 1904 three States made steel ingots only, namely, Maryland, West Virginia, and Kentucky; 9 States and the District of Columbia made steel castings only, namely, Delaware, District of Columbia, Virginia, Tennessee, Michigan, Wisconsin, Minnesota, Missouri, Oregon, and California; and 11 States made both steel ingots and steel castings, namely, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Alabama, Ohio, Indiana, Illinois, and Colorado.

## PRODUCTION OF ALL KINDS OF RAILS.

The production of all kinds of rails in 1904 amounted to 2,284,711 gross tons, against 2,992,477 tons in 1903, a decrease of 707,766 tons, or 23.6 per cent. In the following table the production of all kinds of rails in 1904 is given by States.

States—Gross tons.	Bessemer.	Open-hearth.	Iron.	Total.
Pennsylvania.....	801,657	20,451	.....	822,108
Other States.....	1,336,300	125,432	871	1,462,603
Total.....	2,137,957	145,883	871	2,284,711

Twenty-six plants in 13 States rolled or rerolled rails in 1904, as follows: New York, 2; Pennsylvania, 5; Maryland, 3; West Virginia, 2; Tennessee, 1; Georgia, 1; Alabama, 3; Ohio, 3; Illinois, 2; Wisconsin, 1; Kansas, 1; Colorado, 1; and Wyoming, 1. The year of maximum production of all kinds of rails was 1903; the year of next largest production was 1902.

## PRODUCTION OF BESSEMER STEEL RAILS.

The production of Bessemer steel rails in 1904 amounted to 2,137,957 gross tons, against 2,946,756 tons in 1903, a decrease of 808,799 tons, or over 27.4 per cent. The maximum production of Bessemer steel rails was reached in 1903. In the following table the production of Bessemer steel rails is given by States from 1899 to 1904. Rails rolled from purchased blooms, crop ends, and "seconds," and rerolled, or renewed, rails are included. Renewed rails are rails that have been in use and are rolled down to smaller sections after reheating. Gross tons are used.

Bessemer rails.	1899.	1900.	1901.	1902.	1903.	1904.
Pennsylvania..	1,224,807	1,195,255	1,406,008	1,148,425	1,186,284	801,657
Other States...	1,045,778	1,188,399	1,464,808	1,786,967	1,760,472	1,336,300
Total.....	2,270,585	2,383,654	2,870,816	2,935,392	2,946,756	2,137,957

In addition to Pennsylvania the States which made Bessemer rails in 1904 were New York, Maryland, West Virginia, Georgia, Ohio, Illinois, Wisconsin, Kansas, Colorado, and Wyoming.

The production of Bessemer steel rails by the makers of Bessemer steel ingots, included above, amounted to 2,084,688 gross tons in 1904, 2,873,228 tons in 1903, 2,876,293 tons in 1902, 2,836,273 tons in 1901, 2,361,921 tons in 1900, and 2,240,767 tons in 1899. In the following table we give the total production

of all kinds of Bessemer steel rails from 1899 to 1904, the rails rolled by makers of domestic ingots being separated from those rolled by companies which did not operate Bessemer converters.

Gross tons.	1899.	1900.	1901.	1902.	1903.	1904.
By makers.....	2,240,767	2,361,921	2,836,273	2,876,293	2,873,228	2,084,688
By all others..	29,818	21,733	34,543	59,099	73,528	53,269
Total.....	2,270,585	2,383,654	2,870,816	2,935,392	2,946,756	2,137,957

Twenty-two plants rolled or rerolled Bessemer steel rails in 1904, of which 5 were located in Pennsylvania, 3 in Maryland, 2 in West Virginia, 3 in Ohio, 2 in Illinois, 2 in New York, and 1 each in Georgia, Wisconsin, Kansas, Colorado, and Wyoming.

#### PRODUCTION OF OPEN-HEARTH AND IRON RAILS.

The total production of open-hearth steel rails in the United States in 1904 was 145,883 gross tons, against 45,054 tons in 1903, 6,029 tons in 1902, 2,093 tons in 1901, and 1,333 tons in 1900. The maximum production of open-hearth rails was reached in 1904; prior to 1903 the year of next highest production was 1881, when 22,515 tons were made. Alabama rolled almost all the open-hearth rails that were made in 1904, Pennsylvania and Colorado being the only other producers. Over 116,000 tons of the open-hearth rails made weighed between 45 and 85 pounds per yard and over 8,000 tons weighed 85 pounds or over; the remainder, over 21,000 tons, weighed less than 45 pounds.

The production of iron rails in 1904 was 871 tons, all rolled in Tennessee and Alabama, and all weighing less than 45 pounds to the yard. In 1903 the production of iron rails was 667 tons, against 6,512 tons in 1902, 1,730 tons in 1901, 695 tons in 1900, 1,592 tons in 1899, and 3,319 tons in 1898. The maximum production of iron rails was reached in 1872, 808,866 tons.

#### WEIGHT OF ALL KINDS OF RAILS.

The production of rails weighing under 45 pounds to the yard in 1904 shows an increase of 70,621 tons as compared with 1903, but the production of rails weighing 45 pounds and less than 85 pounds shows a decrease of 282,411 tons as compared with 1903. The great falling off in the production of rails in 1904 as compared with 1903 was, however, in sections weighing 85 pounds and over to the yard, in which the decrease amounted to 495,976 tons.

The following table gives the production of all kinds of rails in 1904 according to the weight of the rails per yard. Street

rails are included in the total production of rails. Prior to 1897 the weight per yard of rails produced was not ascertained by us.

Kinds of rails—Gross tons.	Under 45 pounds.	45 pounds and less than 85.	85 pounds and over.	Total. Gross tons.
Bessemer steel rails.....	269,743	1,204,356	663,858	2,137,957
Open-hearth steel rails.....	21,269	116,321	8,293	145,883
Iron rails.....	871	.....	.....	871
Total for 1904 .....	291,883	1,320,677	672,151	2,284,711
Total for 1903 .....	221,262	1,603,088	1,168,127	2,992,477
Total for 1902 .....	261,887	2,040,884	645,162	2,947,933
Total for 1901 .....	155,406	2,225,411	493,822	2,874,639
Total for 1900 .....	157,531	1,626,093	602,058	2,385,682
Total for 1899 .....	133,836	1,559,340	579,524	2,272,700
Total for 1898 .....	123,881	1,404,150	453,210	1,981,241
Total for 1897 .....	88,896	1,223,435	335,561	1,647,892

In addition to the rails rolled in 1904 we imported 37,776 tons of iron and steel rails in that year. During the same year we exported 416,250 tons. In 1903 our exports of rails amounted to 30,837 tons and our imports to 95,555 tons. Virtually all our imports and exports of rails are steel rails.

#### PRODUCTION OF STRUCTURAL SHAPES.

Our statistics of iron and steel structural shapes embrace the production of beams, beam girders, zee bars, tees, channels, angles, and other structural forms, but they do not include plates or girders made from plates. Plates are provided for under other classifications, and in the general statistics of plates are included all plates cut to specifications.

The total production of strictly structural shapes in 1904 was 949,146 tons, against 1,095,813 tons in 1903, a decrease of 146,667 tons. Of the total production in 1904 about 941,127 tons were rolled from steel and about 8,019 tons from iron. The production of structural shapes in 1903 and 1904 by States was as follows.

States—Gross tons.	1903.	1904.	States—Gross tons.	1903.	1904.
New York and New Jersey.....	32,884	47,657	Indiana, Illinois, Wyoming, and California .....	24,363	48,038
Pennsylvania .....	1,004,375	829,167			
Delaware, Alabama, and Ohio	34,191	24,284	Total .....	1,095,813	949,146

Pennsylvania made over 87.3 per cent. of the total production in 1904, against over 91 per cent. in 1903; New Jersey over 4.3

per cent., against over 3 per cent. in 1903; and Indiana over 3.1 per cent., against less than 1 per cent. in 1903. No other State made 2.6 per cent. in 1904 or 3 per cent. in 1903.

#### PRODUCTION OF WIRE RODS.

The production of iron and steel wire rods in the United States in 1904 amounted to 1,699,028 gross tons, against 1,503,455 tons in 1903, 1,574,293 tons in 1902, 1,365,934 tons in 1901, and 846,291 tons in 1900, showing an increase of 195,573 tons in 1904 as compared with 1903, or over 13 per cent. Of the total production in 1904 1,697,862 tons were steel rods and 1,166 tons were iron rods. In 1903 the steel wire rods rolled amounted to 1,503,425 tons and iron rods to 30 tons. The maximum production was reached in 1904. The following table gives the production of iron and steel wire rods by States in the last four years.

States—Gross tons.	1901.	1902.	1903.	1904.
Mass., Conn., R. I., N. Y., and N. J.	176,101	201,653	240,024	228,289
Penna., Kentucky, Ala., and Ohio..	808,716	950,260	897,891	973,801
Indiana, Illinois, and Colorado.....	381,117	422,380	365,540	496,938
Total.....	1,365,934	1,574,293	1,503,455	1,699,028

Pennsylvania made the largest quantity of wire rods in 1904, with Illinois second, Ohio third, and Massachusetts fourth. Eight other States, Indiana, Colorado, Kentucky, New York, New Jersey, Connecticut, Alabama, and Rhode Island, also rolled wire rods in 1904 in the order named. All the States mentioned also rolled iron or steel wire rods in 1903.

#### PRODUCTION OF WIRE NAILS.

The production of wire nails in the United States in 1904 amounted to 11,926,661 kegs of 100 pounds, as compared with 9,631,661 kegs in 1903, an increase of 2,295,000 kegs.

The following table gives the production of wire nails by States in 1902, 1903, and 1904, in kegs of 100 pounds.

States—Kegs of 100 pounds.	1902.	1903.	1904.
New Hamp., Mass., R. I., and Conn....	309,651	230,264	247,157
N. Y., N. J., Pennsylvania, and Ohio....	7,202,814	6,497,788	7,616,745
Md., West Virginia, Ky., and Alabama.	401,562	200,318	377,280
Indiana and Illinois.....	2,902,006	2,367,820	3,033,756
Mich., Wis., Colorado, and California...	166,213	335,471	651,723
Total .....	10,982,246	9,631,661	11,926,661

The wire nails produced in 1904 were all made of steel, and were turned out by 56 works, as compared with 57 in 1903, 62 in 1902, 61 in 1901, 56 in 1900, and 59 in 1899. For 1903 it was necessary to estimate the production of two wire nail plants and for 1904 to estimate the production of one plant. The maximum production of wire nails was reached in 1904.

#### PRODUCTION OF CUT NAILS.

Our statistics of the production of iron and steel cut nails and cut spikes embrace only standard sizes of nails and spikes cut from plates. They do not embrace railroad and other forged spikes, wire nails of any size, machine-made horseshoe nails, cut tacks, or hob, clout, basket, shoe, or other small sizes of nails.

The production of cut nails and spikes cut from plates in 1904 was 1,283,362 kegs of 100 pounds each, against 1,435,893 kegs in 1903, a decrease of 152,531 kegs. In 1886 the maximum production of 8,160,973 kegs was reached. In 1904 the production of wire nails exceeded that of cut nails by 10,643,299 kegs, in 1903 by 8,195,768 kegs, in 1902 by 9,348,484 kegs, in 1901 by 8,261,582 kegs, in 1900 by 5,660,485 kegs, in 1899 by 5,713,790 kegs, and in 1898 by 5,846,254 kegs.

Eleven States made cut nails in 1904 and 11 in 1903. The following table gives the production of iron and steel cut nails by States from 1899 to 1904, in kegs of 100 pounds. The wire nail production is added to the table. Except West Virginia and Kentucky all the States which produced cut nails in 1904 decreased their production as compared with 1903. Of the total production of cut nails in 1904 about 887,675 kegs were made from steel plates and about 395,687 kegs from iron plates.

States—Kegs.	1899.	1900.	1901.	1902.	1903.	1904.
Pennsylvania.....	920,133	777,611	833,469	752,729	725,000	698,326
Ohio.....	386,215	261,216	123,788	99,938	59,240	54,038
West Virginia and Indiana... }	178,006	168,469	150,222	271,362	274,808	245,997
Massachusetts and N. Jersey. }	149,700	155,968	179,474	167,963	143,898	128,943
Illinois, Md., Va., and Ky... }	255,286	193,230	240,657	304,990	223,447	148,058
Wis., Colorado, and Cal..... }	15,000	17,000	14,630	36,780	9,500	8,000
Total cut nails..	1,904,340	1,573,494	1,542,240	1,633,762	1,435,893	1,283,362
Total wire nails.	7,618,130	7,233,979	9,803,822	10,982,246	9,631,661	11,926,661
Grand total.	9,522,470	8,807,473	11,346,062	12,616,008	11,067,554	13,210,023

## PRODUCTION OF PLATES AND SHEETS.

The production of iron and steel plates and sheets in the United States in 1904, excluding nail plate, amounted to 2,421,398 gross tons, against 2,599,665 tons in 1903, a decrease of 178,267 tons, or over 6.8 per cent. Of the total production in 1904 about 2,353,685 tons were rolled from steel and about 67,713 tons from iron. Skelp iron and steel are not included in our statistics of plates and sheets but are classed with hoops, bars, etc., elsewhere. The following table gives the production by States of all kinds of iron and steel plates and sheets in 1902, 1903, and 1904.

States—Gross tons.	1902.	1903.	1904.
New England, New York, and New Jer.	9,240	12,560	14,599
Pennsylvania.....	1,808,207	1,771,745	1,555,941
Delaware and Maryland .....	34,282	23,703	23,956
West Virginia .....	67,072	56,361	108,964
Kentucky and Alabama .....	56,823	40,635	44,845
Ohio.....	404,902	403,705	490,192
Ind., Ill., Mich., Mo., Wis., Col., and Cal.	284,883	290,956	182,901
Total.....	2,665,409	2,599,665	2,421,398

Fourteen States rolled plates and sheets in 1904, against 15 States in 1903. Of the total production of plates and sheets in 1904 Pennsylvania made over 64.2 per cent., against over 68 per cent. in 1903; Ohio over 20.2 per cent., against over 15.5 per cent. in 1903; West Virginia over 4.5 per cent., against over 2.1 per cent. in 1903; and Illinois over 3.7 per cent., against over 5.7 per cent. in 1903. Indiana, Kentucky, Maryland, Delaware, Missouri, Massachusetts, Alabama, New Jersey, New York, and California also made plates and sheets in 1904 in the order named. Connecticut, which rolled plates and sheets in 1903, was not a producer in 1904. Michigan and Wisconsin, which made plates and sheets in 1902, were not producers in 1903 or 1904. A table giving the production of all kinds of plates and sheets from 1887 to 1904 will be found in the accompanying Abstract.

## PRODUCTION OF NAIL PLATE.

The production of iron and steel nail plate in 1904 was 61,601 tons, of which about 42,182 tons were steel and about 19,419 tons were iron. These figures are not included in the foregoing table.

## PRODUCTION OF BLACK PLATES, OR SHEETS, FOR TINNING.

The production of black plates, or sheets, for tinning in 1904, which is included in the preceding table, amounted to 472,569

gross tons, against 490,652 tons in 1903, a decrease of 18,083 tons, or over 3.6 per cent. Of the production in 1904 Pennsylvania made over 53.4 per cent., against over 52 per cent. in 1903. Ohio, Indiana, West Virginia, Illinois, Maryland, and Missouri also made black plates for tinning in 1903 and 1904 in the order named. Almost all the black plates made in 1904 were rolled from steel; only a few thousand tons were rolled from iron.

#### PRODUCTION OF TINPLATES AND TERNE PLATES.

We estimate the production of tinplates and terne plates in the United States in 1904 as amounting to 458,000 gross tons, as compared with an estimated production of 480,000 tons in 1903, a decrease of 22,000 tons, or over 4.5 per cent. A table giving the production of tinplates and terne plates in this country for a long series of years will be found in the accompanying Abstract.

#### PRODUCTION OF MISCELLANEOUS ROLLED PRODUCTS.

In the following table we give the production by States in 1903 and 1904 of merchant bars, skelp, spike rods, bolt rods, splice bars, hoops, bands, cotton-ties, strips, rolled axles, rolled armor plate, and other forms of finished rolled iron and steel for which statistics have not been given in preceding pages.

States. Gross tons.	1903.	1904.	States. Gross tons.	1903.	1904.
Me. and Mass...	30,432	31,858	Ohio.....	617,221	572,604
R. I. and Conn...	67,546	71,498	Indiana.....	207,386	183,155
New York.....	166,693	147,561	Illinois.....	364,633	289,904
New Jersey.....	75,981	56,714	Michigan.....	77,593	47,326
Pennsylvania...	2,700,359	2,634,712	Wisconsin.....	134,649	127,536
Del. and Md....	33,330	19,365	Missouri.....	62,870	50,370
Virginia .....	41,043	30,502	Col. and Wy...	44,583	29,195
West Virginia...	189,098	174,572	Wash., Ore., and Cal.....	33,518	30,908
Kentucky.....	30,233	26,331			
Tenn. and Ga...	22,939	28,923			
Alabama.....	52,078	44,463	Total.....	4,952,185	4,597,497

Of the total production of the above products in 1904 about 2,934,601 tons were steel and about 1,662,896 tons were iron.

#### PRODUCTION OF ALL ROLLED IRON AND STEEL.

By the phrase rolled iron and steel we include all iron and steel rolled into finished forms. Forged armor plate, hammered axles, and other forgings are not included, nor such intermediate rolled forms as muck bars, billets, tinplate and sheet bars, etc.

The production of all kinds of iron and steel in finished forms in the United States in 1904 amounted to 12,013,381 gross tons, against 13,207,697 tons in 1903, a decrease of 1,194,316 tons, or over 9 per cent. Of the total production in 1904 about 10,253,297 tons were rolled from steel and about 1,760,084 tons from iron. Twenty-seven States rolled either iron or steel or both iron and steel in 1904, against 25 States in 1903. The following table gives the total production by States of all kinds of finished rolled iron and steel in 1903 and 1904, in gross tons.

States. Gross tons.	1903.	1904.	States. Gross tons.	1903.	1904.
Me. and Mass...	157,627	158,085	Ohio.....	1,883,643	1,517,054
R. I. and Conn..	131,182	108,575	Indiana.....	405,076	409,739
New York .....	255,905	486,870	Illinois.....	1,481,562	1,241,166
New Jersey.....	145,232	140,572	Michigan.....	77,593	47,326
Pennsylvania...	7,171,982	6,461,681	Wisconsin.....	204,685	184,511
Delaware.....	47,673	28,521	Missouri.....	75,470	59,210
Maryland.....	372,009	286,553	Col. and Wy...	169,409	169,649
Virginia.....	43,631	30,746	Kan., Wash., Ore., and Cal. }	38,904	40,369
West Virginia..	252,331	295,939	.....	.....	.....
Kentucky.....	158,280	120,534			
Tenn. and Ga...	23,208	31,232			
Alabama.....	112,245	195,049	Total.....	13,207,697	12,013,381

Pennsylvania made over 53.7 per cent. of the total production of rolled iron and steel in 1904, against over 54 per cent. in 1903; Ohio over 12.6 per cent. in 1904 against over 14 per cent. in 1903; Illinois over 10.3 per cent. in 1904, against over 11 per cent. in 1903; New York over 4 per cent. in 1904, against over 1.9 per cent. in 1903; and Indiana over 3.4 per cent. in 1904, against over 3 per cent. in 1903. No other State made over 2.5 per cent. in 1904 or over 2.9 per cent. in 1903. Minnesota did not roll either iron or steel in 1903 or 1904, but it made a small quantity of direct steel castings in both years.

#### COMPARATIVE PRODUCTION OF ROLLED IRON AND STEEL.

In 1890 the production of finished rolled steel amounted to 3,504,681 gross tons, as compared with 2,518,194 tons of finished rolled iron; in 1889 to 2,927,656 tons of steel, as compared with 2,309,272 tons of iron; and in 1888 to 2,464,086 tons of steel, as compared with 2,153,263 tons of iron. Prior to 1888 complete statistics of the production of rolled steel were not collected by this Association. From 1890 to 1904 the increase in the production of finished rolled steel amounted to 6,748,616 tons, or over

192 per cent., while the decrease in the production of finished rolled iron amounted to 758,110 tons, or over 30 per cent.

The following table gives approximately by States the total production of finished rolled steel in 1904 as compared with the total production of finished rolled iron in the same year.

States—Gross tons.	Iron.	Steel.	Total.
Maine and Massachusetts.....	13,690	144,395	158,085
Rhode Island and Connecticut.....	23,889	84,686	108,575
New York.....	89,376	397,494	486,870
New Jersey.....	27,047	113,525	140,572
Pennsylvania.....	855,453	5,606,228	6,461,681
Delaware.....	15,903	12,618	28,521
Maryland.....	2,800	283,753	286,553
Virginia.....	27,726	3,020	30,746
West Virginia.....	9,536	286,403	295,939
Kentucky, Tennessee, and Georgia.....	65,163	86,603	151,766
Alabama.....	38,058	156,991	195,049
Ohio.....	198,734	1,318,320	1,517,054
Indiana.....	184,155	225,584	409,739
Illinois.....	98,192	1,142,974	1,241,166
Michigan and Wisconsin.....	17,549	214,288	231,837
Kansas and Missouri.....	48,374	15,735	64,109
Colorado and Wyoming.....	10,018	159,631	169,649
Washington, Oregon, and California.....	34,421	1,049	35,470
Total.....	1,760,084	10,253,297	12,013,381

In the following table the approximate production of leading articles of finished rolled steel in 1904 is given as compared with the approximate production in the same year of like articles of finished rolled iron. All miscellaneous products are included.

Products—Gross tons.	Steel.	Iron.	Total.
Rails.....	2,283,840	871	2,284,711
Structural shapes.....	941,127	8,019	949,146
Plates and sheets.....	2,353,685	67,713	2,421,398
Nail plate.....	42,182	19,419	61,601
Wire rods.....	1,697,862	1,166	1,699,028
Merchant bars, skelp, spike rods, splice bars, and other finished rolled products.	2,934,601	1,662,896	4,597,497
Total.....	10,253,297	1,760,084	12,013,381

#### PRODUCTION OF IRON BLOOMS AND BILLETS.

In 1902, 1903, and 1904 there were no forges in operation in the United States for the manufacture of blooms and billets from the ore. In 1901 the blooms and billets so made amounted to

2,310 gross tons, against 4,292 tons in 1900 and 3,142 tons in 1899. All the ore blooms produced since 1897 were made by the Chateaugay Ore and Iron Company, of Plattsburgh, New York, at its Standish Works, which were, however, idle in 1902, 1903, and 1904. All the Catalan forges in the South have been virtually abandoned; none are now active.

The iron blooms produced in forges from pig iron and scrap in 1904, and which were for sale and not for the consumption of the makers, amounted to 5,743 tons, against 9,940 tons in 1903, 12,002 tons in 1902, 8,237 tons in 1901, 8,655 tons in 1900, 9,932 tons in 1899, 6,345 tons in 1898, 7,159 tons in 1897, and 6,494 tons in 1896, all made in New York, Pennsylvania, and Maryland.

#### PRODUCTION OF ALLEGHENY COUNTY, PENNSYLVANIA.

The following table gives the number of blast furnaces and completed rolling mills and steel works and the production of pig iron and crude steel, rails, structural shapes, plates and sheets, miscellaneous rolled products, and all finished rolled iron and steel in Allegheny county, Pennsylvania, from 1901 to 1904.

Details—Gross tons.	1901.	1902.	1903.	1904.
Furnaces built and building....No.	37	40	41	42
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

#### IMPORTS OF FERRO-MANGANESE, SPIEGELEISEN, AND FERRO-SILICON.

Prior to 1900 available statistics combine the imports of spiegeleisen and ferro-manganese as follows: Of ferro-manganese and spiegeleisen there were entered for consumption 101,167 gross tons in 1890, 41,449 tons in 1891, 47,310 tons in 1892, 37,199 tons in 1893, 9,722 tons in 1894, 39,582 tons in 1895, 39,311 tons in 1896, 17,163 tons in 1897, 17,203 tons in 1898, and 19,006 tons in 1899. In 1900 the imports of spiegeleisen amounted to 14,184 tons, valued at \$619,949, and in 1901 to 26,827 tons, valued at \$677,246; of ferro-manganese in 1900 to 8,122 tons, valued at

\$467,592, and in 1901 to 20,751 tons, valued at \$870,828; and of ferro-silicon in 1900 to 2,165 tons, valued at \$81,442, and in 1901 to 882 tons, valued at \$21,224. There were also entered for consumption 158 tons of ferro-silicon in 1892, 154 tons in 1893, 228½ tons in 1894, 1,544 tons in 1895, 941 tons in 1896, 1,254 tons in 1897, 1,038 tons in 1898, and 3,613 tons in 1899.

For the imports of these articles from 1902 to 1904 see page 26 of this Report.

#### STATISTICS OF IMMIGRATION IN THE LAST SIX YEARS.

The following table, for which we are indebted to the Bureau of the Census and the Bureau of Immigration of the Department of Commerce and Labor, gives the total number of immigrants who have arrived in the United States in the calendar years 1899 to 1904, except citizens of Canada and Newfoundland coming direct from British North America and citizens of Mexico coming direct from Mexico, who are not included in the statistics of immigration compiled by the United States Government.

Countries.	1899.	1900.	1901.	1902.	1903.	1904.
United Kingdom.....	45,844	49,532	45,475	51,338	88,614	123,564
Germany.....	17,989	20,768	22,159	32,736	49,222	42,850
France.....	1,761	2,971	2,684	3,391	9,385	9,999
Austria-Hungary.....	84,837	108,701	133,805	185,659	233,454	165,815
Russia.....	76,114	92,486	87,384	123,882	148,587	161,649
Sweden and Norway.....	21,970	31,844	38,295	59,172	69,657	47,971
Denmark.....	2,895	3,213	4,168	6,318	7,922	9,193
Netherlands.....	1,219	1,890	2,315	2,484	5,025	4,766
Italy.....	82,297	111,088	143,131	201,269	232,528	156,794
Switzerland.....	1,107	1,710	2,257	2,623	5,331	4,461
All other countries.....	25,285	47,923	40,900	70,417	87,646	81,905
Total.....	361,318	472,126	522,573	739,289	937,371	808,967

There was a decrease of 128,404 in the total immigration of 1904 as compared with 1903. Austria-Hungary, Italy, and Russia send us the largest number of immigrants. Immigrants from Finland and from Poland in Russia are included with Russia.

The immigrants from "all other countries" in 1904 include 4,292 immigrants who came from Belgium, 9,617 from Greece, 5,538 from Portugal, including the Cape Verde and Azore Islands, 5,154 from Roumania, 1,252 from Servia, Bulgaria, and Montenegro, 3,182 from Spain, 3,101 from Turkey in Europe, 11 from other Europe, 3,720 from the Chinese Empire, 12,226 from Japan, 304 from India, 5,731 from Turkey in Asia, 3,565 from other

Asia, 998 from Africa, 1,751 from Australia, Tasmania, and New Zealand, 78 from the Philippine Islands, 49 from islands in the Pacific Ocean not specified, 2,584 from British North America, 132 from British Honduras, 868 from other Central America, 1,928 from Mexico, 2,100 from South America, 13,594 from the West Indies, and 130 from all other countries: total, 81,905.

#### STEEL VESSELS BUILT IN THE CALENDAR YEAR 1904.

We have received from the Hon. Eugene T. Chamberlain, Commissioner of Navigation, the following table, which shows the number and gross tonnage of the steel vessels launched in the United States and officially numbered during the calendar year 1904. Vessels for the United States Navy are not included.

Ports. Calendar year 1904.	Sailing.		Steam.		Barges.		Total.	
	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.
Boston, Mass.....	...	.....	5	4,070	6	5,724	11	9,794
New London, Conn..	...	.....	1	20,718	4	4,000	5	24,718
New York, N. Y.....	4	8,996	*13	3,483	...	.....	17	12,479
Newark, N. J.....	...	.....	1	1,225	...	.....	1	1,225
Perth Amboy, N. J..	...	.....	1	45	1	303	2	348
Philadelphia, Pa.....	...	.....	19	33,267	2	1,908	21	35,175
Wilmington, Del.....	...	.....	5	8,263	3	1,103	8	9,366
Baltimore, Md.....	...	.....	4	1,801	2	1,052	6	2,853
Richmond, Va.....	...	.....	3	4,634	...	.....	3	4,634
Newport News, Va...	...	.....	1	1,462	...	.....	1	1,462
Jacksonville, Fla....	...	.....	1	281	...	.....	1	281
New Orleans, La.....	...	.....	2	60	...	.....	2	60
Pittsburgh, Pa.....	...	.....	...	.....	1	479	1	479
Buffalo, N. Y.....	...	.....	3	425	3	787	6	1,212
Cleveland, Ohio.....	...	.....	6	31,277	1	894	7	32,171
Toledo, Ohio.....	...	.....	5	2,258	...	.....	5	2,258
Detroit, Mich.....	...	.....	4	12,040	1	384	5	12,424
Grand Haven, Mich..	...	.....	...	.....	1	420	1	420
Milwaukee, Wis.....	...	.....	...	.....	1	715	1	715
Chicago, Ill.....	...	.....	4	7,538	...	.....	4	7,538
San Francisco, Cal...	...	.....	2	1,113	...	.....	2	1,113
Port Towns'd, Wash.	...	.....	1	84	...	.....	1	84
Total.....	4	8,996	81	134,044	26	17,769	111	160,809

\*Including 1 vessel of 96 tons built of bronze.

During the calendar year 1903 there were 6 steel sailing vessels launched and numbered, with a gross tonnage of 11,766 tons; 119 steam steel vessels, with 279,781 tons; and 6 steel barges, with 4,293 tons: total number of vessels, 131, with 295,840 tons. There were no iron vessels launched in 1903 or 1904.

## SUMMARY OF STATISTICS FOR 1903 AND 1904.

Subjects—Calendar years.	1903.	1904.
Production of Iron Ore, gross tons.....	35,019,308	27,600,000
Imports of Iron Ore, gross tons.....	980,440	487,613
Production of Bituminous Coal, gross tons.....	252,454,775	249,102,765
Production of Pennsylvania Anthracite, gross tons...	66,613,454	65,318,490
Production of all kinds of Coal, gross tons.....	319,068,229	314,421,255
Shipments of Pennsylvania Anthracite, gross tons...	59,362,831	57,492,522
Imports of Coal for Consumption, gross tons.....	3,479,430	1,623,280
Domestic Exports of Coal, gross tons.....	8,312,098	8,573,518
Production of Coke, net tons.....	25,262,360	23,621,520
Production of Pig Iron, gross tons.....	18,009,252	16,497,033
Production of Spiegeleisen, Ferro-manganese, and Ferro-phosphorus, included in Pig Iron, gross tons..	192,661	220,392
Production of Bessemer Steel, gross tons.....	8,592,829	7,859,140
Production of Open-Hearth Steel, gross tons.....	5,829,911	5,908,166
Production of Crucible Steel, gross tons.....	102,434	83,391
Production of Blister and Patented Steel, gross tons...	9,804	9,190
Production of all kinds of Steel, gross tons.....	14,534,978	13,859,887
Production of Open-Hearth Steel Castings, gross tons.	400,348	302,834
Production of all kinds of Steel Castings, gross tons..	430,265	330,211
Production of Bessemer Steel Rails, gross tons.....	2,946,756	2,137,957
Production of Open-Hearth Steel Rails, gross tons...	45,054	145,883
Production of Iron Rails, gross tons.....	667	871
Production of all kinds of Rails, gross tons.....	2,992,477	2,284,711
Production of Structural Shapes, gross tons.....	1,095,813	949,146
Production of Iron and Steel Wire Rods, gross tons.	1,503,455	1,699,028
Production of Plate and Sheet Iron and Steel, except Nail Plate, gross tons.....	2,599,665	2,421,398
Production of Bar, Bolt, Hoop, Skelp, Rolled Axles, Rolled Armor Plate, etc., gross tons.....	4,952,185	4,597,497
Production of all Rolled Iron and Steel, including Nail Plate and excluding Rails, gross tons.....	10,215,220	9,728,670
Production of all Rolled Iron and Steel, including both Nail Plate and Rails, gross tons.....	13,207,697	12,013,381
Production of Iron and Steel Cut Nails and Cut Spikes, kegs of 100 pounds.....	1,435,893	1,283,362
Production of Iron and Steel Wire Nails, kegs of 100 pounds.....	9,631,661	11,926,661
Production of Tinsplates and Terne Plates, gross tons.	480,000	458,000
Production of Ore, Pig, and Scrap Blooms for sale, gross tons.....	9,940	5,743
Imports of Iron and Steel, foreign value.....	\$41,255,864	\$21,621,970
Exports of Iron and Steel, home value.....	\$99,035,865	\$128,553,613
Miles of New Railroad built (estimated for 1904)....	4,715	4,252
Tonnage of Steel Vessels built in the calendar year..	295,840	160,809
Immigrants in the year ended December 31.....	937,371	808,967

# PRODUCTION OF ALL KINDS OF PIG IRON IN THE UNITED STATES IN 1900, 1901, 1902, 1903, AND 1904, BY STATES.

*The following statistics, giving the total production of pig iron in the United States for the past five years, have been collected directly from the manufacturers by the American Iron and Steel Association. Production for previous years will be found in the Annual Reports of the Association.*

## TOTAL PRODUCTION OF PIG IRON FROM 1900 TO 1904.

States. Calendar years.	Tons of 2,240 pounds.				
	1900.	1901.	1902.	1903.	1904.
Massachusetts.....	3,310	3,386	3,360	3,265	3,149
Connecticut.....	10,233	8,442	12,086	14,501	8,922
New York.....	292,827	283,662	401,369	552,917	605,709
New Jersey.....	170,262	155,746	191,380	211,667	262,294
Pennsylvania.....	6,365,935	7,343,257	8,117,800	8,211,500	7,644,321
Maryland.....	290,073	303,186	303,229	324,570	293,441
Virginia.....	490,617	448,662	537,216	544,034	310,526
North Carolina.....	28,984	27,333	32,315	75,602	70,156
Georgia.....					
Alabama.....	1,184,337	1,225,212	1,472,211	1,561,398	1,453,513
Texas.....	10,150	2,273	3,095	11,653	5,530
West Virginia.....	166,758	166,597	183,005	199,013	270,945
Kentucky.....	71,562	68,462	110,725	102,441	37,106
Tennessee.....	362,190	337,139	392,778	418,368	302,096
Ohio.....	2,470,911	3,326,425	3,631,388	3,287,434	2,977,929
Illinois.....	1,363,383	1,596,850	1,730,220	1,692,375	1,655,991
Michigan.....	163,712	170,762	155,213	244,709	233,225
Wisconsin.....	184,794	207,551	273,987	283,516	210,404
Minnesota.....					
Missouri.....	159,204	203,409	269,930	270,289	151,776
Colorado.....					
Washington.....					
Total.....	13,789,242	15,878,354	17,821,307	18,009,252	16,497,033

## PRODUCTION OF ANTHRACITE AND MIXED ANTHRACITE AND BITUMINOUS PIG IRON FROM 1900 TO 1904.

States. Calendar years.	Tons of 2,240 pounds.				
	1900.	1901.	1902.	1903.	1904.
New York.....	50,859	191,254	195,472	284,018	134,762
New Jersey.....	168,762				
Pennsylvania.....	1,440,139	1,518,535	919,775	1,615,701	1,091,641
Maryland.....	17,288	2,738	.....	11,628	1,737
Total.....	1,677,048	1,712,527	1,115,247	1,911,347	1,228,140

# PRODUCTION OF ALL KINDS OF PIG IRON IN THE UNITED STATES.—CONTINUED.

## PRODUCTION OF CHARCOAL PIG IRON FROM 1900 TO 1904.

States. Calendar years.	Tons of 2,240 pounds.				
	1900.	1901.	1902.	1903.	1904.
Massachusetts.....	3,310	3,386	3,360	3,265	3,149
Connecticut.....	10,233	8,442	12,086	14,501	8,922
New York.....	7,920	22,605	34,207	32,376	29,904
Pennsylvania.....	3,422	4,761	4,230	4,070	2,593
Maryland and Virginia	5,975	5,096	4,400	5,794	5,335
Georgia.....	22,879	27,333	31,685	41,832	24,648
Alabama.....	57,632	53,010	60,534	73,107	30,492
Texas.....	10,150	2,273	6,293	15,200	8,180
Tennessee.....	3,119	2,917			
Ohio.....	7,737	10,067	10,798	9,540	988
Michigan.....	163,712	170,762	155,213	244,709	171,519
Wisconsin and Missouri	43,785	49,495	55,698	60,363	51,799
Washington.....					
Total.....	339,874	360,147	378,504	504,757	337,529

In addition to the pig iron above noted there were produced in 1900 in Georgia and Tennessee 44,608 tons of pig iron with mixed charcoal and coke, against 23,294 tons in Tennessee in 1901, 11,665 tons in Tennessee in 1902, and 927 tons in Wisconsin and Washington in 1903. No pig iron was made in 1904 with this mixed fuel.

## PRODUCTION OF BITUMINOUS COAL AND COKE PIG IRON FROM 1900 TO 1904.

States. Calendar years.	Tons of 2,240 pounds.				
	1900.	1901.	1902.	1903.	1904.
New York .....	235,548	225,549	308,619	430,726	547,184
New Jersey .....			54,451	17,464	156,153
Pennsylvania .....	4,922,374	5,819,961	7,193,795	6,591,729	6,550,087
Maryland.....	269,589	297,826	301,501	310,686	290,905
Virginia.....	487,838	446,188	535,174	574,266	351,498
North Carolina .....	4,825	.....			
Georgia .....		.....	.....	.....	.....
Alabama.....	1,126,705	1,172,202	1,411,677	1,488,291	1,423,021
West Virginia.....	166,758	166,597	183,005	199,013	270,945
Kentucky.....	71,562	68,462	110,725	102,441	37,106
Tennessee.....	315,743	310,928	377,915	414,821	299,446
Ohio.....	2,463,174	3,316,358	3,620,590	3,277,894	2,976,941
Illinois.....	1,363,383	1,596,850	1,730,220	1,692,375	1,655,991
Michigan.....	.....	.....	.....	.....	218,342
Wisconsin.....	131,354	172,278	233,286	209,012	
Minnesota.....	47,704	189,187	254,933	283,503	153,745
Missouri.....					
Colorado.....	121,155	.....	.....	.....	.....
Total.....	11,727,712	13,782,386	16,315,891	15,592,221	14,931,364

STOCKS OF ALL KINDS OF PIG IRON UNSOLD AT THE  
CLOSE OF 1901, 1902, 1903, AND 1904.

*These statistics represent only unsold stocks in the hands of makers or their agents, including stocks controlled by the manufacturers in warrant yards, and do not include other warrant stocks, or stocks in the hands of consumers, or pig iron made for the use of the makers, or foreign pig iron held in bond.*

States and Districts—Calendar years.	Tons of 2,240 pounds.			
	1901.	1902.	1903.	1904.
New England.....	684	229	3,452	1,451
New York.....	4,907	2,661	12,932	23,957
New Jersey.....	648	700	9,892	9,048
Lehigh Valley.....	3,783	150	33,324	10,826
Schuylkill Valley.....	4,756	400	14,079	2,800
Upper Susquehanna Valley.....	1,409	2,256	1,021	1,258
Lower Susquehanna Valley.....				
Juniata Valley.....				
Allegheny County.....				
Shenango Valley.....				
Miscellaneous bituminous.....	3,139	.....	26,435	3,484
Charcoal.....	3,046	718	1,574	1,085
Total for Pennsylvania.....	20,750	5,122	106,472	55,538
Maryland.....	8,477	6,791	25,823	31,032
Virginia.....				
Georgia and Texas.....				
Alabama.....				
Kentucky and West Virginia.....				
Tennessee.....	1,361	3,554	22,019	5,266
Mahoning Valley.....	8,343	2,503	47,849	20,455
Hocking Valley and miscellaneous.....	.....	.....	.....	5,632
Lake Counties.....	1,671	.....	.....	.....
Hanging Rock bit. and charcoal.....	8,285	1,954	24,340	12,413
Total for Ohio.....	18,299	4,457	72,189	38,500
Illinois and Wisconsin.....	6,906	2,908	77,183	100,896
Michigan and Minnesota.....				
Missouri.....				
Pacific States.....				
Grand total.....	70,647	49,951	591,438	408,792

## STOCKS ACCORDING TO FUEL USED.

Bituminous.....	42,426	38,645	407,881	240,703
Anthracite and anth. and coke mixed..	12,007	4,080	62,901	27,586
Charcoal.....	15,950	7,226	120,656	140,503
Mixed charcoal and coke.....	264	.....	.....	.....
Total.....	70,647	49,951	591,438	408,792

STATISTICS OF THE UNITED STATES STEEL CORPORATION  
FOR THE CALENDAR YEAR 1902.

Iron ore shipments from Lake Superior and the total iron ore production in the calendar year 1902; also total 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 1902.....	gross tons.	16,659,470	10,911,651	27,571,121	60.4
Total production of iron ore in 1902.....	gross tons.	16,063,179	19,480,966	35,554,135	45.1
Production of coke in 1902.....	net tons.	9,521,567	15,880,163	25,401,730	37.4
Iron and steel actually produced in the calendar year 1902.		Production U. S. Steel Corporation.	Production independent companies.	Total production. Gross tons.	Percentage U. S. Steel Corporation.
Bessemer, basic, low-phosphorus, foundry, forge, and all other kinds of pig iron... Spiegeleisen, ferro-manganese, and ferro-phosphorus.....		7,802,812 172,718	9,805,514 40,263	17,608,326 212,981	44.3 81.0
Total pig iron, including spiegeleisen, ferro-manganese, and ferro-phosphorus...		7,975,530	9,845,777	17,821,307	44.7
Bessemer steel ingots and castings.....		6,759,210	2,379,153	9,138,363	73.9
Open-hearth steel ingots and castings.....		2,984,708	2,703,021	5,687,729	52.4
Total Bessemer and open-hearth steel ingots and castings.....		9,743,918	5,082,174	14,826,092	65.7
Bessemer steel rails.....		1,920,786	1,014,606	2,935,392	65.4
Structural shapes.....		753,481	546,845	1,300,326	57.9
Plates and sheets, including black plates for tinning but excluding nail plate....		1,583,865	1,081,544	2,665,409	59.4
Wire rods.....		1,126,826	447,467	1,574,293	71.5
Bars, skelp, nail plate, open-hearth and iron rails, and other finished rolled products.		1,701,700	3,766,996	5,468,696	31.1
Total of all finished rolled products .....		7,086,658	6,857,458	13,944,116	50.8
Wire nails.....	kegs of 100 pounds.	7,122,354	3,859,892	10,982,246	64.8

STATISTICS OF THE UNITED STATES STEEL CORPORATION  
FOR THE CALENDAR YEAR 1903.

Iron ore shipments from Lake Superior and the total iron ore production in the calendar year 1903; 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 1903.....	gross tons.	14,293,083	9,996,795	24,289,878	58.8
Total production of iron ore in 1903.....	gross tons.	15,363,355	19,655,953	35,019,308	43.8
Production of coke in 1903.....	net tons.	8,658,391	16,603,969	25,262,360	34.2
Iron and steel actually produced in the calendar year 1903. Gross tons.		Production U. S. Steel Corporation.	Production independent companies.	Total production. Gross tons.	Percentage U. S. Steel Corporation.
Bessemer, basic, low-phosphorus, foundry, forge, and all other kinds of pig iron.....		7,123,053	10,693,538	17,816,591	39.9
Spiegeleisen and ferro-manganese.....		156,188	36,473	192,661	81.0
Total pig iron, including spiegeleisen and ferro-manganese .....		7,279,241	10,730,011	18,009,252	40.4
Bessemer steel ingots and castings.....		6,191,660	2,401,169	8,592,829	72.0
Open-hearth steel ingots and castings.....		2,976,300	2,853,611	5,829,911	51.0
Total Bessemer and open-hearth steel ingots and castings.....		9,167,960	5,254,780	14,422,740	63.5
Bessemer steel rails.....		1,934,315	1,012,441	2,946,756	65.6
Structural shapes.....		660,978	434,835	1,095,813	60.3
Plates and sheets, including black plates for tinning but excluding nail plate.....		1,557,223	1,042,442	2,599,665	59.9
Wire rods.....		1,100,290	403,165	1,503,455	73.1
Bars, skelp, nail plate, open-hearth and iron rails, and other finished rolled products.		1,510,085	3,551,923	5,062,008	29.8
Total of all finished rolled products.....		6,762,891	6,444,806	13,207,697	51.2
Wire nails.....	kegs of 100 pounds.	6,801,180	2,830,481	9,631,661	70.6

STATISTICS OF THE UNITED STATES STEEL CORPORATION  
FOR THE CALENDAR YEAR 1904.

Iron ore shipments from Lake Superior and the total iron ore production in the calendar year 1904; 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 1904.....		11,746,409	10,076,430	21,822,839	53.8
Total production of iron ore in 1904.....		10,603,087	17,096,913	27,699,999	38.0
Production of coke in 1904.....		8,653,293	14,969,227	23,622,520	36.6
Iron and steel actually produced in the calendar year 1904.		Production U. S. Steel Corporation.	Production independent companies.	Total production. Gross tons.	Percentage U. S. Steel Corporation.
Gross tons.					
Bessemer, basic, low-phosphorus, foundry, forge, and all other kinds of pig iron.....		7,213,933	9,062,708	16,276,641	44.3
Spiegelisen, ferro-manganese, and ferro-phosphorus.....		155,488	64,904	220,392	70.5
Total pig iron, including spiegelisen, ferro-manganese, and ferro-phosphorus.....		7,369,421	9,127,612	16,497,033	44.6
Bessemer steel ingots and castings.....		5,427,979	2,431,161	7,859,140	69.0
Open-hearth steel ingots and castings.....		2,978,399	2,928,767	5,908,166	50.4
Total Bessemer and open-hearth steel ingots and castings.....		8,406,378	5,360,928	13,767,306	61.0
Bessemer steel rails.....		1,228,884	914,073	2,137,957	57.2
Structural shapes.....		528,854	428,292	949,146	55.1
Plates and sheets, including black plates for tinning but excluding nail plate.....		1,406,397	1,015,001	2,421,398	58.0
Wire rods.....		1,212,012	487,016	1,699,028	71.3
Bars, skeip, nail plate, open-hearth and iron rails, and other finished rolled products.		1,378,651	3,427,201	4,805,852	28.6
Total of all finished rolled products.....		5,744,798	6,268,583	12,013,381	47.8
Wire nails.....		7,998,912	3,927,749	11,926,661	67.0

†The total production by the whole country is subject to revision, but the figures for the United States Steel Corporation are final.

# STATISTICS OF THE CANADIAN IRON TRADE FOR 1904.

## PRODUCTION OF PIG IRON IN CANADA.

The American Iron and Steel Association has received from the manufacturers the statistics of the production of pig iron in the Dominion of Canada in the calendar year 1904. They show an increase of 5,524 gross tons, or a little over 2 per cent., as compared with 1903.

The total production of all kinds of pig iron in Canada in 1904 amounted to 270,942 gross tons, against 265,418 tons in 1903, 319,557 tons in 1902, 244,976 tons in 1901, and 86,090 tons in 1900. In the first half of 1904 the production was 120,643 tons and in the second half it was 150,299 tons, an increase of 29,656 tons. In 1904 of the total production 251,671 tons were made with coke and 19,271 tons with charcoal. About one-fourth of the total production was basic pig iron and a little less than one-tenth was Bessemer pig iron. Spiegeleisen and ferro-manganese have not been made in Canada since 1899.

The following table gives the total production of all kinds of pig iron (including spiegeleisen and ferro-manganese) in Canada from 1894 to 1904. Prior to 1894 the statistics of pig iron production in Canada were not collected by this Association.

Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.
1894.....	44,791	1898.....	68,755	1902.....	319,557
1895.....	37,829	1899.....	94,077	1903.....	265,418
1896.....	60,030	1900.....	86,090	1904.....	270,942
1897.....	53,796	1901.....	244,976	.....	.....

On December 31, 1904, the unsold stocks of pig iron in Canada amounted to 35,119 tons, as compared with 19,168 tons at the close of 1903, about 20,000 tons at the close of 1902, 59,472 tons at the close of 1901, and 12,465 tons at the close of 1900.

On December 31, 1904, Canada had 15 completed blast furnaces, of which 8 were in blast and 7 were idle. Of this total 10 were equipped to use coke for fuel and 5 to use charcoal. In addition 3 coke furnaces, upon which work had been suspended for some time, were partly erected on December 31.

During the first half of 1904 Canada had 10 of its completed furnaces in blast, and during the last half of the year it had the same number of furnaces running. Of the active furnaces in each half year 7 were coke and 3 were charcoal furnaces.

#### PRODUCTION OF STEEL IN CANADA.

The American Iron and Steel Association has also received from the manufacturers the statistics of the production of steel ingots and castings and of rolled iron and steel in Canada in 1904.

The total production of steel ingots and castings in Canada in 1904 was 148,784 gross tons, against 181,514 tons in 1903, a decrease of 32,730 tons. Bessemer and open-hearth steel ingots and castings were made in each year. Almost all the open-hearth steel reported in 1903 and 1904 was made by the basic process. The direct steel castings made in 1904 amounted to 6,505 tons. Canada has not made crucible steel prior to the present year.

The following table gives the production of all kinds of steel ingots and castings in Canada from 1894 to 1904, in gross tons.

Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.
1894.....	25,685	1898.....	21,540	1902.....	182,037
1895.....	17,000	1899.....	22,000	1903.....	181,514
1896.....	16,000	1900.....	23,577	1904.....	148,784
1897.....	18,400	1901.....	26,084	.....	.....

#### PRODUCTION OF ROLLED IRON AND STEEL IN CANADA.

The following table gives the production of all kinds of iron and steel rolled into finished forms in Canada from 1895 to 1904.

Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.
1895.....	66,402	1899.....	110,642	1903.....	129,516
1896.....	75,043	1900.....	100,690	1904.....	180,038
1897.....	77,021	1901.....	112,007	.....	.....
1898.....	90,303	1902.....	161,485	.....	.....

The production of Bessemer and open-hearth steel rails in 1904 amounted to 36,216 gross tons, against 1,243 tons in 1903; structural shapes, 447 tons, against 1,983 tons in 1903; cut nails made by rolling mills and steel works having cut-nail factories connected with their plants, 99,000 kegs of 100 pounds, against 118,686 kegs in 1903; plates and sheets, 3,102 tons, against 2,450 tons in 1903; all other finished rolled products, excluding muck and scrap bars, blooms, billets, sheet bars, and other unfinished forms, 135,243 tons, against 118,541 tons in 1903. The total quantity of all

kinds of iron and steel rolled into finished forms in Canada in 1904 amounted to 180,038 tons, against 129,516 tons in 1903. Of the 180,038 tons of finished iron and steel reported for 1904 about 126,850 tons were rolled from steel and 53,188 tons from iron.

On December 31, 1904, there were 18 completed rolling mills and steel works in Canada. In addition 3 plants were being built and 2 plants were projected. Of the completed plants 2 were equipped for the manufacture of steel castings only, 5 for the manufacture of Bessemer or open-hearth steel ingots and rolled products, and 11 for the manufacture of rolled products only. Of the building plants one was being equipped for the manufacture of steel castings by a special process, one for the manufacture of open-hearth steel ingots only, and one for the manufacture of merchant bar iron, railway spikes, etc. One of the projected plants is to be equipped for the manufacture of skelp and bar iron and the other for the manufacture of wire rods.

Of the 18 completed rolling mills and steel works in Canada on December 31, 1904, 3 were located in Nova Scotia, 5 in Quebec, 9 in Ontario, and 1 in New Brunswick. The building plants are in Nova Scotia, Ontario, and Manitoba, and the projected plants are in Ontario.

#### PRODUCTION OF IRON ORE AND COAL IN CANADA.

We are officially advised that the production of iron ore in Canada in 1904 amounted to 312,286 gross tons, against 235,977 tons in 1903, and that the production of coal in Canada in 1904 amounted to 6,705,232 gross tons, against 6,824,999 tons in 1903. The figures for 1904 are subject to revision.

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# STATISTICS OF THE FOREIGN IRON TRADE FOR 1904.

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## GREAT BRITAIN.

MR. JEANS, the secretary of the British Iron Trade Association, has published the statistics of the production of pig iron, Bessemer steel, and open-hearth steel in Great Britain in 1904, from which we compile the following summary.

*Pig Iron.*—The total production of pig iron in 1904 amounted to 8,562,658 tons, against 8,811,204 tons in 1903, 8,517,693 tons in 1902, and 7,851,830 tons in 1901. The decrease in 1904 as compared with 1903 was 248,546 tons. Great Britain is a large importer of iron ore for use in its blast furnaces. The imports of iron ore in 1904 amounted to 6,100,556 tons, against 6,314,162 tons in 1903, of which there were imported from Spain 4,648,335 tons in 1904 and 4,945,086 tons in 1903. The official Government statistics for 1904 which are yet to appear may vary from those above given. The pig iron statistics given by Mr. Jeans for previous years also vary from the Government statistics which will be found in the accompanying Abstract.

*Bessemer Steel.*—The total production of Bessemer steel ingots in 1904 amounted to 1,781,533 tons, against 1,910,018 tons in 1903, 1,825,779 tons in 1902, and 1,606,253 tons in 1901. The decrease in 1904 as compared with 1903 was 128,485 tons. Of the total production in 1904 there were produced by the acid process 1,129,224 tons and by the basic process 652,309 tons. Nearly one-half (304,817 tons) of the basic Bessemer production of 1904 was produced in the Cleveland district. In this district the production of acid Bessemer steel has been gradually declining in recent years, until in 1904 it fell to 10,449 tons.

*Open-hearth Steel.*—The total production of open-hearth steel ingots in 1904 amounted to 3,245,346 tons, against 3,124,083 tons in 1903, 3,083,288 tons in 1902, and 3,290,791 tons in 1901. The increased production in 1904 as compared with 1903 was 121,263 tons. Of the total production last year 662,064 tons were basic steel and 2,583,282 tons were acid steel. Since 1901 the production of basic open-hearth steel in Great Britain has almost doubled. It will be observed, however, that the aggregate production of open-hearth steel in Great Britain has made no

progress in the last four years, the output in 1904 being a little less than in 1901.

The production in Great Britain of direct steel castings by the Bessemer and open-hearth processes is never given in British statistics, nor is the production of crucible steel ingots and castings. We have estimated the annual production of crucible steel in Great Britain in recent years as amounting to 100,000 tons.

*Coal.*—Preliminary statistics of the production of coal in Great Britain in 1904 have been published by the Mining Statistics Branch of the Home Department of His Majesty's Government. The production under the coal mines act was 232,411,784 tons, against 230,324,295 tons under the same act in 1903.

#### GERMANY.

The Imperial Statistical Bureau of Germany publishes the following statistics of the production of coal and lignite and iron ore in the German Empire, including Luxemburg, in 1904, compared with the production in 1903.

*Coal and Lignite.*—The production of coal in Germany in 1904 was 120,815,503 metric tons, against 116,637,765 tons in 1903. The production of lignite in 1904 was 48,632,769 tons, against 45,819,488 tons in 1903. The total production of coal and lignite in 1904 was 169,448,272 tons, against 162,457,253 tons in 1903. The production of coal and lignite in 1904 was 6,991,019 tons greater than in 1903.

*Iron Ore.*—The production of iron ore in Germany in 1904 was 22,047,297 metric tons, against 21,230,650 tons in 1903, an increase in 1904 of 816,647 tons.

*Pig Iron.*—Dr. Leidig, chief of the Statistical Bureau of the Verein Deutscher Eisen und Stahl Industrieller, gives the production of pig iron in Germany and Luxemburg in 1904 as provisionally amounting to 10,103,941 metric tons, against 10,085,634 tons in 1903, an increase of 18,307 tons.

*Steel.*—Dr. Leidig also gives the production of Bessemer and open-hearth steel ingots and castings in Germany and Luxemburg as amounting in 1904 to 8,930,291 metric tons, against 8,801,515 tons in 1903. Of the production in 1904 5,949,171 tons were Bessemer ingots, of which 423,742 tons were made by the acid process and 5,525,429 tons by the basic process, and 2,828,306 tons were open-hearth ingots, of which 130,546 tons were made by the acid process and 2,697,760 tons by the basic process. The total production of direct steel castings in 1904

amounted to 152,814 tons, of which 56,409 tons were made by the acid process and 96,405 tons by the basic process. Dr. Leidig does not separate Bessemer from open-hearth castings.

#### FRANCE.

The *Journal Officiel* gives the following provisional statistics of the production of iron and steel in France in 1904, compared with definite statistics for 1903.

*Pig Iron.*—The production of pig iron in France in 1904 amounted to 2,999,787 metric tons, against 2,840,517 tons in 1903, an increase of 159,270 tons.

*Steel.*—The production of Bessemer and open-hearth steel ingots in France in 1904 was as follows, in metric tons: Bessemer steel, 1,334,798 tons; open-hearth steel, 745,756 tons: total, 2,080,554 tons; against 1,161,954 tons of Bessemer steel and 677,674 tons of open-hearth steel in 1903, making a total of 1,839,628 tons in that year. The production of steel by various minor processes in 1904 amounted to 26,785 metric tons, against 23,058 tons in 1903. The total production of steel in the above forms in 1904 was 2,107,339 tons, against a total production in 1903 of 1,862,686 tons. In the foregoing statistics steel castings are not included. In 1903 they amounted to about 23,000 tons.

#### BELGIUM.

*Pig Iron.*—The production of pig iron in Belgium in 1904 is reported to have amounted to 1,307,399 metric tons, against 1,216,500 tons in 1903, an increase of 90,899 tons.

*Steel.*—The production of Bessemer and open-hearth steel ingots in Belgium in 1904 is reported to have amounted to 1,083,000 metric tons, against 969,230 tons in 1903, an increase of 113,770 tons.

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# THE WORLD'S IRON TRADE IN 1903.

## THE WORLD'S PRODUCTION OF IRON ORE AND COAL.

IN the following table we give revised statistics of the production of iron ore and coal in all countries in 1903, except in a few instances, when figures for 1902 and 1901 are given. English tons of 2,240 pounds are used in giving the production of the United States, Great Britain, Canada, Cuba, India, Natal, Transvaal, New South Wales, New Zealand, other Australasia, and "other countries," and metric tons of 2,204 pounds are used for all other countries named in the table, the latter being used as the equivalent of English tons in ascertaining the total production of all countries. The Belgian coal statistics do not include lignite.

Countries.	Iron ore.			Coal and lignite.		
	Years.	Production. Tons.	Per- centage.	Years.	Production. Tons.	Per- centage.
United States.....	1903	35,019,308	34.41	1903	319,068,229	36.53
Great Britain .....	1903	13,715,645	13.48	1903	230,334,469	26.37
Germany and Luxem..	1903	21,230,650	20.86	1903	162,457,253	18.60
France.....	1903	6,219,541	6.11	1903	34,906,418	4.00
Belgium.....	1903	184,400	.18	1903	*23,796,680	2.72
Austria-Hungary†.....	1903	3,269,175	3.21	1903	40,628,785	4.65
Russia and Finland....	1902	5,648,227	5.55	1903	17,500,000	2.00
Sweden.....	1903	3,677,841	3.61	1903	320,390	.04
Spain.....	1903	8,304,153	8.16	1903	2,587,652	.30
Italy.....	1903	374,790	.37	1903	346,887	.04
Dominion of Canada...	1903	235,977	.23	1903	6,824,999	.78
Cuba.....	1903	624,858	.61	.....	.....	.....
Transvaal .....	.....	.....	.....	1903	2,258,284	.26
Natal.....	.....	.....	.....	1903	713,548	.08
India.....	1902	85,235	.08	1903	7,438,386	.85
Greece.....	1903	360,310	.35	1903	10,700	.00
New South Wales.....	1902	13,555	.01	1903	6,354,846	.73
New Zealand.....	.....	.....	.....	1903	1,420,229	.16
Other Australasia.....	1902	116,994	.12	1903	626,731	.07
Japan.....	1901	70,172	.07	1902	9,701,682	1.11
Algeria.....	1903	588,893	.58	1903	140	.00
Other countries (about)	1903	2,045,276	2.01	1903	6,238,692	.71
Total.....	.....	101,785,000	100.00	.....	873,535,000	100.00

\* Lignite not included. † Includes Bosnia and Herzegovina.

The iron ore figures for "other countries" include 728,721 gross tons which were mined by Newfoundland in 1902.

## THE WORLD'S PRODUCTION OF PIG IRON AND STEEL.

In the following table we give revised statistics of the production of pig iron and steel in all countries in 1903. English tons of 2,240 pounds are used for the United States, Great Britain, Canada, and "other countries," and metric tons of 2,204 pounds for all other countries, metric tons being used as the equivalent of English tons in ascertaining the total production for all countries. The statistics of steel production for the United States, Great Britain, Germany and Luxemburg, France, Belgium, Austria-Hungary, Russia and Finland, Sweden, Spain, Italy, and Canada embrace ingots and in some cases direct castings.

Countries.	Pig iron.			Steel.		
	Years.	Production. Tons.	Per- centage.	Years.	Production. Tons.	Per- centage.
United States.....	1903	18,009,252	38.84	1903	14,534,978	40.55
Great Britain.....	1903	8,935,063	19.27	1903	*5,134,101	14.32
Germany and Luxem..	1903	10,085,634	21.75	1903	8,801,515	24.55
France.....	1903	2,840,517	6.13	1903	1,885,000	5.26
Belgium.....	1903	1,216,500	2.63	1903	969,230	2.70
Austria-Hungary† .....	1903	1,428,158	3.08	1902	‡1,193,000	3.33
Russia and Finland....	1903	2,453,953	5.29	1903	2,374,650	6.63
Sweden .....	1903	506,825	1.09	1903	318,897	.89
Spain.....	1903	302,657	.65	1903	199,642	.56
Italy.....	1903	‡75,279	.16	1903	187,361	.52
Dominion of Canada...	1903	265,418	.57	1903	181,514	.51
Other countries (about)	1903	248,744	.54	1903	66,112	.18
Total .....	.....	46,368,000	100.00	.....	35,846,000	100.00

\* Does not include direct steel castings.

† Includes Bosnia and Herzegovina.

‡ Not including blast furnace castings.

§ Estimated. Official figures wanting.

In tables that have appeared in previous issues of our Annual Report we have given the world's probable total production of pig iron in 1800 as 825,000 English tons; in 1830 as 1,825,000 tons; in 1850 as 4,750,000 tons; in 1870 as 11,900,000 tons; in 1880 as 17,950,000 tons; in 1890 as 27,157,000 tons; in 1900 as 40,400,000 tons; and now our estimate for 1903 is 46,368,000 tons, the United States contributing nearly 39 per cent.

In one of our early Annual Reports we estimated the world's production of steel in 1878 as amounting to 3,021,000 English tons. Subsequently we estimated the production in 1889 as amounting to 10,948,000 tons. The above figures show that the world's production of steel had increased in 1903 to 35,846,000 tons, of which the United States contributed over 40 per cent.





## STATISTICAL ABSTRACT.

IN the tables which follow we present to the American iron trade the most complete collection of iron and steel statistics relating to our own country that has ever been compiled. No pains have been spared to insure absolute accuracy in these statistics. All tables relating to the production and prices of iron and steel are given upon the authority of the American Iron and Steel Association, and all tables relating to our imports and exports of iron and steel, iron ore, coal, and coke are given upon the authority of the Bureau of Statistics of the Department of Commerce and Labor. The statistics of immigration, iron and steel shipbuilding, and the production of iron ore, coal, and coke by the United States have been compiled from Government publications. Railroad statistics have been compiled from Poor's Manual of the Railroads of the United States. Credit for other statistics is given in the body of the Abstract whenever possible.

### SHIPMENTS OF IRON ORE FROM THE LAKE SUPERIOR REGION.

Michigan, Wisconsin, and Minnesota now comprise the Lake Superior iron ore region. The word shipments is not synonymous with production. The figures for 1903 and 1904 include shipments from the Iron Ridge mine. Shipments from the Baraboo district are included in the figures for 1904. Gross tons are used.

Years.	Shipments.	Years.	Shipments.	Years.	Shipments.
1854.....	3,000	1871.....	779,607	1888.....	5,063,693
1855.....	1,449	1872.....	900,901	1889.....	7,292,754
1856.....	36,343	1873.....	1,162,458	1890.....	9,012,379
1857.....	25,646	1874.....	919,557	1891.....	7,062,233
1858.....	15,876	1875.....	891,257	1892.....	9,069,556
1859.....	68,832	1876.....	992,764	1893.....	6,060,492
1860.....	114,401	1877.....	1,015,087	1894.....	7,748,932
1861.....	49,909	1878.....	1,111,110	1895.....	10,438,268
1862.....	124,169	1879.....	1,375,691	1896.....	9,916,035
1863.....	203,055	1880.....	1,908,745	1897.....	12,469,638
1864.....	243,127	1881.....	2,306,505	1898.....	14,024,673
1865.....	236,208	1882.....	2,965,412	1899.....	18,251,804
1866.....	278,796	1883.....	2,353,288	1900.....	19,059,393
1867.....	473,567	1884.....	2,518,692	1901.....	20,593,537
1868.....	491,449	1885.....	2,466,372	1902.....	27,571,121
1869.....	617,444	1886.....	3,568,022	1903.....	24,289,878
1870.....	830,940	1887.....	4,730,577	1904.....	21,822,839

## PRODUCTION OF IRON ORE BY THE CORNWALL MINES.

The following table gives the production of iron ore, in gross tons, by the Cornwall mines in Pennsylvania from the time they were first opened in 1740 to 1884 and shipments since that year.

Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.
1740 to Feb. 1, '64	2,524,908	1877.....	171,589	1891.....	663,755
1864 (11 mos.)...	165,915	1878.....	179,299	1892.....	634,714
1865.....	114,803	1879.....	268,488	1893.....	439,705
1866.....	216,660	1880.....	231,173	1894.....	371,710
1867.....	202,755	1881.....	249,050	1895.....	614,598
1868.....	165,843	1882.....	309,681	1896.....	463,059
1869.....	173,429	1883.....	363,143	1897.....	419,878
1870.....	174,408	1884.....	412,320	1898.....	584,342
1871.....	176,055	1885.....	508,864	1899.....	763,152
1872.....	193,317	1886.....	688,054	1900.....	558,713
1873.....	166,782	1887.....	667,210	1901.....	747,012
1874.....	112,429	1888.....	722,917	1902.....	594,177
1875.....	98,925	1889.....	769,020	1903.....	401,469
1876.....	137,902	1890.....	686,302	1904.....	174,331

## SHIPMENTS OF IRON ORE FROM NEW JERSEY MINES.

Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.
1892.....	469,236	1897.....	239,634	1902.....	399,984
1893.....	328,028	1898.....	269,771	1903.....	472,490
1894.....	277,483	1899.....	300,758	1904.....	502,506
1895.....	285,417	1900.....	339,914	.....	.....
1896.....	262,070	1901.....	419,762	.....	.....

## TOTAL PRODUCTION OF IRON ORE SINCE 1870.

Previous to 1870 statistics of the production of iron ore in the United States are incomplete. The figures in the following table for 1870 and 1880 are for the census years ending on May 31. For 1889 (also the census year) and all subsequent years they are for calendar years. The iron ore statistics for all years subsequent to 1889 have been compiled by the United States Geological Survey. Gross tons are used.

Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.
1870.....	3,031,891	1893.....	11,587,629	1899.....	24,683,173
1880.....	7,120,362	1894.....	11,879,679	1900.....	27,553,161
1889.....	14,518,041	1895.....	15,957,614	1901.....	28,887,479
1890.....	16,036,043	1896.....	16,005,449	1902.....	35,554,135
1891.....	14,591,178	1897.....	17,518,046	1903.....	35,019,308
1892.....	16,296,666	1898.....	19,433,716	1904.....	27,600,000

## IMPORTS OF IRON ORE INTO THE UNITED STATES.

The following table gives the imports of iron ore for consumption into the United States in the fiscal years from June 30, 1871, to June 30, 1879. In 1879 this country for the first time imported iron ore largely from Europe. Prior to that year such iron ore as was imported came chiefly from Canada, more than one-half coming from that country in 1873, 1874, and 1875.

Fiscal years.	Gross tons.	Fiscal years.	Gross tons.	Fiscal years.	Gross tons.
1872.....	23,733	1875.....	56,655	1878.....	28,212
1873.....	45,981	1876.....	17,284	1879.....	150,197
1874.....	57,987	1877.....	30,669	.....	.....

The following table gives the imports of iron ore from January 1, 1879, to December 31, 1904, in gross tons.

Calendar years.	Gross tons.	Calendar years.	Gross tons.	Calendar years.	Gross tons.
1879.....	284,141	1888.....	587,470	1897.....	489,970
1880.....	493,408	1889.....	853,573	1898.....	187,093
1881.....	782,887	1890.....	1,246,830	1899.....	674,082
1882.....	589,655	1891.....	912,856	1900.....	897,831
1883.....	490,875	1892.....	806,585	1901.....	966,950
1884.....	487,820	1893.....	526,951	1902.....	1,165,470
1885.....	390,786	1894.....	168,541	1903.....	980,440
1886.....	1,039,433	1895.....	524,153	1904.....	487,613
1887.....	1,194,301	1896.....	682,806	.....	.....

## SHIPMENTS OF IRON ORE FROM CUBA TO ALL COUNTRIES.

Iron ore was first shipped from Cuba to the United States by the Juragua Iron Company, Limited, in August, 1884. A little over eight years later, in October, 1892, the Sigua Iron Company made its first shipment of Cuban iron ore to this country. This was followed by shipments by the Spanish-American Iron Company from its Cuban mines in 1895. Six years later, in 1901, the Cuban Steel Ore Company began shipping ore to this country, but in the following year its shipments ceased entirely and the mines are now virtually abandoned. So, too, are the mines of the Sigua Iron Company, from which ore was last shipped in 1893. The total shipments of iron ore to all countries from 1884 to 1904 amounted to 6,762,723 tons, of which 6,671,866 tons were shipped to the United States, 88,174 tons to foreign countries, and 2,683 tons to Cuban copper smelters. The following table gives the total shipments of iron ore from Cuba, including shipments to local copper smelters, from 1884 to 1904.

Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.
1884.....	25,295	1891.....	264,262	1898.....	168,339
1885.....	80,716	1892.....	341,654	1899.....	377,189
1886.....	112,074	1893.....	351,175	1900.....	446,872
1887.....	94,240	1894.....	156,826	1901.....	552,248
1888.....	206,061	1895.....	382,494	1902.....	699,734
1889.....	260,291	1896.....	412,995	1903.....	624,858
1890.....	363,842	1897.....	454,285	1904.....	387,273

## TOTAL PRODUCTION OF COAL.

The following table gives the production of all kinds of coal in the United States in the census years 1870 and 1880, ending on the 31st day of May of each year; in the census year 1889, ending on the 31st day of December of that year; and in the calendar years from 1881 to 1888 and from 1890 to 1904. Credit is due to the Census Bureau for the statistics for census years and to the Division of Mining and Mineral Resources of the United States Geological Survey for the statistics for other years. No complete statistics prior to 1870 are available.

Years—Gross tons.	Pennsylvania anthracite.	Bituminous and all other.	Total. Gross tons.
Census year 1870.....	13,973,460	15,369,120	29,342,580
Census year 1880.....	25,572,160	38,250,670	63,822,830
Calendar year 1881.....	28,500,016	48,179,475	76,679,491
Calendar year 1882.....	31,358,264	60,861,190	92,219,454
Calendar year 1883.....	34,336,469	68,531,500	102,867,969
Calendar year 1884.....	33,175,756	73,730,539	106,906,295
Calendar year 1885.....	34,228,548	65,021,269	99,249,817
Calendar year 1886.....	34,853,077	66,646,947	101,500,024
Calendar year 1887.....	37,578,747	79,073,227	116,651,974
Calendar year 1888.....	41,624,611	91,107,002	132,731,613
Calendar year 1889.....	40,665,152	85,432,717	126,097,869
Calendar year 1890.....	41,489,858	99,377,073	140,866,931
Calendar year 1891.....	45,236,992	105,268,962	150,505,954
Calendar year 1892.....	46,850,450	113,264,792	160,115,242
Calendar year 1893.....	48,185,306	114,629,671	162,814,977
Calendar year 1894.....	46,358,144	106,089,647	152,447,791
Calendar year 1895.....	51,785,122	120,641,244	172,426,366
Calendar year 1896.....	48,523,287	122,893,103	171,416,390
Calendar year 1897.....	46,974,714	131,801,356	178,776,070
Calendar year 1898.....	47,663,076	148,744,306	196,407,382
Calendar year 1899.....	53,944,647	172,609,988	226,554,635
Calendar year 1900.....	51,221,353	189,567,957	240,789,310
Calendar year 1901.....	60,242,560	201,632,276	261,874,836
Calendar year 1902.....	36,940,710	232,336,468	269,277,178
Calendar year 1903.....	66,613,454	252,454,775	319,068,229
Calendar year 1904.....	65,318,490	249,102,765	314,421,255

## VALUE OF THE COAL PRODUCED IN THE UNITED STATES.

The following table, from "Mineral Resources of the United States," gives the annual value of the coal produced in the United States, both anthracite and bituminous, from 1880 to 1904.

Years.	Values.	Years.	Values.	Years.	Values.
1880.....	\$100,640,396	1889.....	\$160,226,323	1898.....	\$208,023,250
1881.....	124,349,380	1890.....	176,804,573	1899.....	256,094,234
1882.....	146,632,581	1891.....	191,133,135	1900.....	306,688,164
1883.....	159,494,855	1892.....	207,566,381	1901.....	348,926,069
1884.....	143,768,578	1893.....	208,438,696	1902.....	367,032,069
1885.....	159,019,596	1894.....	186,141,564	1903.....	503,724,381
1886.....	154,600,176	1895.....	197,799,043	1904.....	444,671,413
1887.....	182,556,837	1896.....	196,640,166	.....	.....
1888.....	190,881,012	1897.....	198,897,178	.....	.....

## TOTAL PRODUCTION OF COKE.

The following table, compiled by the Division of Mining and Mineral Resources of the United States Geological Survey, gives the total production of coke in the United States from 1881 to 1904. Prior to 1880 complete statistics of the production of coke are not available. Since 1896 our production of coke has in some years doubled, while that of coal has doubled since 1894.

Years.	Net tons.	Years.	Net tons.	Years.	Net tons.
1881.....	4,113,760	1889.....	10,258,022	1897.....	13,288,984
1882.....	4,793,321	1890.....	11,508,021	1898.....	16,047,209
1883.....	5,464,721	1891.....	10,352,688	1899.....	19,668,569
1884.....	4,873,805	1892.....	12,010,829	1900.....	20,533,348
1885.....	5,106,696	1893.....	9,477,580	1901.....	21,795,883
1886.....	6,845,369	1894.....	9,203,632	1902.....	25,401,730
1887.....	7,611,705	1895.....	13,333,714	1903.....	25,262,360
1888.....	8,540,030	1896.....	11,788,773	1904.....	23,621,520

## SHIPMENTS OF POCAHONTAS FLAT TOP COKE FROM 1883 TO 1904.

The following table gives the shipments of Pocahontas Flat Top coke, in net tons, from the opening of that region to 1904.

Years.	Net tons.	Years.	Net tons.	Years.	Net tons.
1883.....	23,762	1891.....	466,016	1899.....	1,317,246
1884.....	56,360	1892.....	499,777	1900.....	1,341,444
1885.....	48,571	1893.....	539,548	1901.....	1,279,949
1886.....	59,021	1894.....	865,684	1902.....	1,191,436
1887.....	151,171	1895.....	701,818	1903.....	1,693,403
1888.....	202,808	1896.....	999,697	1904.....	1,617,801
1889.....	310,504	1897.....	855,756	.....	.....
1890.....	499,148	1898.....	1,276,172	.....	.....

## SHIPMENTS AND PRICES OF CONNELLSVILLE COKE SINCE 1880.

The following table, compiled by Mr. H. P. Snyder, shows the total number of ovens in the Connellsville region at the close of each year from 1880 to 1904, the annual shipments of coke in net tons, the average annual price of coke at the ovens, and the gross revenue annually received for the coke shipped.

Calendar years—Net tons.	Total ovens.	Shipments. Net tons.	Average price.	Gross revenue.
1880.....	7,211	2,205,946	\$1.79	\$3,948,643
1881.....	8,208	2,639,002	1.63	4,301,573
1882.....	9,283	3,043,394	1.47	4,473,889
1883.....	10,176	3,552,402	1.14	4,049,738
1884.....	10,543	3,192,105	1.13	3,607,078
1885.....	10,471	3,096,012	1.22	3,777,134
1886.....	10,952	4,180,521	1.36	5,701,086
1887.....	11,923	4,146,989	1.79	7,437,669
1888.....	13,975	4,955,553	1.19	5,884,081
1889.....	14,458	5,930,428	1.34	7,974,663
1890.....	16,020	6,464,156	1.94	12,537,370
1891.....	17,204	4,760,665	1.87	8,903,454
1892.....	17,256	6,329,452	1.83	11,598,407
1893.....	17,513	4,805,623	1.49	7,141,031
1894.....	17,834	5,454,451	1.00	5,454,451
1895.....	17,947	8,244,438	1.23	10,140,658
1896.....	18,351	5,411,602	1.90	10,282,043
1897.....	18,628	6,915,052	1.65	11,409,835
1898.....	18,643	8,460,112	1.55	13,113,179
1899.....	19,689	10,129,764	2.00	20,259,528
1900.....	20,954	10,166,234	2.70	27,448,832
1901.....	21,575	12,609,949	1.95	24,589,400
1902.....	26,329	14,138,740	2.37	33,508,714
1903.....	28,092	13,345,230	3.00	40,035,690
1904.....	29,119	12,427,468	1.75	21,748,069

## SHIPMENTS OF COAL AND COKE ON THE MONONGAHELA RIVER.

The following table gives the shipments of coal and coke by the Monongahela Navigation Company from 1882 to 1899.

Years.	Bushels.	Years.	Bushels.	Years.	Bushels.
1882.....	106,168,300	1888.....	115,814,900	1894.....	116,545,313
1883.....	112,395,389	1889.....	81,162,500	1895.....	104,589,900
1884.....	81,706,852	1890.....	118,061,100	1896.....	142,959,800
1885.....	85,923,107	1891.....	107,719,200	1897.....	132,245,950
1886.....	113,099,147	1892.....	97,419,850	1898.....	*153,020,000
1887.....	78,912,900	1893.....	96,792,300	1899.....	146,609,075

\* Does not include coke, of which a small quantity was shipped in 1898. The weight of a bushel of coal in Pennsylvania is 76 pounds, and of coke 40 pounds.

The first shipments of coal and coke through the locks and pools of the Monongahela Navigation Company were made in 1844. In 1882 the total shipments first exceeded 100,000,000 bushels. Nearly all the shipments made are of coal.

The following table, which has been compiled by Major William S. Sibert, of the Corps of Engineers, U. S. Army, stationed at Pittsburgh, gives the shipments of coal and coke in net tons through the locks and pools of the Monongahela river in the fiscal years ended on June 30, 1900, 1901, 1902, 1903, and 1904.

Fiscal years.	Coal—Net tons.	Coke—Net tons.	Fiscal years.	Coal—Net tons.	Coke—Net tons.
1900.....	5,233,110	51,000	1903.....	10,007,826	4,775
1901.....	6,107,172	7,900	1904.....	8,032,058	8,400
1902.....	9,100,887	66,000	.....	.....	.....

SHIPMENTS OF CUMBERLAND COAL FROM THE MINES IN  
WESTERN MARYLAND AND WEST VIRGINIA.

The following table gives the shipments of Cumberland coal from Western Maryland and West Virginia from 1842 to 1904.

Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.
1842.....	1,708	1863.....	748,345	1884.....	2,934,979
1843.....	10,082	1864.....	657,996	1885.....	2,865,974
1844.....	14,890	1865.....	903,495	1886.....	2,592,467
1845.....	24,653	1866.....	1,079,331	1887.....	3,375,796
1846.....	29,795	1867.....	1,193,822	1888.....	3,671,067
1847.....	52,940	1868.....	1,330,443	1889.....	3,213,886
1848.....	79,571	1869.....	1,882,669	1890.....	4,006,091
1849.....	142,449	1870.....	1,717,075	1891.....	4,382,096
1850.....	196,848	1871.....	2,345,153	1892.....	4,029,564
1851.....	257,679	1872.....	2,355,471	1893.....	4,347,807
1852.....	334,178	1873.....	2,674,101	1894.....	3,966,106
1853.....	533,979	1874.....	2,410,895	1895.....	4,526,185
1854.....	659,681	1875.....	2,342,773	1896.....	4,861,430
1855.....	662,272	1876.....	1,835,081	1897.....	5,303,489
1856.....	706,450	1877.....	1,574,339	1898.....	5,533,636
1857.....	582,486	1878.....	1,679,322	1899.....	6,131,461
1858.....	649,656	1879.....	1,730,709	1900.....	5,171,916
1859.....	724,354	1880.....	2,136,160	1901.....	6,139,329
1860.....	788,909	1881.....	2,261,918	1902.....	6,288,867
1861.....	269,674	1882.....	1,540,466	1903.....	6,032,176
1862.....	317,634	1883.....	2,544,173	1904.....	5,905,388

SHIPMENTS OF ANTHRACITE COAL FROM PENNSYLVANIA MINES.

The following table gives the shipments of anthracite coal from the mines in Pennsylvania from 1820 to 1904.

Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.
1820.....	365	1849.....	3,242,966	1878.....	17,605,262
1821.....	1,073	1850.....	3,358,899	1879.....	26,142,689
1822.....	3,720	1851.....	4,448,916	1880.....	23,437,242
1823.....	6,951	1852.....	4,993,471	1881.....	28,500,017
1824.....	11,108	1853.....	5,195,151	1882.....	29,120,096
1825.....	34,893	1854.....	6,002,334	1883.....	31,793,027
1826.....	48,047	1855.....	6,608,567	1884.....	30,718,293
1827.....	63,434	1856.....	6,927,550	1885.....	31,623,530
1828.....	77,516	1857.....	6,644,941	1886.....	32,136,362
1829.....	112,083	1858.....	6,839,369	1887.....	34,641,018
1830.....	174,734	1859.....	7,808,255	1888.....	38,145,718
1831.....	176,820	1860.....	8,513,123	1889.....	35,407,710
1832.....	363,271	1861.....	7,954,264	1890.....	35,855,175
1833.....	487,749	1862.....	7,869,407	1891.....	40,448,337
1834.....	376,636	1863.....	9,566,006	1892.....	41,893,321
1835.....	560,758	1864.....	10,177,475	1893.....	43,089,537
1836.....	684,117	1865.....	9,652,391	1894.....	41,391,200
1837.....	869,441	1866.....	12,703,882	1895.....	46,511,477
1838.....	738,697	1867.....	12,988,725	1896.....	43,177,485
1839.....	818,402	1868.....	13,801,465	1897.....	41,637,864
1840.....	864,379	1869.....	13,866,180	1898.....	41,889,751
1841.....	959,773	1870.....	16,182,191	1899.....	47,665,204
1842.....	1,108,412	1871.....	15,699,721	1900.....	45,107,484
1843.....	1,263,598	1872.....	19,669,778	1901.....	53,568,601
1844.....	1,630,850	1873.....	21,227,952	1902.....	31,200,890
1845.....	2,013,013	1874.....	20,145,121	1903.....	59,362,831
1846.....	2,344,005	1875.....	19,712,472	1904.....	57,492,522
1847.....	2,882,309	1876.....	18,501,011	.....	.....
1848.....	3,089,238	1877.....	20,828,179	.....	.....

## IMPORTS AND EXPORTS OF COKE.

The following table, compiled by the Bureau of Statistics of the Department of Commerce and Labor, gives the imports of coke for consumption in the calendar years from 1887 to 1904; also the domestic exports of coke from July 1, 1894, to December 31, 1904.

Years. Net tons.	Imports.	Exports.	Years. Net tons.	Imports.	Exports.
1887.....	39,561	.....	1896.....	48,577	169,189
1888.....	39,427	.....	1897.....	39,130	193,798
1889.....	28,609	.....	1898.....	46,127	223,509
1890.....	20,724	.....	1899.....	42,398	313,819
1891.....	50,736	.....	1900.....	115,557	422,239
1892.....	27,419	.....	1901.....	81,456	430,450
1893.....	37,145	.....	1902.....	140,489	439,590
1894.....	32,567	*47,957	1903.....	142,776	466,351
1895.....	29,622	131,368	1904.....	180,853	585,872

\*For last six months only.

## IMPORTS AND EXPORTS OF COAL.

The following table gives the imports for consumption and the exports of domestic anthracite and bituminous coal since 1886. Shale and slack, or culm, are included in the bituminous figures.

Calendar years.	Consumption imports—Gross tons.			Domestic exports—Gross tons.		
	Anthracite.	Bituminous.	Total.	Anthracite.	Bituminous.	Total.
1886.....	2,039	859,251	861,290	667,076	544,768	1,211,844
1887.....	14,181	852,377	866,558	825,486	706,364	1,531,850
1888.....	24,094	1,114,747	1,138,841	969,542	860,462	1,830,004
1889.....	20,652	1,025,048	1,045,700	857,633	935,151	1,792,784
1890.....	15,145	839,359	854,504	794,335	1,280,930	2,075,265
1891.....	37,607	1,361,590	1,399,197	861,251	1,615,869	2,477,120
1892.....	65,058	1,146,101	1,211,159	851,639	1,645,686	2,497,325
1893.....	53,768	1,109,995	1,163,763	1,334,287	2,324,591	3,658,878
1894.....	90,068	1,243,415	1,333,483	1,440,625	2,195,716	3,636,341
1895.....	141,337	1,212,026	1,353,363	1,470,710	2,211,983	3,682,693
1896.....	101,689	1,245,141	1,346,830	1,350,000	2,276,202	3,626,202
1897.....	24,536	1,276,136	1,300,672	1,298,768	2,399,263	3,698,031
1898.....	3,149	1,277,070	1,280,219	1,350,948	3,152,457	4,503,405
1899.....	47	1,385,911	1,385,958	1,707,796	4,044,354	5,752,150
1900.....	118	1,901,521	1,901,639	1,654,610	6,262,909	7,917,519
1901.....	286	1,840,656	1,840,942	1,993,307	5,390,086	7,383,393
1902.....	*179,983	2,470,902	2,650,885	907,977	5,218,969	6,126,946
1903.....	*175,747	3,303,683	3,479,430	2,008,857	6,303,241	8,312,098
1904.....	72,529	1,550,751	1,623,280	2,228,392	6,345,126	8,573,518

\* The figures for 1902 contain 103,343 tons and for 1903 28,041 tons of anthracite coal containing under 92 per cent. of carbon, dutiable under the Act of 1897.

## VALUE OF THE PIG IRON PRODUCED IN THE UNITED STATES.

The values given in the following table are based on market quotations for calendar years except for the census year 1880.

Years.	Gross tons.	Values.	Years.	Gross tons.	Values.
1880.....	3,375,912	\$89,315,569	1893.....	7,124,502	\$84,810,426
1881.....	4,144,254	87,029,334	1894.....	6,657,388	65,007,247
1882.....	4,623,323	106,336,429	1895.....	9,446,308	105,198,550
1883.....	4,595,510	91,910,200	1896.....	8,623,127	90,250,000
1884.....	4,097,868	73,761,624	1897.....	9,652,680	95,122,299
1885.....	4,044,526	64,712,400	1898.....	11,773,934	116,557,000
1886.....	5,683,329	95,195,760	1899.....	13,620,703	245,172,654
1887.....	6,417,148	121,925,800	1900.....	13,789,242	259,944,000
1888.....	6,489,738	107,000,000	1901.....	15,878,354	242,174,000
1889.....	7,603,642	120,000,000	1902.....	17,821,307	372,775,000
1890.....	9,202,703	151,200,410	1903.....	18,009,252	344,350,000
1891.....	8,279,870	128,337,985	1904.....	16,497,033	233,025,000
1892.....	9,157,000	131,161,039	.....	.....	.....

## PRODUCTION OF PIG IRON IN THE UNITED STATES BY FUELS.

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. All the statistics have been compiled by the American Iron and Steel Association.

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

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	2384,482	11,727,712	13,789,242
1901.....	1,712,527	2383,441	13,782,386	15,878,354
1902.....	1,115,247	2390,169	16,315,891	17,821,307
1903.....	1,911,347	2505,684	15,592,221	18,009,252
1904.....	1,228,140	337,529	14,931,364	16,497,033

\* Anthracite passes charcoal. † Bituminous passes charcoal. ‡ Bituminous passes anthracite. § Includes 44,608 tons of mixed charcoal and coke pig iron in 1900, 23,294 tons in 1901, 11,665 tons in 1902, and 927 tons in 1903.

#### PRODUCTION OF PIG IRON IN THE UNITED STATES SINCE 1810.

The following table gives, in gross tons, the total production of pig iron in the United States from 1810 to 1904. All the figures given have been compiled from trustworthy sources.

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

#### PRODUCTION OF BESSEMER PIG IRON FROM 1887 TO 1904.

The production of Bessemer pig iron was not separated statistically from other pig iron until 1887. Since that year it has been as follows, in gross tons. Low-phosphorus pig iron is included in the figures given for 1901, 1902, 1903, and 1904.

Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.
1887.....	2,875,462	1893.....	3,568,598	1899.....	8,202,778
1888.....	2,637,859	1894.....	3,808,567	1900.....	7,943,452
1889.....	3,151,414	1895.....	5,623,695	1901.....	9,596,793
1890.....	4,092,343	1896.....	4,654,955	1902.....	10,393,168
1891.....	3,472,190	1897.....	5,795,584	1903.....	9,989,908
1892.....	4,444,041	1898.....	7,337,384	1904.....	9,098,659

#### PRODUCTION OF BASIC PIG IRON FROM 1896 TO 1904.

The production of basic pig iron since 1896 with mineral fuel has been as follows, in gross tons. The production of basic pig iron was first separately ascertained for 1896. Basic charcoal pig iron is not included in any of the figures given.

Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.
1896.....	336,403	1899.....	985,033	1902.....	2,038,590
1897.....	556,391	1900.....	1,072,376	1903.....	2,040,726
1898.....	785,444	1901.....	1,448,850	1904.....	2,483,104

#### PRODUCTION OF SPIEGELEISEN, FERRO-MANGANESE, AND FERRO-PHOSPHORUS FROM 1872 TO 1904.

The following table gives the production of spiegeleisen, ferro-manganese, and ferro-phosphorus since 1872. The total for 1902 includes 47 tons of ferro-phosphorus made in Alabama, and the total for 1904 includes 946 tons of ferro-phosphorus made in Tennessee. Ferro-phosphorus was not reported for other years.

Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.
1872.....	4,072	1883.....	21,941	1894.....	120,180
1873.....	3,930	1884.....	30,262	1895.....	171,724
1874.....	4,070	1885.....	30,956	1896.....	131,940
1875.....	6,993	1886.....	42,841	1897.....	173,695
1876.....	5,907	1887.....	42,498	1898.....	213,769
1877.....	7,897	1888.....	48,901	1899.....	219,768
1878.....	9,530	1889.....	76,628	1900.....	255,977
1879.....	12,438	1890.....	133,180	1901.....	291,461
1880.....	17,503	1891.....	127,766	1902.....	212,981
1881.....	18,827	1892.....	179,131	1903.....	192,661
1882.....	19,610	1893.....	81,118	1904.....	220,392

#### IMPORTS FOR CONSUMPTION OF SPIEGELEISEN, FERRO-MANGANESE, AND FERRO-SILICON FROM 1883 TO 1904.

From 1883 to 1886 inclusive the figures given are for fiscal years ending on June 30; from 1887 to 1904 they are for calendar years ending on December 31. All the articles named in the table are included in the imports of pig iron elsewhere given.

Years. Gross tons.	Spiegel- eisen and ferro.	Ferro- silicon.	Total. Gross tons.	Years. Gross tons.	Spiegel- eisen and ferro.	Ferro- silicon.	Total. Gross tons.
1883.....	67,880	.....	67,880	1894.....	9,722	228½	9,950½
1884.....	94,210	.....	94,210	1895.....	39,582	1,544	41,126
1885.....	65,406	.....	65,406	1896.....	39,311	941	40,252
1886.....	99,425	.....	99,425	1897.....	17,163	1,254	18,417
1887.....	157,279	.....	157,279	1898.....	17,203	1,038	18,241
1888.....	71,605	.....	71,605	1899.....	19,006	3,613	22,619
1889.....	99,482	.....	99,482	1900.....	22,306	2,165	24,471
1890.....	101,167	.....	101,167	1901.....	47,578	822	48,400
1891.....	41,449	.....	41,449	1902.....	113,201	15,944	129,145
1892.....	47,310	158	47,468	1903.....	163,534	14,880	178,414
1893.....	37,199	154	37,353	1904.....	26,437	3,691	30,128

## IMPORTS OF PIG IRON INTO THE UNITED STATES SINCE 1871.

The following table gives the imports of all kinds of pig iron, spiegeleisen, ferro-manganese, and ferro-silicon into the United States in the calendar years from 1871 to 1904, in gross tons.

Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.
1871.....	219,228	1883.....	322,648	1895.....	53,232
1872.....	264,256	1884.....	184,269	1896.....	56,272
1873.....	138,132	1885.....	146,740	1897.....	19,212
1874.....	54,612	1886.....	361,768	1898.....	25,152
1875.....	74,939	1887.....	467,522	1899.....	40,393
1876.....	74,171	1888.....	197,237	1900.....	52,565
1877.....	59,697	1889.....	148,759	1901.....	62,930
1878.....	66,504	1890.....	134,955	1902.....	619,354
1879.....	304,171	1891.....	67,179	1903.....	599,574
1880.....	700,864	1892.....	70,125	1904.....	79,500
1881.....	465,031	1893.....	54,394	.....	.....
1882.....	540,159	1894.....	15,582	.....	.....

## PIG IRON IN WARRANT YARDS NOT CONTROLLED BY MAKERS.

The stocks of pig iron in the yards of the American Pig Iron Storage Warrant Company which were not controlled by the manufacturers, and are not included in the second table on page 94, were as follows at the close of each year since 1889.

Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.
1889.....	36,200	1895.....	61,800	1901.....	3,000
1890.....	52,937	1896.....	136,037	1902.....	Name.
1891.....	30,900	1897.....	218,489	1903.....	7,051
1892.....	29,500	1898.....	124,100	1904.....	37,650
1893.....	45,250	1899.....	4,880	.....	.....
1894.....	63,640	1900.....	3,650	.....	.....

## WARRANT YARD STOCKS FROM 1889 TO 1905.

The American Pig Iron Storage Warrant Company commenced operations in 1889 and has since regularly reported to us the total quantity of pig iron in its yards. We give its figures below.

Years.	Months.	Gross tons.	Years.	Months.	Gross tons.
1889.....	December 31....	36,200	1897.....	December 31....	275,800
1890.....	June 30.....	63,500	1898.....	June 30.....	258,000
1890.....	December 31....	64,200	1898.....	December 31....	150,800
1891.....	June 30.....	49,800	1899.....	June 30.....	50,800
1891.....	December 31....	51,900	1899.....	December 31....	4,900
1892.....	June 30.....	72,900	1900.....	June 30.....	5,800
1892.....	December 31....	79,700	1900.....	December 31....	16,400
1893.....	June 30.....	76,200	1901.....	June 30.....	10,400
1893.....	December 31....	85,800	1901.....	December 31....	3,000
1894.....	June 30.....	101,200	1902.....	June 30.....	1,000
1894.....	December 31....	111,200	1902.....	December 31....	None.
1895.....	June 30.....	122,200	1903.....	June 30.....	None.
1895.....	December 31....	106,200	1903.....	December 31....	47,200
1896.....	June 30.....	112,000	1904.....	June 30.....	78,600
1896.....	December 31....	200,700	1904.....	December 31....	55,350
1897.....	June 30.....	221,600	1905.....	May 31.....	81,250

## UNSOLD STOCKS OF PIG IRON FROM 1874 TO 1904.

The following table gives the stocks of unsold pig iron in the hands of manufacturers or under their control in warrant yards and elsewhere at the close of each year from 1874 to 1904. Stocks in second hands in warrant yards are not included.

Years.	Production.	Unsold stocks.	Per cent. stocks.	Years.	Production.	Unsold stocks.	Per cent. stocks.
1874.....	2,401,262	710,521	29.58	1890.....	9,202,703	608,921	6.61
1875.....	2,023,733	679,382	33.57	1891.....	8,279,870	596,333	7.20
1876.....	1,868,961	613,213	32.81	1892.....	9,157,000	506,116	5.52
1877.....	2,066,594	573,528	27.75	1893.....	7,124,502	662,068	9.29
1878.....	2,301,215	513,004	22.29	1894.....	6,657,388	597,688	8.97
1879.....	2,741,853	126,495	4.61	1895.....	9,446,308	444,332	4.70
1880.....	3,835,191	407,730	10.63	1896.....	8,623,127	711,649	8.25
1881.....	4,144,254	188,300	4.54	1897.....	9,652,680	656,489	6.80
1882.....	4,623,323	383,655	8.29	1898.....	11,773,934	291,233	2.47
1883.....	4,595,510	476,607	10.37	1899.....	13,620,703	63,429	0.46
1884.....	4,097,868	529,464	12.92	1900.....	13,789,242	442,370	3.20
1885.....	4,044,526	371,886	9.19	1901.....	15,878,354	70,647	0.44
1886.....	5,683,329	225,629	3.97	1902.....	17,821,307	49,951	0.28
1887.....	6,417,148	301,913	4.70	1903.....	18,009,252	591,438	3.28
1888.....	6,489,738	300,144	4.62	1904.....	16,497,033	408,792	2.47
1889.....	7,603,642	247,679	3.25	.....	.....	.....	.....

## HALF-YEARLY PRODUCTION OF PIG IRON.

The following table gives the production of pig iron in the United States in half-yearly periods from 1883 to 1904 inclusive.

Years. Gross tons.	First half.	Second half.	Total.	Increase.	Decrease.
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	.....

## PRODUCTION, UNSOLD STOCKS, AND PRICES OF CHARCOAL PIG IRON.

The following table gives the production of charcoal pig iron from 1894 to 1904, the stocks of unsold charcoal pig iron in the hands of manufacturers at the close of each year during this period, and the average annual price at Chicago for Lake Superior charcoal pig iron. Prices are quoted from the *Iron Age*.

Years—Gross tons.	Production.	Unsold stocks.	Average prices.
1894.....	222,422	250,183	\$14.68
1895.....	225,341	135,033	13.85
1896.....	310,244	193,034	13.62
1897.....	255,211	209,795	13.00
1898.....	296,750	91,642	11.58
1899.....	284,766	11,793	19.81
1900.....	339,874	62,578	21.94
1901.....	360,147	15,950	17.50
1902.....	378,504	7,226	23.50
1903.....	504,757	120,656	22.13
1904.....	337,529	140,503	15.50

## ANNUAL CONSUMPTION OF PIG IRON SINCE 1860.

Our consumption of domestic and foreign pig iron since 1860 is approximately shown in the following table, in gross tons, the small quantity of foreign pig iron held in bonded warehouses in recent years not being considered. Except in some of the earlier years the exports of pig iron have been deducted.

Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.
1860.....	892,721	1881.....	4,982,565	1893.....	6,982,607
1870.....	1,818,462	1882.....	4,963,278	1894.....	6,694,478
1871.....	1,925,000	1883.....	4,834,740	1895.....	9,628,572
1872.....	2,810,000	1884.....	4,229,280	1896.....	8,275,774
1873.....	2,690,000	1885.....	4,348,844	1897.....	9,381,914
1874.....	2,500,000	1886.....	6,191,354	1898.....	12,005,674
1875.....	2,000,000	1887.....	6,808,386	1899.....	13,779,442
1876.....	1,900,000	1888.....	6,674,380	1900.....	13,177,409
1877.....	2,150,000	1889.....	7,755,093	1901.....	16,232,446
1878.....	2,500,000	1890.....	8,943,338	1902.....	18,436,870
1879.....	3,432,534	1891.....	8,366,728	1903.....	18,039,909
1880.....	3,988,544	1892.....	9,303,315	1904.....	16,679,555

## THE WORLD'S PRODUCTION OF COAL.

The following table, which has been taken from "Mineral Resources of the United States," gives the world's production of all kinds of coal from 1868 to 1902, together with the percentage of the United States for each year. Net tons are used.

Years.	Net tons.	Per cent. of United States.	Years.	Net tons.	Per cent. of United States.
1868.....	221,035,430	14.31	1886.....	450,848,793	25.21
1869.....	229,200,013	13.81	1887.....	481,412,743	27.13
1870.....	238,621,068	15.42	1888.....	521,225,803	28.52
1871.....	260,526,424	17.79	1889.....	531,797,039	26.55
1872.....	283,002,843	17.97	1890.....	563,693,232	27.98
1873.....	302,703,376	18.87	1891.....	587,554,583	28.68
1874.....	298,616,379	17.59	1892.....	593,497,904	30.21
1875.....	308,419,177	16.95	1893.....	582,638,296	31.29
1876.....	311,594,969	17.07	1894.....	610,487,368	27.96
1877.....	317,118,648	19.05	1895.....	644,177,076	29.97
1878.....	318,441,990	18.16	1896.....	664,001,718	28.91
1879.....	335,332,908	20.33	1897.....	697,213,515	28.71
1880.....	369,413,780	20.61	1898.....	738,129,608	29.80
1881.....	392,663,253	21.87	1899.....	801,976,021	31.63
1882.....	420,082,472	24.58	1900.....	846,041,848	31.87
1883.....	450,990,397	25.54	1901.....	870,711,044	33.68
1884.....	454,022,811	26.37	1902.....	888,644,787	33.93
1885.....	447,783,802	24.82	.....	.....	.....

## THE WORLD'S GREAT PIG IRON PRODUCERS.

The following table gives the production of pig iron from 1869 to 1904 by the three great pig iron making countries. For the United States and Great Britain tons of 2,240 pounds are used, and for Germany and Luxemburg metric tons of 2,204 pounds.

Years.	United States. Gross tons.	Great Britain. Gross tons.	Germany and Luxemburg. Metric tons.
1869.....	1,711,287	5,445,757	1,409,429
1870.....	1,665,179	5,963,515	1,391,124
1871.....	1,706,793	6,627,179	1,563,682
1872.....	2,548,713	6,741,929	1,988,395
1873.....	2,560,963	6,566,451	2,240,575
1874.....	2,401,262	5,991,408	1,906,263
1875.....	2,023,733	6,365,462	2,029,389
1876.....	1,868,961	6,555,997	1,846,345
1877.....	2,066,594	6,608,664	1,781,989
1878.....	2,301,215	6,381,051	2,147,641
1879.....	2,741,853	5,995,337	2,226,587
1880.....	3,835,191	7,749,233	2,729,038
1881.....	4,144,254	8,144,449	2,914,009
1882.....	4,623,323	8,586,680	3,380,806
1883.....	4,595,510	8,529,300	3,469,719
1884.....	4,097,868	7,811,727	3,600,612
1885.....	4,044,526	7,415,469	3,687,434
1886.....	5,683,329	7,009,754	3,528,657
1887.....	6,417,148	7,559,518	4,023,953
1888.....	6,489,738	7,998,969	4,337,121
1889.....	7,603,642	8,322,824	4,524,558
1890.....	9,202,703	7,904,214	4,658,450
1891.....	8,279,870	7,406,064	4,641,217
1892.....	9,157,000	6,709,255	4,937,461
1893.....	7,124,502	6,976,990	4,986,003
1894.....	6,657,388	7,427,342	5,380,039
1895.....	9,446,308	7,703,459	5,464,501
1896.....	8,623,127	8,659,681	6,372,575
1897.....	9,652,680	8,796,465	6,881,466
1898.....	11,773,934	8,609,719	7,312,766
1899.....	13,620,703	9,421,435	8,143,132
1900.....	13,789,242	8,959,691	8,520,541
1901.....	15,878,354	7,928,647	7,880,088
1902.....	17,821,307	8,679,535	8,529,900
1903.....	18,009,252	8,935,063	10,085,634
1904.....	16,497,033	*8,562,658	†10,103,941

\*British Iron Trade Association.

†Subject to revision.

## TOTAL PRODUCTION OF FINISHED ROLLED IRON AND STEEL.

The total production of iron and steel rolled into finished forms in the United States from 1887 to 1904 is given below.

Finished forms embrace all sizes of iron and steel rails, plate and sheet iron and steel, iron and steel plates for cut nails and cut spikes, wire rods, iron and steel structural shapes, bar, bolt, hoop, skelp, rolled axles, fish plates, and all other rolled products. Prior to 1892 structural shapes were included with bars, hoops, etc.

Years.	Iron and steel rails.	Plates and sheets, except nail plate.	Wire rods.	Structural shapes.	Nail plate. Gross tons.	Bars, hoops, and all other.	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

COMPARATIVE PRODUCTION OF ALL KINDS OF ROLLED IRON AND STEEL IN THE UNITED STATES IN 1888, 1889, AND 1890.

The following table gives the total production of all kinds of rolled steel in the United States in the years 1888, 1889, and 1890, compared with the total production of all kinds of rolled iron in the same years. Previous to 1888 statistics of production, as classified in the table, were not collected, and after 1890 rolled steel was not separated from rolled iron until 1904.\*

Articles—Gross tons.	1888.		1889.		1890.	
	Iron.	Steel.	Iron.	Steel.	Iron.	Steel.
Rails.....	12,725	1,390,975	9,159	1,513,045	13,882	1,871,425
Cut nails.....	96,879	193,012	79,378	180,031	80,631	171,197
Plates and sheets	419,029	190,798	420,708	295,788	451,466	358,515
Wire rods.....	13,010	266,759	12,911	350,940	17,677	439,422
Other rolled.....	1,611,620	422,542	1,787,116	587,852	1,954,538	664,122
Total .....	2,153,263	2,464,086	2,309,272	2,927,656	2,518,194	3,504,681

\* Statistics of rolled iron and steel for 1904 will be found on page 60.

## PRODUCTION OF ALL KINDS OF FINISHED ROLLED IRON.

Hammered and forged products are not included in the following table of the total production of finished rolled iron. Complete statistics of rolled steel were not collected until 1887.

Years—Gross tons.	Iron rails.	All other rolled iron.	Total.
1856.....	160,730	355,525	516,255
1864.....	299,436	479,427	778,863
1865.....	318,118	446,471	764,589
1866.....	384,623	531,528	916,151
1867.....	410,319	517,713	928,032
1868.....	445,972	534,185	980,157
1869.....	521,372	573,589	1,094,961
1870.....	523,214	629,465	1,152,679
1871.....	658,467	633,929	1,292,396
1872.....	808,866	841,064	1,649,930
1873.....	679,520	961,043	1,640,563
1874.....	521,848	991,202	1,513,050
1875.....	447,901	980,238	1,428,139
1876.....	417,114	930,448	1,347,562
1877.....	296,911	1,021,624	1,318,535
1878.....	288,295	1,100,612	1,388,907
1879.....	375,143	1,452,968	1,828,111
1880.....	440,859	1,641,880	2,082,739
1881.....	436,233	1,924,416	2,360,649
1882.....	203,459	2,023,176	2,226,635
1883.....	57,994	2,039,214	2,097,208
1884.....	22,821	1,724,775	1,747,596
1885.....	13,228	1,597,956	1,611,184
1886.....	21,142	2,017,806	2,038,948

## PRODUCTION OF IRON AND STEEL WIRE RODS SINCE 1888.

The following table gives the production of iron and steel wire rods from 1888 to 1904. Prior to 1888 wire rods were not separately classified in our tables. Gross tons are used.

Calendar years.	Iron rods.	Steel rods.	Total. Gross tons.	Calendar years.	Iron rods.	Steel rods.	Total. Gross tons.
1888.....	13,010	266,759	279,769	1897.....	2,019	968,717	970,736
1889.....	12,911	350,940	363,851	1898.....	2,106	1,069,577	1,071,683
1890.....	17,677	439,422	457,099	1899.....	808	1,035,590	1,036,398
1891.....	13,623	522,984	536,607	1900.....	1,929	844,362	846,291
1892.....	15,422	612,407	627,829	1901.....	475	1,365,459	1,365,934
1893.....	1,125	536,147	537,272	1902.....	206	1,574,087	1,574,293
1894.....	5,772	667,630	673,402	1903.....	30	1,503,425	1,503,455
1895.....	2,840	788,290	791,130	1904.....	1,166	1,697,862	1,699,028
1896.....	2,473	621,513	623,986	.....	.....	.....	.....

## PRODUCTION OF IRON AND STEEL STRUCTURAL SHAPES.

In the following table we give the production of structural shapes from 1892 to 1904. Prior to 1892 structural shapes were not separated from other rolled products in our statistics.

Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.
1892.....	453,957	1897.....	583,790	1902.....	1,300,326
1893.....	387,307	1898.....	702,197	1903.....	1,095,813
1894.....	360,305	1899.....	850,376	1904.....	949,146
1895.....	517,920	1900.....	815,161	.....	.....
1896.....	495,571	1901.....	1,013,150	.....	.....

## PRODUCTION OF BLACK PLATES, OR SHEETS, FOR TINNING.

The following table gives the production of black plates, or sheets, for tinning in the United States in the calendar years from 1894 to 1904. Prior to 1894 we did not separately classify the statistics of the production of black plates, or sheets, for tinning. The figures for 1899 and 1900 are in part estimated.

Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.
1894.....	52,359	1898.....	345,254	1902.....	365,743
1895.....	129,615	1899.....	375,000	1903.....	490,652
1896.....	185,387	1900.....	315,000	1904.....	472,569
1897.....	271,886	1901.....	398,026	.....	.....

## PRODUCTION OF TINPLATES AND TERNE PLATES.

In the following table we give the production of tinplates and terne plates in the United States from July 1, 1891, to December 31, 1904, the production in 1902, 1903, and 1904 being partly estimated from the best available sources of information. The production of tin dipping plants is included.

Calendar years.	Gross tons.	Calendar years.	Gross tons.
1891 (last six months)...	999	1898.....	326,915
1892.....	18,803	1899.....	360,875
1893.....	55,182	1900.....	302,665
1894.....	74,260	1901.....	399,291
1895.....	113,666	1902.....	360,000
1896.....	160,362	1903.....	480,000
1897.....	256,598	1904.....	458,000

The following table gives the production of tinplates and terne plates in the United States from July 1, 1891, to June 30, 1897, for which period the statistics were collected by Colonel Ira Ayer for the Treasury Department. On the latter date

the Department discontinued the collection of these statistics. From July 1, 1897, to December 31, 1899, and from January 1, 1901, to December 31, 1904, the combined production of tinplates and terne plates will be found below, the figures having been compiled from the most reliable sources of information. For the census year ending on May 31, 1900, the production of tinplates and terne plates is given by the Census Bureau. Statistics for the calendar year 1900 will be found on page 100.

Calendar years—Pounds.	Tinplates.	Terne Plates.	Total.
1891 (last 6 months) .....	368,400	1,868,343	2,236,743
1892.....	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 (last 6 months)..... {	.....	.....	322,205,619
1898.....	.....	.....	732,289,600
1899.....	.....	.....	808,360,000
1900 (census year ending May 31)	707,718,239	141,285,783	849,004,022
1901 (calendar year) .....	.....	.....	894,411,840
1902.....	.....	.....	806,400,000
1903.....	.....	.....	1,075,200,000
1904.....	.....	.....	1,025,920,000

#### IMPORTS OF TINPLATES FROM 1871 TO 1904.

The following table gives the imports of tinplates and terne plates, with their foreign values, from 1871 to 1904.

Years.	Gross tons.	Values.	Years.	Gross tons.	Values.
1871.....	82,969	\$9,946,373	1888.....	298,238	\$19,762,961
1872.....	85,629	13,893,450	1889.....	331,311	21,726,707
1873.....	97,177	14,240,868	1890.....	329,435	23,670,158
1874.....	79,778	13,057,658	1891.....	327,882	25,900,305
1875.....	91,054	12,098,885	1892.....	268,472	17,102,487
1876.....	89,946	9,416,816	1893.....	253,155	15,559,423
1877.....	112,479	10,679,028	1894.....	215,068	12,053,167
1878.....	107,864	9,069,967	1895.....	219,545	11,482,380
1879.....	154,250	13,227,659	1896.....	119,171	6,140,161
1880.....	158,049	16,478,110	1897.....	83,851	4,366,828
1881.....	183,005	14,886,907	1898.....	66,775	3,311,658
1882.....	213,987	17,975,161	1899.....	58,915	3,738,567
1883.....	221,233	18,156,773	1900.....	60,386	4,617,813
1884.....	216,181	16,858,650	1901.....	77,395	5,294,789
1885.....	228,596	15,991,152	1902.....	60,115	4,023,421
1886.....	257,822	17,504,976	1903.....	47,360	2,999,252
1887.....	283,836	18,699,145	1904.....	70,652	4,354,761

## PRODUCTION OF ALL KINDS OF RAILS FROM 1867 TO 1904.

The following table gives the production of all kinds of steel rails and of iron rails in the United States from 1867 to 1904.

Years. Gross tons.	Bessemer steel rails.	Open-hearth steel rails.	Total steel rails.	Iron rails.	Total iron and steel rails.
1867.....	2,277	.....	2,277	410,319	412,596
1868.....	6,451	.....	6,451	445,972	452,423
1869.....	8,616	.....	8,616	521,372	529,988
1870.....	30,357	.....	30,357	523,214	553,571
1871.....	34,152	.....	34,152	658,467	692,619
1872.....	83,991	.....	83,991	808,866	892,857
1873.....	115,192	.....	115,192	679,520	794,712
1874.....	129,414	.....	129,414	521,848	651,262
1875.....	259,699	.....	259,699	447,901	707,600
1876.....	368,269	.....	368,269	417,114	785,383
1877.....	385,865	.....	385,865	296,911	682,776
1878.....	491,427	8,390	499,817	288,295	788,112
1879.....	610,682	8,168	618,850	375,143	993,993
1880.....	852,196	12,157	864,353	440,859	1,305,212
1881.....	1,187,770	22,515	1,210,285	436,233	1,646,518
1882.....	1,284,067	20,325	1,304,392	203,459	1,507,851
1883.....	1,148,709	8,202	1,156,911	57,994	1,214,905
1884.....	996,983	2,384	999,367	22,821	1,022,188
1885.....	959,471	4,279	963,750	13,228	976,978
1886.....	1,574,703	4,692	1,579,395	21,142	1,600,537
1887.....	2,101,904	17,145	2,119,049	20,591	2,139,640
1888.....	1,386,277	4,698	1,390,975	12,725	1,403,700
1889.....	1,510,057	2,988	1,513,045	9,159	1,522,204
1890.....	1,867,837	3,588	1,871,425	13,882	1,885,307
1891.....	1,293,053	5,883	1,298,936	8,240	1,307,176
1892.....	1,537,588	3,819	1,541,407	10,437	1,551,844
1893.....	1,129,400	968	1,130,368	6,090	1,136,458
1894.....	1,016,013	1,085	1,017,098	4,674	1,021,772
1895.....	1,299,628	697	1,300,325	5,810	1,306,135
1896.....	1,116,958	705	1,117,663	4,347	1,122,010
1897.....	1,644,520	500	1,645,020	2,872	1,647,892
1898.....	1,976,702	1,220	1,977,922	3,319	1,981,241
1899.....	2,270,585	523	2,271,108	1,592	2,272,700
1900.....	2,383,654	1,333	2,384,987	695	2,385,682
1901.....	2,870,816	2,093	2,872,909	1,730	2,874,639
1902.....	2,935,392	6,029	2,941,421	6,512	2,947,933
1903.....	2,946,756	45,054	2,991,810	667	2,992,477
1904.....	2,137,957	145,883	2,283,840	871	2,284,711

PRODUCTION OF BESSEMER STEEL RAILS IN THE UNITED STATES,  
BY STATES, FROM 1874 TO 1904.

The manufacture of Bessemer steel rails in the United States as a commercial product dates from 1867, although they had previously been made experimentally in 1865. The first Bes-

semer steel rails ever made in this country were rolled at the Chicago Rolling Mill, Chicago, Illinois, on May 24, 1865, from ingots made at the experimental steel works at Wyandotte, Michigan. Several of these rails were laid in the track of one of the railroads running out of Chicago and were still in use in 1875. The following table gives the production of Bessemer steel rails by States from 1874 to 1904, in gross tons.

Years—Gross tons.	Pennsylvania.	Illinois.	Other States.	Total.
1874.....	59,734	43,107	26,573	129,414
1875.....	100,753	99,276	59,670	259,699
1876.....	181,920	119,387	66,962	368,269
1877.....	223,688	79,928	82,249	385,865
1878.....	275,083	128,380	87,964	491,427
1879.....	328,738	176,680	105,264	610,682
1880.....	442,604	229,984	179,608	852,196
1881.....	614,532	309,172	264,066	1,187,770
1882.....	678,146	300,109	305,812	1,284,067
1883.....	731,736	206,567	210,406	1,148,709
1884.....	681,449	259,094	56,440	996,983
1885.....	657,609	275,216	26,646	959,471
1886.....	992,117	384,799	197,787	1,574,703
1887.....	1,140,040	650,470	311,394	2,101,904
1888.....	830,482	436,285	119,510	1,386,277
1889.....	1,019,062	466,120	24,875	1,510,057
1890.....	1,312,937	524,587	30,313	1,867,837
1891.....	901,159	364,725	27,169	1,293,053
1892.....	961,987	450,553	125,048	1,537,588
1893.....	728,231	233,697	167,472	1,129,400
1894.....	714,935	226,306	74,772	1,016,013
1895.....	864,499	327,618	107,511	1,299,628
1896.....	674,096	311,347	131,515	1,116,958
1897.....	1,027,996	436,620	179,904	1,644,520
1898.....	1,053,326	549,234	374,142	1,976,702
1899.....	1,224,807	588,533	457,245	2,270,585
1900.....	1,195,255	605,060	583,339	2,383,654
1901.....	1,406,008	703,900	760,908	2,870,816
1902.....	1,148,425	736,390	1,050,577	2,935,392
1903.....	1,186,284	648,941	1,111,531	2,946,756
1904.....	801,657	508,247	828,053	2,137,957

PRODUCTION AND CONSUMPTION OF ALL KINDS OF RAILS IN  
THE UNITED STATES FROM 1867 TO 1904.

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 from 1867 to 1904, no allowance being made for

the small quantity of rails exported prior to 1871. Including that year all exports have since been deducted. Prior to 1871 the quantity of rails annually exported is not available.

Years. Gross tons.	Production—Gross tons.			Add imports.	Deduct exports.	Approximate consumption.
	Iron.	Steel.	Total.			
1867.....	410,319	2,277	412,596	145,580	.....	558,176
1868.....	445,972	6,451	452,423	223,287	.....	675,710
1869.....	521,372	8,616	529,988	279,609	.....	809,597
1870.....	523,214	30,357	553,571	356,387	.....	909,958
1871.....	658,467	34,152	692,619	505,537	297	1,197,859
1872.....	808,866	83,991	892,857	473,973	1,082	1,365,748
1873.....	679,520	115,192	794,712	231,046	335	1,025,423
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

PRODUCTION, PRICES, AND CONSUMPTION OF BESSEMER STEEL  
RAILS IN THE UNITED STATES.

The following table gives the annual production, in gross tons, of Bessemer steel rails in the United States from 1867 to 1904;

also the annual imports of steel rails from 1872 to 1904; also the annual exports of steel rails from 1878 to 1904; also the approximate consumption of steel rails from 1872 to 1904. The table also gives the average price, in currency, of Bessemer steel rails in the United States from 1867 to 1904; also the average price of Bessemer steel rails at British ports from 1868 to 1904.

Calendar years.	Production of Bessemer steel rails. Gross tons.	Imports of steel rails. Gross tons.	Exports of steel rails. Gross tons.	Probable consumption of steel rails. Gross tons.	Average price of American steel rails.	Average price of gold in currency.	Average price of British steel rails.
1867.....	2,277	.....	.....	.....	\$166.00	\$138	.....
1868.....	6,451	.....	.....	.....	158.46	140	\$61.32
1869.....	8,616	.....	.....	.....	132.19	136	54.99
1870.....	30,357	.....	.....	.....	106.79	115	50.37
1871.....	34,152	.....	.....	.....	102.52	112	54.99
1872.....	83,991	133,737	.....	217, 728	111.94	112	67.64
1873.....	115,192	142,474	.....	257,666	120.58	113	80.05
1874.....	129,414	89,746	.....	219,160	94.28	112	68.75
1875.....	259,699	16,316	.....	276,015	68.75	114	44.28
1876.....	368,269	.....	.....	368,269	59.25	110	32.12
1877.....	385,865	31	.....	385,896	45.58	105	29.20
1878.....	491,427	9	222	491,214	42.21	102	25.55
1879.....	610,682	22,372	1,231	631,823	48.21	100	26.88
1880.....	852,196	141,277	60	993,413	67.52	100	34.42
1881.....	1,187,770	222,596	78	1,410,288	61.08	100	30.41
1882.....	1,284,067	162,621	971	1,445,717	48.50	100	26.27
1883.....	1,148,709	34,125	1,791	1,181,043	37.75	100	22.72
1884.....	996,983	2,745	4,914	994,814	30.75	100	23.19
1885.....	959,471	2,138	7,484	954,125	28.52	100	23.11
1886.....	1,574,703	41,581	2,117	1,614,167	34.52	100	18.70
1887.....	2,101,904	137,588	523	2,238,969	37.08	100	19.70
1888.....	1,386,277	63,708	6,900	1,443,085	29.83	100	19.15
1889.....	1,510,057	8,624	8,243	1,510,438	29.25	100	24.57
1890.....	1,867,837	1,318	16,844	1,852,311	31.78	100	26.37
1891.....	1,293,053	152	11,079	1,282,126	29.92	100	21.34
1892.....	1,537,588	1,088	7,496	1,531,180	30.00	100	20.03
1893.....	1,129,400	1,130	19,712	1,110,818	28.12	100	18.85
1894.....	1,016,013	717	12,229	1,004,501	24.00	100	18.74
1895.....	1,299,628	1,437	8,807	1,292,258	24.33	100	21.89
1896.....	1,116,958	2,265	72,503	1,046,720	28.00	100	21.69
1897.....	1,644,520	3,076	142,808	1,504,788	18.75	100	23.35
1898.....	1,976,702	2,537	293,592	1,685,647	17.62	100	23.49
1899.....	2,270,585	1,657	271,272	2,000,970	28.12	100	26.80
1900.....	2,383,654	1,503	356,245	2,028,912	32.29	100	36.01
1901.....	2,870,816	1,571	318,055	2,554,332	27.33	100	29.45
1902.....	2,935,392	61,660	67,455	2,929,597	28.00	100	27.37
1903.....	2,946,756	96,039	30,656	3,012,139	28.00	100	27.97
1904.....	2,137,957	38,772	414,845	1,761,884	28.00	100	22.48

From 1872 to 1887 the figures given in the table cover our general imports of rails, but from 1888 to 1904 they cover imports for consumption only. Iron rails are not included.

The duty imposed by the United States Government on steel rails was 45 per cent. ad valorem from 1867 to January 1, 1871; \$28 per ton from January 1, 1871, to August 1, 1872; \$25.20 per ton from August 1, 1872, to March 3, 1875; \$28 per ton from March 3, 1875, to July 1, 1883; \$17 per ton from July 1, 1883, to October 6, 1890; \$13.44 per ton from October 6, 1890, to August 28, 1894; and \$7.84 per ton since August 28, 1894.

#### PRODUCTION OF IRON RAILS IN THE UNITED STATES.

The production of iron rails since 1849 has been as follows, in gross tons. The maximum production was reached in 1872.

Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.
1849.....	21,712	1863.....	246,221	1877.....	296,911	1891.....	8,240
1850.....	39,360	1864.....	299,436	1878.....	288,295	1892.....	10,437
1851.....	45,181	1865.....	318,118	1879.....	375,143	1893.....	6,090
1852.....	55,784	1866.....	384,623	1880.....	440,859	1894.....	4,674
1853.....	78,450	1867.....	410,319	1881.....	436,233	1895.....	5,810
1854.....	96,443	1868.....	445,972	1882.....	203,459	1896.....	4,347
1855.....	123,816	1869.....	521,372	1883.....	57,994	1897.....	2,872
1856.....	160,730	1870.....	523,214	1884.....	22,821	1898.....	3,319
1857.....	144,570	1871.....	658,467	1885.....	13,228	1899.....	1,592
1858.....	146,171	1872.....	808,866	1886.....	21,142	1900.....	695
1859.....	174,513	1873.....	679,520	1887.....	20,591	1901.....	1,730
1860.....	183,070	1874.....	521,848	1888.....	12,725	1902.....	6,512
1861.....	169,480	1875.....	447,901	1889.....	9,159	1903.....	667
1862.....	190,993	1876.....	417,114	1890.....	13,882	1904.....	871

#### PRODUCTION OF STREET RAILS FROM 1874 TO 1899.

Included in the rail statistics given in other tables on preceding pages is the production of street and electric rails, which could not be separated from other rails since 1899.

Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.
1874.....	6,017	1883.....	17,357	1892.....	111,580
1875.....	14,589	1884.....	27,997	1893.....	133,423
1876.....	11,684	1885.....	32,134	1894.....	157,457
1877.....	6,263	1886.....	42,865	1895.....	163,109
1878.....	8,240	1887.....	51,216	1896.....	145,210
1879.....	7,720	1888.....	44,951	1897.....	122,244
1880.....	15,084	1889.....	70,120	1898.....	143,815
1881.....	19,245	1890.....	98,529	1899.....	154,246
1882.....	19,898	1891.....	81,302	.....	.....

PRODUCTION OF ALL KINDS OF STEEL INGOTS AND CASTINGS  
FROM 1867 TO 1904.

The following table gives the production of all kinds of steel ingots and castings in the United States from 1867 to 1904.

Years—Gross tons.	Bessemer ingots and castings.	Open- hearth ingots and castings.	Crucible ingots and castings.	Miscel- laneous steel products.	Total production of steel.
1867 .....	2,679	.....	16,964		19,643
1868 .....	7,589	.....	19,197		26,786
1869 .....	10,714	893	19,643		31,250
1870 .....	37,500	1,339	29,911		68,750
1871 .....	40,179	1,785	31,250		73,214
1872 .....	107,239	2,679	26,125	6,911	142,954
1873 .....	152,368	3,125	31,059	12,244	198,796
1874 .....	171,369	6,250	32,436	5,672	215,727
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

The production of steel in the United States in the census year 1810 is returned at 917 gross tons. We have no further steel statistics until the census year 1860, when 11,838 gross tons are

reported to have been made. No additional steel statistics are of record until 1863, when the total production is estimated to have fallen to 8,075 tons. In 1864 the production is estimated to have been 9,258 tons; in 1865, 13,627 tons; and in 1866, 16,940 tons.

PRODUCTION OF BASIC AND ACID OPEN-HEARTH STEEL IN THE UNITED STATES AND GREAT BRITAIN.

The following table gives separately the production of basic and acid open-hearth steel ingots and castings in the United States from 1896 to 1904 as compared with the production of basic and acid open-hearth steel ingots only in Great Britain during the same period, the production of open-hearth steel castings in Great Britain not being statistically ascertained.

Years.	Basic ingots and castings.		Acid ingots and castings.		Total—Gross tons.	
	United States.	Great Britain.	United States.	Great Britain.	United States.	Great Britain.
1896...	776,256	172,287	522,444	2,145,268	1,298,700	2,317,555
1897...	1,056,043	208,088	552,628	2,393,718	1,608,671	2,601,806
1898...	1,569,412	216,088	660,880	2,590,512	2,230,292	2,806,600
1899...	2,080,426	294,688	866,890	2,735,563	2,947,316	3,030,251
1900...	2,545,091	293,484	853,044	2,862,566	3,398,135	3,156,050
1901...	3,618,993	351,177	1,037,316	2,939,614	4,656,309	3,290,791
1902...	4,496,533	406,780	1,191,196	2,676,508	5,687,729	3,083,288
1903...	4,734,913	510,809	1,094,998	2,613,274	5,829,911	3,124,083
1904...	5,106,367	662,064	801,799	2,583,282	5,908,166	3,245,346

PRODUCTION OF CRUCIBLE STEEL INGOTS AND CASTINGS BY STATES FROM 1875 TO 1904.

Years. Gross tons.	Pennsyl- vania.	Other States.	Total.	Years. Gross tons.	Pennsyl- vania.	Other States.	Total.
1875.....	23,764	11,416	35,180	1890.....	54,009	17,166	71,175
1876.....	25,194	9,969	35,163	1891.....	53,716	18,870	72,586
1877.....	24,985	11,113	36,098	1892.....	64,834	19,875	84,709
1878.....	27,308	11,001	38,309	1893.....	51,704	11,909	63,613
1879.....	38,941	11,755	50,696	1894.....	39,257	12,445	51,702
1880.....	50,961	13,703	64,664	1895.....	49,889	17,777	67,666
1881.....	59,188	20,957	80,145	1896.....	43,107	17,582	60,689
1882.....	58,160	17,813	75,973	1897.....	51,521	18,438	69,959
1883.....	56,863	14,972	71,835	1898.....	69,244	20,503	89,747
1884.....	37,764	15,506	53,270	1899.....	75,528	25,685	101,213
1885.....	40,883	16,716	57,599	1900.....	67,422	33,140	100,562
1886.....	55,172	16,801	71,973	1901.....	74,204	24,309	98,513
1887.....	58,719	16,656	75,375	1902.....	85,483	27,289	112,772
1888.....	52,960	17,319	70,279	1903.....	75,437	26,997	102,434
1889.....	56,592	19,273	75,865	1904.....	60,815	22,576	83,391

PRODUCTION OF BESSEMER STEEL INGOTS AND CASTINGS BY  
STATES FROM 1875 TO 1904.

The following table gives the production of Bessemer steel ingots and castings by States from 1875 to 1904, in gross tons.

Years— Gross tons.	Pennsyl- vania.	Illinois.	Ohio.	Other States.	Total tons.
1875.....	132,477	121,746	37,609	43,451	335,283
1876.....	230,761	153,538	44,355	40,985	469,639
1877.....	293,392	99,374	45,470	62,288	500,524
1878.....	380,787	160,268	57,970	54,748	653,773
1879.....	459,076	224,089	79,563	66,711	829,439
1880.....	574,905	271,977	99,799	127,581	1,074,262
1881.....	754,019	335,503	105,363	179,362	1,374,247
1882.....	833,599	354,854	98,214	228,020	1,514,687
1883.....	932,496	244,040	108,929	191,880	1,477,345
1884.....	920,968	302,739	72,721	79,103	1,375,531
1885.....	990,213	327,374	101,545	100,298	1,519,430
1886.....	1,346,051	478,216	199,435	245,488	2,269,190
1887.....	1,564,683	765,637	232,532	373,181	2,936,033
1888.....	1,421,990	554,336	258,560	276,275	2,511,161
1889.....	1,762,094	660,715	295,802	211,593	2,930,204
1890.....	2,253,057	757,814	361,933	316,067	3,688,871
1891.....	2,048,330	605,921	333,666	259,500	3,247,417
1892.....	2,397,984	879,952	409,855	480,644	4,168,435
1893.....	2,126,220	314,829	348,141	426,496	3,215,686
1894.....	2,334,548	581,540	363,974	291,251	3,571,313
1895.....	2,978,924	866,531	719,954	343,719	4,909,128
1896.....	2,292,814	780,105	568,535	278,452	3,919,906
1897.....	3,060,049	943,774	1,041,541	429,951	5,475,315
1898.....	3,402,254	1,105,040	1,489,115	612,608	6,609,017
1899.....	3,968,779	1,211,246	1,679,237	727,092	7,586,354
1900.....	3,488,731	1,115,571	1,388,124	692,344	6,684,770
1901.....	4,293,439	1,324,217	2,154,846	940,800	8,713,302
1902.....	4,209,326	1,443,614	2,528,802	956,621	9,138,363
1903.....	3,909,436	1,366,569	2,330,134	986,690	8,592,829
1904.....	3,464,650	1,257,190	2,050,115	1,087,185	7,859,140

COMPARATIVE PRODUCTION OF ALL KINDS OF STEEL IN THE  
UNITED STATES AND GREAT BRITAIN.

The following table gives in gross tons the production of all kinds of crude steel in the United States from 1867 to 1904 and in Great Britain from 1873 to 1904. In 1886 and 1887 the total production of steel in the United States for the first time exceeded that of Great Britain, but in 1888 and 1889 the United States fell to the second place. In 1890 it again took the first place, which it has ever since retained, now making annually more than two-fifths of the world's total production of steel.

Years. Gross tons.	United States.	Great Britain.	Years. Gross tons.	United States.	Great Britain.
1867.....	19,643	.....	1886.....	2,562,503	2,344,670
1868.....	26,786	.....	1887.....	3,339,071	3,150,507
1869.....	31,250	.....	1888.....	2,899,440	3,405,536
1870.....	68,750	.....	1889.....	3,385,732	3,669,960
1871.....	73,214	.....	1890.....	4,277,071	3,679,043
1872.....	142,954	.....	1891.....	3,904,240	3,256,543
1873.....	198,796	653,500	1892.....	4,927,581	3,019,640
1874.....	215,727	710,500	1893.....	4,019,995	3,049,763
1875.....	389,799	788,000	1894.....	4,412,032	3,210,702
1876.....	533,191	908,000	1895.....	6,114,834	3,389,962
1877.....	569,618	967,000	1896.....	5,281,689	4,233,397
1878.....	731,977	1,063,027	1897.....	7,156,957	4,585,961
1879.....	935,273	1,089,511	1898.....	8,932,857	4,665,986
1880.....	1,247,335	1,375,382	1899.....	10,639,857	4,955,325
1881.....	1,588,314	1,859,719	1900.....	10,188,329	5,001,054
1882.....	1,736,692	2,189,649	1901.....	13,473,595	4,997,044
1883.....	1,673,535	2,088,880	1902.....	14,947,250	5,009,067
1884.....	1,550,879	1,854,926	1903.....	14,534,978	5,134,101
1885.....	1,711,920	1,968,045	1904.....	13,859,887	5,126,879

COMPARATIVE PRODUCTION OF OPEN-HEARTH STEEL INGOTS IN  
THE UNITED STATES AND GREAT BRITAIN.

The following table gives the production of open-hearth steel in the United States and Great Britain. Direct castings are included for the United States but not for Great Britain.

Years. Gross tons.	United States. Ingots.	Great Britain. Ingots.	Years. Gross tons.	United States. Ingots.	Great Britain. Ingots.
1869.....	893	.....	1887.....	322,069	981,104
1870.....	1,339	.....	1888.....	314,318	1,292,742
1871.....	1,785	.....	1889.....	374,543	1,429,169
1872.....	2,679	.....	1890.....	513,232	1,564,200
1873.....	3,125	77,500	1891.....	579,753	1,514,538
1874.....	6,250	90,500	1892.....	669,889	1,418,830
1875.....	8,080	88,000	1893.....	737,890	1,456,309
1876.....	19,187	128,000	1894.....	784,936	1,575,318
1877.....	22,349	137,000	1895.....	1,137,182	1,754,737
1878.....	32,255	175,500	1896.....	1,298,700	2,317,555
1879.....	50,259	175,000	1897.....	1,608,671	2,601,806
1880.....	100,851	251,000	1898.....	2,230,292	2,806,600
1881.....	131,202	338,000	1899.....	2,947,316	3,030,251
1882.....	143,341	436,000	1900.....	3,398,135	3,156,050
1883.....	119,356	455,500	1901.....	4,656,309	3,290,791
1884.....	117,515	475,250	1902.....	5,687,729	3,083,288
1885.....	133,376	583,918	1903.....	5,829,911	3,124,083
1886.....	218,973	694,150	1904.....	5,908,166	3,245,346

**PRODUCTION OF OPEN-HEARTH STEEL INGOTS AND CASTINGS  
BY STATES FROM 1875 TO 1904.**

The following table gives the production of open-hearth steel ingots and castings by States from 1875 to 1904, in gross tons.

Years—Gross tons.	Eastern States.	Pennsylvania.	West and South.	Total.
1875.....	2,687	3,786	1,607	8,080
1876.....	5,433	6,738	7,016	19,187
1877.....	5,939	6,938	9,472	22,349
1878.....	7,346	10,921	13,988	32,255
1879.....	13,089	17,478	19,692	50,259
1880.....	20,797	42,860	37,194	100,851
1881.....	26,429	56,574	48,199	131,202
1882.....	27,622	60,555	55,164	143,341
1883.....	18,664	61,904	38,788	119,356
1884.....	14,911	72,769	29,835	117,515
1885.....	16,306	84,731	32,339	133,376
1886.....	20,877	153,700	44,396	218,973
1887.....	16,466	241,706	63,897	322,069
1888.....	12,212	255,123	46,983	314,318
1889.....	17,337	312,225	44,981	374,543
1890.....	27,635	417,512	68,085	513,232
1891.....	32,815	472,607	74,331	579,753
1892.....	38,131	551,010	80,748	669,889
1893.....	42,350	616,516	79,024	737,890
1894.....	47,567	659,969	77,400	784,936
1895.....	68,936	904,352	163,894	1,137,182
1896.....	80,175	1,009,608	208,917	1,298,700
1897.....	90,923	1,271,751	245,997	1,608,671
1898.....	95,338	1,817,521	317,433	2,230,292
1899.....	118,585	2,393,811	434,920	2,947,316
1900.....	150,863	2,699,502	547,770	3,398,135
1901.....	317,845	3,594,763	743,701	4,656,309
1902.....	342,769	4,375,364	969,596	5,687,729
1903.....	294,478	4,442,730	1,092,703	5,829,911
1904.....	361,887	4,306,498	1,239,781	5,908,166

**EXPORTS OF IRON AND STEEL FROM THE UNITED STATES.**

The following table gives the weight of leading articles of iron and steel annually exported from the United States since 1884.

Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.
1884.....	17,048	1891.....	46,030	1898.....	881,222
1885.....	22,408	1892.....	47,834	1899.....	942,689
1886.....	22,343	1893.....	73,216	1900.....	1,154,284
1887.....	19,151	1894.....	82,234	1901.....	700,857
1888.....	36,800	1895.....	89,389	1902.....	372,399
1889.....	38,877	1896.....	203,347	1903.....	326,590
1890.....	52,478	1897.....	616,605	1904.....	1,167,674

**COMPARATIVE PRODUCTION OF BESSEMER STEEL INGOTS AND  
RAILS IN THE UNITED STATES AND GREAT BRITAIN.**

The production of Bessemer steel ingots and Bessemer steel rails in the United States and Great Britain has been as follows. Since 1884 the United States has yearly made more Bessemer steel than Great Britain. In 1879 we made more Bessemer steel rails than Great Britain, and we have since kept in the lead.

Years.	United States—Gross tons.		Great Britain—Gross tons.	
	* Ingots.	Rails.	* Ingots.	Rails.
1867 .....	2,679	2,277	.....	.....
1868 .....	7,589	6,451	110,000	.....
1869 .....	10,714	8,616	160,000	.....
1870 .....	37,500	30,357	215,000	.....
1871 .....	40,179	34,152	329,000	.....
1872 .....	107,239	83,991	410,000	.....
1873 .....	152,368	115,192	496,000	.....
1874 .....	171,369	129,414	540,000	.....
1875 .....	335,283	259,699	620,000	.....
1876 .....	469,639	368,269	700,000	400,000
1877 .....	500,524	385,865	750,000	508,400
1878 .....	653,773	491,427	807,527	622,390
1879 .....	829,439	610,682	834,511	520,231
1880 .....	1,074,262	852,196	1,044,382	732,910
1881 .....	1,374,247	1,187,770	1,441,719	1,023,740
1882 .....	1,514,687	1,284,067	1,673,649	1,235,785
1883 .....	1,477,345	1,148,709	1,553,380	1,097,174
1884 .....	1,375,531	996,983	1,299,676	784,968
1885 .....	1,519,430	959,471	1,304,127	706,583
1886 .....	2,269,190	1,574,703	1,570,520	730,343
1887 .....	2,936,033	2,101,904	2,089,403	1,021,847
1888 .....	2,511,161	1,386,277	2,032,794	979,083
1889 .....	2,930,204	1,510,057	2,140,791	943,048
1890 .....	3,688,871	1,867,837	2,014,843	1,019,606
1891 .....	3,247,417	1,293,053	1,642,005	662,676
1892 .....	4,168,435	1,537,588	1,500,810	535,836
1893 .....	3,215,686	1,129,400	1,493,454	579,386
1894 .....	3,571,313	1,016,013	1,535,384	598,530
1895 .....	4,909,128	1,299,628	1,535,225	604,338
1896 .....	3,919,906	1,116,958	1,815,842	817,476
1897 .....	5,475,315	1,644,520	1,884,155	921,131
1898 .....	6,609,017	1,976,702	1,759,386	751,591
1899 .....	7,586,354	2,270,585	1,825,074	838,148
1900 .....	6,684,770	2,383,654	1,745,004	759,844
1901 .....	8,713,302	2,870,816	1,606,253	732,260
1902 .....	9,138,363	2,935,392	1,825,779	903,216
1903 .....	8,592,829	2,946,756	1,910,018	1,061,441
1904 .....	7,859,140	2,137,957	1,781,533	916,374

\* Includes direct castings for the United States but not for Great Britain.

## PRODUCTION OF CUT NAILS IN THE UNITED STATES.

The production of iron and steel cut nails and cut spikes in the United States, not including wire nails, which are given in another table, was as follows from 1856 to 1904, in kegs of 100 pounds.

Years.	Kegs.	Years.	Kegs.	Years.	Kegs.
1856.....	1,824,749	1883.....	7,762,737	1895.....	2,129,894
1872.....	4,065,322	1884.....	7,581,379	1896.....	1,615,870
1873.....	4,024,704	1885.....	6,696,815	1897.....	2,106,799
1874.....	4,912,180	1886.....	8,160,973	1898.....	1,572,221
1875.....	4,726,881	1887.....	6,908,870	1899.....	1,904,340
1876.....	4,157,814	1888.....	6,493,591	1900.....	1,573,494
1877.....	4,828,918	1889.....	5,810,758	1901.....	1,542,240
1878.....	4,396,130	1890.....	5,640,946	1902.....	1,633,762
1879.....	5,011,021	1891.....	5,002,176	1903.....	1,435,893
1880.....	5,370,512	1892.....	4,507,819	1904.....	1,283,362
1881.....	5,794,206	1893.....	3,048,933	.....	.....
1882.....	6,147,097	1894.....	2,425,060	.....	.....

## PRODUCTION OF CUT NAILS BY STATES.

The production by States, in kegs of 100 pounds, of iron and steel cut nails and cut spikes from 1886 to 1904 was as follows.

Years. Kegs.	Massa- chusetts and N. Jersey.	Pennsyl- vania.	West Virginia and Indiana.	Ohio.	Illinois, Md., Va., and Ky.	Other States.	Total. Kegs.
1886.....	861,917	2,569,237	1,239,592	1,703,790	970,607	815,830	8,160,973
1887.....	613,570	2,238,165	1,226,365	1,672,128	685,311	473,331	6,908,870
1888.....	555,892	2,072,969	1,320,548	1,522,951	694,519	326,712	6,493,591
1889.....	491,970	1,834,899	1,118,546	1,546,928	564,436	253,979	5,810,758
1890.....	451,940	1,825,824	1,187,658	1,418,621	528,020	228,883	5,640,946
1891.....	353,292	1,470,613	1,152,093	1,408,449	453,729	164,000	5,002,176
1892.....	297,888	1,521,332	799,972	1,261,813	471,814	155,000	4,507,819
1893.....	337,039	1,113,168	508,507	768,031	305,188	17,000	3,048,933
1894.....	166,350	1,061,931	398,822	490,461	307,496	.....	2,425,060
1895.....	161,888	938,865	347,022	347,162	327,957	7,000	2,129,894
1896.....	137,005	646,011	286,210	264,272	258,372	24,000	1,615,870
1897.....	142,021	1,057,964	290,203	411,396	198,465	6,750	2,106,799
1898.....	127,706	768,171	184,942	392,003	87,399	12,000	1,572,221
1899.....	149,700	920,133	178,006	386,215	255,286	15,000	1,904,340
1900.....	155,968	777,611	168,469	261,216	193,230	17,000	1,573,494
1901.....	179,474	833,469	150,222	123,788	240,657	14,630	1,542,240
1902.....	167,963	752,729	271,362	99,938	304,990	36,780	1,633,762
1903.....	143,898	725,000	274,808	59,240	223,447	9,500	1,435,893
1904.....	128,943	698,326	245,997	54,038	148,058	8,000	1,283,362

The decline of the cut nail industry in the last nineteen years is accounted for entirely by the growth of the wire nail industry.

## PRODUCTION OF WIRE NAILS IN THE UNITED STATES.

The estimated production of iron and steel wire nails in the United States in 1886 was 600,000 kegs of 100 pounds, in 1887 1,250,000 kegs, and in 1888 1,500,000 kegs. The production by States since 1889 has been ascertained by the American Iron and Steel Association as follows.

Years—Kegs.	New England.	N. Y., N. J., Pa., and Ohio.	Indiana and Illinois.	Other States.	Total. Kegs.
1889.....	110,000	1,930,000	46,000	349,000	2,435,000
1890.....	167,135	2,345,419	47,507	575,850	3,135,911
1891.....	193,668	3,247,807	381,950	290,960	4,114,385
1892.....	107,477	3,568,896	796,406	246,745	4,719,524
1893.....	129,108	3,881,585	802,106	283,146	5,095,945
1894.....	121,283	4,304,525	950,507	305,486	5,681,801
1895.....	168,365	3,809,298	1,479,465	384,275	5,841,403
1896.....	189,981	2,689,581	1,391,910	448,388	4,719,860
1897.....	160,662	5,953,282	2,650,953	232,348	8,997,245
1898.....	126,253	5,229,736	1,846,607	215,879	7,418,475
1899.....	176,877	5,076,512	2,184,662	180,079	7,618,130
1900.....	212,584	4,386,228	2,195,672	439,495	7,233,979
1901.....	71,553	6,355,967	2,716,748	659,554	9,803,822
1902.....	309,651	7,202,814	2,902,006	567,775	10,982,246
1903.....	230,264	6,497,788	2,367,820	535,789	9,631,661
1904.....	247,157	7,616,745	3,033,756	1,029,003	11,926,661

## IRON AND STEEL VESSELS BUILT IN THE UNITED STATES.

The following table gives the number and gross tonnage of all iron and steel vessels built in the United States in the fiscal years from 1868 to 1904, except those built for the Navy. Nearly all were steam vessels. The vessels built for the "New Navy" in the last twenty years have added greatly to the total tonnage.

Fiscal years.	No.	Tons.	Fiscal years.	No.	Tons.	Fiscal years.	No.	Tons.
1868.....	...	2,801	1881.....	42	28,392	1894.....	39	51,470
1869.....	...	4,584	1882.....	43	40,097	1895.....	43	48,594
1870.....	...	8,281	1883.....	35	39,646	1896.....	60	113,220
1871.....	...	15,479	1884.....	34	35,631	1897.....	68	124,394
1872.....	20	12,766	1885.....	48	44,028	1898.....	63	62,266
1873.....	26	26,548	1886.....	26	14,908	1899.....	91	131,379
1874.....	23	33,097	1887.....	29	34,354	1900.....	90	196,851
1875.....	20	21,632	1888.....	43	36,719	1901.....	119	262,699
1876.....	25	21,346	1889.....	48	53,513	1902.....	107	280,362
1877.....	7	5,927	1890.....	63	80,378	1903.....	108	258,219
1878.....	32	26,960	1891.....	76	105,618	1904.....	98	241,080
1879.....	24	22,008	1892.....	55	51,374	.....	.....	.....
1880.....	31	25,582	1893.....	65	94,532	.....	.....	.....

## PRODUCTION OF CUT AND WIRE NAILS FOR 19 YEARS.

In the following table we give the production in kegs of 100 pounds of standard sizes of cut nails and spikes cut from plates from 1886, the year of maximum production, to 1904; also the production of all sizes of wire nails for the same period. Prior to 1889 statistics of the production of wire nails were not collected by the American Iron and Steel Association. For the three preceding years the statistics given are careful estimates.

Years.	Kegs of 100 pounds.			Years.	Kegs of 100 pounds.		
	Cut nails.	Wire nails.	Total.		Cut nails.	Wire nails.	Total.
1886...	8,160,973	600,000	8,760,973	1896..	1,615,870	4,719,860	6,335,730
1887...	6,908,870	1,250,000	8,158,870	1897..	2,106,799	8,997,245	11,104,044
1888...	6,493,591	1,500,000	7,993,591	1898..	1,572,221	7,418,475	8,990,696
1889...	5,810,758	2,435,000	8,245,758	1899..	1,904,340	7,618,130	9,522,470
1890...	5,640,946	3,135,911	8,776,857	1900..	1,573,494	7,233,979	8,807,473
1891...	5,002,176	4,114,385	9,116,561	1901..	1,542,240	9,803,822	11,346,062
1892...	4,507,819	4,719,524	9,227,343	1902..	1,633,762	10,982,246	12,616,008
1893...	3,048,933	5,095,945	8,144,878	1903..	1,435,893	9,631,661	11,067,554
1894...	2,425,060	5,681,801	8,106,861	1904..	1,283,362	11,926,661	13,210,023
1895...	2,129,894	5,841,403	7,971,297	.....	.....	.....	.....

## IMPORTS OF IRON AND STEEL INTO THE UNITED STATES.

In the following table the total quantities of imported pig, bar, band, plate, and sheet iron, rails, old iron, and tinplates are given for every year mentioned, and for 1884 and succeeding years the weight of other iron and steel which was not ascertained for preceding years is added. In none of the years is the weight of machinery, hardware, cutlery, fire-arms, and similar manufactured products included. It is not possible to obtain the weight of these products. The years mentioned are calendar years.

Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.
1871.....	1,141,933	1883.....	694,330	1895.....	378,208
1872.....	1,183,066	1884.....	654,696	1896.....	265,500
1873.....	640,858	1885.....	578,478	1897.....	157,834
1874.....	301,647	1886.....	1,098,565	1898.....	144,385
1875.....	239,712	1887.....	1,783,256	1899.....	173,220
1876.....	204,211	1888.....	914,940	1900.....	209,955
1877.....	211,408	1889.....	748,550	1901.....	221,292
1878.....	211,102	1890.....	665,771	1902.....	1,206,811
1879.....	769,984	1891.....	557,882	1903.....	1,178,797
1880.....	1,886,019	1892.....	494,468	1904.....	266,398
1881.....	1,180,749	1893.....	438,495	.....	.....
1882.....	1,192,296	1894.....	309,249	.....	.....

## IMPORTS AND EXPORTS OF IRON AND STEEL SINCE 1871.

The following table, compiled from the reports of the Bureau of Statistics of the Department of Commerce and Labor, gives the foreign value of our imports of iron and steel and manufactures thereof in the calendar years from 1871 to 1904, including tinplates; also the value of our exports of iron and steel and manufactures thereof, except farm implements, in the same years.

Calendar years.	Imports—Values.	Exports—Values.	Calendar years.	Imports—Values.	Exports—Values.
1871.....	\$57,866,299	\$14,185,359	1888.....	\$42,311,689	\$19,578,489
1872.....	75,617,677	12,595,539	1889.....	42,027,742	23,712,814
1873.....	60,005,538	14,173,772	1890.....	44,540,413	27,000,134
1874.....	37,652,192	17,312,239	1891.....	41,983,626	30,736,507
1875.....	27,363,101	17,976,833	1892.....	33,882,447	27,900,862
1876.....	20,016,603	13,647,764	1893.....	29,656,539	30,159,363
1877.....	19,874,399	18,549,922	1894.....	20,843,576	29,943,729
1878.....	18,013,010	15,101,899	1895.....	25,772,136	35,071,563
1879.....	33,331,569	14,223,646	1896.....	19,506,587	48,670,218
1880.....	80,443,362	15,156,703	1897.....	13,835,950	62,737,250
1881.....	61,555,077	18,216,121	1898.....	12,474,572	82,771,550
1882.....	67,075,125	22,348,834	1899.....	15,800,579	105,690,047
1883.....	47,506,306	22,716,040	1900.....	20,443,911	129,633,480
1884.....	37,078,122	19,290,895	1901.....	20,395,015	102,534,575
1885.....	31,144,552	16,622,511	1902.....	41,468,826	97,892,036
1886.....	41,630,779	14,865,087	1903.....	41,255,864	99,035,865
1887.....	56,420,607	16,235,922	1904.....	21,621,970	128,553,613

In the following table we give the weight of our imports and exports of leading articles of iron and steel from 1894 to 1904; also the total value of all our iron and steel imports and exports in the same years. Agricultural implements are not included in the statistics of our iron and steel exports. See top of page 25,

Calendar years.	Imports.		Exports.	
	Gross tons.	Total values.	Gross tons.	Total values.
1894.....	309,249	\$20,843,576	82,234	\$29,943,729
1895.....	378,208	25,772,136	89,389	35,071,563
1896.....	265,500	19,506,587	203,347	48,670,218
1897.....	157,834	13,835,950	616,605	62,737,250
1898.....	144,385	12,474,572	881,222	82,771,550
1899.....	173,220	15,800,579	942,689	105,690,047
1900.....	209,955	20,443,911	1,154,284	129,633,480
1901.....	221,292	20,395,015	700,857	102,534,575
1902.....	1,206,811	41,468,826	372,399	97,892,036
1903.....	1,178,797	41,255,864	326,590	99,035,865
1904.....	266,398	21,621,970	1,167,674	128,553,613

## IMMIGRATION INTO THE UNITED STATES.

The table given below shows the number of alien passengers, nearly all of whom were immigrants, who arrived in the United States from the formation of the Government in 1789 to 1855. Down to and including 1855 immigrants do not appear to have been classified separately from other alien passengers.

Periods.	Alien passengers.	Periods.	Alien passengers.
1789 to 1820.....	250,000	1841 to 1850.....	1,713,251
1821 to 1830.....	143,439	1851 to 1855.....	1,748,364
1831 to 1840.....	599,125	Total.....	4,454,179

The following table shows the annual arrivals of alien passengers in the calendar years from 1851 to 1855; also the total arrival of immigrants alone in the United States in the calendar years from 1856 to 1904, not counting in recent years citizens of Canada and Newfoundland coming direct from British North America and citizens of Mexico coming direct from Mexico, who are not included in the Government statistics of immigration.

Calendar years.	Immigrants.	Calendar years.	Immigrants.	Calendar years.	Immigrants.	Calendar years.	Immigrants.
1851.....	379,406	1865.....	247,453	1879.....	250,565	1893.....	495,030
1852.....	371,603	1866.....	314,917	1880.....	593,703	1894.....	250,313
1853.....	368,645	1867.....	310,965	1881.....	720,045	1895.....	324,330
1854.....	427,833	1868.....	289,145	1882.....	730,349	1896.....	301,067
1855.....	200,877	1869.....	385,287	1883.....	570,316	1897.....	222,399
1856.....	195,857	1870.....	356,303	1884.....	461,346	1898.....	254,900
1857.....	246,945	1871.....	346,938	1885.....	332,361	1899.....	361,318
1858.....	119,501	1872.....	437,750	1886.....	392,887	1900.....	472,126
1859.....	118,616	1873.....	422,545	1887.....	516,933	1901.....	522,573
1860.....	150,237	1874.....	260,814	1888.....	525,019	1902.....	739,289
1861.....	89,724	1875.....	191,231	1889.....	431,935	1903.....	937,371
1862.....	89,007	1876.....	157,440	1890.....	495,021	1904.....	808,967
1863.....	174,524	1877.....	130,502	1891.....	595,251	.....	.....
1864.....	193,195	1878.....	153,207	1892.....	547,060	.....	.....

PRODUCTION OF LEADING ARTICLES IN THE UNITED STATES AND OF PIG IRON IN GREAT BRITAIN FROM 1860 TO 1904.

The following table shows the annual growth of the iron and steel industries of the United States from 1860 to 1904; also the progress of the pig iron industry of Great Britain during the same period. The maximum production of pig iron in Great Britain was reached in 1899, namely, 9,421,435 gross tons, and in the United States in 1903, namely, 18,009,252 tons.

Calendar years.	Total shipments of Lake Superior iron ore. Gross tons.	Production of pig iron in the United States. Gross tons.	Production of all kinds of steel in the United States. Gross tons.	Production of iron and steel rails in the United States. Gross tons.	Production of pig iron in Great Britain. Gross tons.
1860.....	114,401	821,223	11,838	183,070	3,826,752
1861.....	49,909	653,164	.....	169,480	3,712,390
1862.....	124,169	703,270	.....	190,993	3,943,469
1863.....	203,055	846,075	8,075	246,221	4,510,040
1864.....	243,127	1,014,282	9,258	299,436	4,767,951
1865.....	236,208	831,770	13,627	318,118	4,825,254
1866.....	278,796	1,205,663	16,940	384,623	4,523,897
1867.....	473,567	1,305,023	19,643	412,596	4,761,023
1868.....	491,449	1,431,250	26,786	452,423	4,970,206
1869.....	617,444	1,711,287	31,250	529,988	5,445,757
1870.....	830,940	1,665,179	68,750	553,571	5,963,515
1871.....	779,607	1,706,793	73,214	692,619	6,627,179
1872.....	900,901	2,548,713	142,954	892,857	6,741,929
1873.....	1,162,458	2,560,963	198,796	794,712	6,566,451
1874.....	919,557	2,401,262	215,727	651,262	5,991,408
1875.....	891,257	2,023,733	389,799	707,600	6,365,462
1876.....	992,764	1,868,961	533,191	785,383	6,555,997
1877.....	1,015,087	2,066,594	569,618	682,776	6,608,664
1878.....	1,111,110	2,301,215	731,977	788,112	6,381,051
1879.....	1,375,691	2,741,853	935,273	993,993	5,995,337
1880.....	1,908,745	3,835,191	1,247,335	1,305,212	7,749,233
1881.....	2,306,505	4,144,254	1,588,314	1,646,518	8,144,449
1882.....	2,965,412	4,623,323	1,736,692	1,507,851	8,586,680
1883.....	2,353,288	4,595,510	1,673,535	1,214,905	8,529,300
1884.....	2,518,692	4,097,868	1,550,879	1,022,188	7,811,727
1885.....	2,466,372	4,044,526	1,711,920	976,978	7,415,469
1886.....	3,568,022	5,683,329	2,562,503	1,600,537	7,009,754
1887.....	4,730,577	6,417,148	3,339,071	2,139,640	7,559,518
1888.....	5,063,693	6,489,738	2,899,440	1,403,700	7,998,969
1889.....	7,292,754	7,603,642	3,385,732	1,522,204	8,322,824
1890.....	9,012,379	9,202,703	4,277,071	1,885,307	7,904,214
1891.....	7,062,233	8,279,870	3,904,240	1,307,176	7,406,064
1892.....	9,069,556	9,157,000	4,927,581	1,551,844	6,709,255
1893.....	6,060,492	7,124,502	4,019,995	1,136,458	6,976,990
1894.....	7,748,932	6,657,388	4,412,032	1,021,772	7,427,342
1895.....	10,438,268	9,446,308	6,114,834	1,306,135	7,703,459
1896.....	9,916,035	8,623,127	5,281,689	1,122,010	8,659,681
1897.....	12,469,638	9,652,680	7,156,957	1,647,892	8,796,465
1898.....	14,024,673	11,773,934	8,932,857	1,981,241	8,609,719
1899.....	18,251,804	13,620,703	10,639,857	2,272,700	9,421,435
1900.....	19,059,393	13,789,242	10,188,329	2,385,682	8,959,691
1901.....	20,593,537	15,878,354	13,473,595	2,874,639	7,928,647
1902.....	27,571,121	17,821,307	14,947,250	2,947,933	8,679,535
1903.....	24,289,878	18,009,252	14,534,978	2,992,477	8,935,063
1904.....	21,822,839	16,497,033	13,859,887	2,284,711	*8,562,658

\* British Iron Trade Association.

## MILES OF STEAM RAILROAD IN OPERATION.

We give below a valuable table which we extract from Poor's Manual of the Railroads of the United States. It shows the annual increase in the mileage of steam railroad from 1830 to the close of 1903, with the total number of miles in operation at the end of each year, side tracks and double tracks not included.

Years.	Miles in operation.	Annual increase.	Years.	Miles in operation.	Annual increase.	Years.	Miles in operation.	Annual increase.
1830...	23	.....	1855..	18,374	1,654	1880..	93,262	6,706
1831...	95	72	1856..	22,016	3,642	1881..	103,108	9,846
1832...	229	134	1857..	24,503	2,487	1882..	114,677	11,569
1833...	380	151	1858..	26,968	2,465	1883..	121,422	6,745
1834...	633	253	1859..	28,789	1,821	1884..	125,345	3,923
1835...	1,098	465	1860..	30,626	1,837	1885..	128,320	2,975
1836...	1,273	175	1861..	31,286	660	1886..	136,338	8,018
1837...	1,497	224	1862..	32,120	834	1887..	149,214	12,876
1838...	1,913	416	1863..	33,170	1,050	1888..	156,114	6,900
1839...	2,302	389	1864..	33,908	738	1889..	161,276	5,162
1840...	2,818	516	1865..	35,085	1,177	1890..	166,703	5,427
1841...	3,535	717	1866..	36,801	1,716	1891..	170,729	4,026
1842...	4,026	491	1867..	39,050	2,249	1892..	175,170	4,441
1843...	4,185	159	1868..	42,229	3,179	1893..	177,516	2,346
1844...	4,377	192	1869..	46,844	4,615	1894..	179,415	1,899
1845...	4,633	256	1870..	52,922	6,078	1895..	181,115	1,700
1846...	4,930	297	1871..	60,301	7,379	1896..	182,769	1,654
1847...	5,598	668	1872..	66,171	5,870	1897..	184,591	1,822
1848...	5,996	398	1873..	70,268	4,097	1898..	186,810	2,219
1849...	7,365	1,369	1874..	72,385	2,117	1899..	190,818	4,008
1850...	9,021	1,656	1875..	74,096	1,711	1900..	194,262	3,444
1851...	10,982	1,961	1876..	76,808	2,712	1901..	198,743	4,481
1852...	12,908	1,926	1877..	79,082	2,274	1902..	203,009	4,266
1853...	15,360	2,452	1878..	81,747	2,665	1903..	207,604	4,595
1854...	16,720	1,360	1879..	86,556	4,809	.....	.....	.....

## ANNUAL MILEAGE OF NEW STEAM RAILROAD.

The following table, compiled from Poor's Manual, gives the length of new steam railroad constructed in the United States from 1880 to 1904, double tracks and sidings not considered.

Years.	Miles.	Years.	Miles.	Years.	Miles.	Years.	Miles.
1880.....	7,174	1887.....	12,984	1894.....	2,264	1901.....	4,912
1881.....	9,779	1888.....	7,066	1895.....	1,938	1902.....	5,076
1882.....	11,599	1889.....	5,700	1896.....	2,068	1903.....	4,715
1883.....	6,819	1890.....	5,657	1897.....	2,161	1904, est.	4,252
1884.....	3,974	1891.....	4,620	1898.....	3,199	.....	.....
1885.....	3,131	1892.....	4,584	1899.....	4,513	.....	.....
1886.....	8,128	1893.....	2,789	1900.....	4,157	.....	.....

## MILES OF IRON AND STEEL RAILS IN THE UNITED STATES.

The following table from Poor's Manual gives the number of miles of steam railroad track in the United States from 1880 to the end of 1903 which had been laid with steel rails or iron rails. The mileage given includes sidings, switches, second, third, and fourth tracks, etc., of all steam railroads, but excludes all tracks of elevated city passenger railways.

Years.	Miles of steel rails.	Miles of iron rails.	Total miles.	Annual increase.	Percentage of steel rails.
1880.....	33,680	81,967	115,647	.....	29.1
1881.....	48,984	81,471	130,455	14,808	37.5
1882.....	66,611	74,267	140,878	10,423	47.3
1883.....	78,411	70,690	149,101	8,223	52.6
1884.....	90,162	66,252	156,414	7,313	57.6
1885.....	98,013	62,493	160,506	4,092	61.0
1886.....	105,630	62,322	167,952	7,446	62.9
1887.....	125,349	59,586	184,935	16,983	67.8
1888.....	138,395	52,981	191,376	6,441	72.3
1889.....	151,578	50,510	202,088	10,712	75.0
1890.....	167,458	40,694	208,152	6,064	80.4
1891.....	174,775	39,754	214,529	6,377	81.5
1892.....	182,711	38,918	221,629	7,100	82.4
1893.....	190,718	37,135	227,853	6,224	83.7
1894.....	197,491	35,264	232,755	4,902	84.8
1895.....	206,381	28,650	235,031	2,276	87.8
1896.....	210,290	28,440	238,730	3,699	88.1
1897.....	215,658	26,043	241,701	2,971	89.2
1898.....	220,804	24,435	245,239	3,538	90.0
1899.....	228,976	21,387	250,363	5,124	91.5
1900.....	238,464	19,389	257,853	7,490	92.4
1901.....	246,811	19,181	265,992	8,139	92.7
1902.....	257,437	17,398	274,835	8,843	93.6
1903.....	271,013	15,249	286,262	11,427	94.6

## IMPORTS OF MANGANESE ORE SINCE 1889.

The following table, for which we are indebted to the Bureau of Statistics of the Department of Commerce and Labor, gives the imports of manganese ore into the United States since 1889.

Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.
1889.....	4,286	1895.....	86,111	1901.....	165,722
1890.....	34,154	1896.....	31,489	1902.....	235,576
1891.....	28,825	1897.....	119,961	1903.....	146,056
1892.....	58,572	1898.....	114,885	1904.....	108,459
1893.....	68,113	1899.....	188,349	.....	.....
1894.....	44,655	1900.....	256,252	.....	.....



## AVERAGE PRICES OF OLD IRON T RAILS AT PHILADELPHIA.

The following table gives the average prices of old iron T rails at Philadelphia, per gross ton, from 1882 to 1904.

Years.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Average.
	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
1882.....	30 00	30 50	29 25	28 50	26 75	26 25	26 50	26 50	27 00	27 50	27 25	27 00	27 75
1883.....	26 50	26 00	25 00	24 50	23 50	22 00	22 50	23 50	23 50	23 25	23 00	23 00	23 85
1884.....	22 50	23 00	22 75	22 00	21 25	18 75	18 50	18 25	18 25	18 00	18 00	16 75	19 83
1885.....	17 50	17 50	17 50	17 75	17 50	17 50	17 25	17 25	17 50	17 50	19 50	19 75	17 83
1886.....	22 00	23 00	22 00	21 00	20 50	19 50	19 00	20 00	21 25	21 75	22 25	24 75	21 42
1887.....	25 25	24 00	23 00	22 75	21 85	22 60	23 50	24 00	22 75	22 00	22 00	22 00	22 97
1888.....	21 75	22 00	21 50	21 50	21 75	21 00	21 25	21 00	23 25	23 75	24 00	24 00	22 23
1889.....	23 50	23 50	23 50	23 50	22 75	22 50	22 75	23 50	25 00	26 00	26 50	27 25	24 19
1890.....	27 50	27 25	25 25	23 85	23 25	24 50	25 00	25 00	25 50	25 50	25 10	24 50	25 18
1891.....	23 50	23 35	22 50	22 50	22 00	21 00	21 00	21 50	22 00	22 00	21 75	21 50	22 05
1892.....	21 00	20 50	20 25	20 00	19 90	19 50	19 17	19 00	19 00	19 00	18 40	18 00	19 48
1893.....	18 00	18 50	18 00	18 00	17 50	16 62	16 00	16 12	15 62	14 80	14 00	14 00	16 43
1894.....	13 00	12 62	12 50	12 12	12 00	11 62	11 30	11 50	11 50	11 50	11 75	12 00	11 95
1895.....	11 75	11 75	12 00	12 00	12 25	13 75	15 30	16 12	16 50	16 20	16 50	15 00	14 09
1896.....	14 25	14 75	15 00	14 87	14 43	14 00	14 00	14 00	13 50	12 75	13 94	14 50	14 17
1897.....	14 00	13 87	12 60	11 62	11 50	11 50	11 50	11 55	12 25	13 69	13 15	12 67	12 49
1898.....	12 50	12 50	12 50	12 44	12 00	12 00	12 00	12 05	12 50	12 50	12 70	12 94	12 39
1899.....	13 30	14 16	16 87	17 87	18 00	18 75	20 00	21 30	23 12	26 20	27 50	27 25	20 36
1900.....	26 20	26 00	25 25	24 00	21 40	17 00	15 25	13 80	14 87	15 75	17 00	17 62	19 51
1901.....	18 00	18 25	18 37	19 50	19 50	19 12	19 00	19 00	18 50	19 90	21 25	21 50	19 32
1902.....	21 30	21 25	23 00	25 25	25 00	24 50	24 70	24 00	24 25	24 80	24 25	23 62	23 83
1903.....	23 50	23 75	24 50	24 90	24 50	23 50	22 00	19 37	18 75	17 50	16 37	15 40	21 17
1904.....	15 87	15 00	16 70	18 37	15 85	14 50	14 12	14 55	15 50	16 25	17 70	20 25	16 22

## AVERAGE PRICES OF OLD IRON T RAILS AT CHICAGO.

The following table, which we have compiled from quotations in the *Iron Age*, gives the average monthly and yearly prices of old iron T rails at Chicago, per gross ton, in carload lots.

Years.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Average.
	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
1889.....	21 50	20 50	21 00	20 00	19 50	20 00	21 50	22 50	24 50	25 25	26 00	26 25	22 37
1890.....	26 00	25 00	23 75	23 00	22 50	25 00	26 00	26 50	27 00	26 50	25 50	23 50	25 02
1891.....	23 00	23 00	23 25	22 75	22 75	22 75	23 25	23 00	23 00	22 25	22 00	21 75	22 73
1892.....	22 00	21 75	20 00	19 50	18 50	18 25	18 00	18 00	17 75	18 25	18 50	18 75	19 10
1893.....	18 50	18 50	18 25	17 75	17 50	17 00	16 00	15 00	14 50	14 50	14 50	14 00	16 33
1894.....	13 00	12 00	10 50	10 00	10 00	9 75	10 75	10 50	11 00	11 00	10 75	10 75	10 83
1895.....	10 25	10 50	11 00	11 25	12 00	13 50	15 00	16 00	18 50	18 50	17 00	16 00	14 12
1896.....	14 50	14 00	14 00	15 00	13 00	13 00	13 25	12 00	11 25	13 00	14 50	14 00	13 46
1897.....	12 00	13 00	11 75	11 50	11 00	10 50	11 00	11 00	12 00	12 25	12 00	12 00	11 67
1898.....	12 25	12 25	12 00	12 00	12 25	12 37	12 50	12 50	12 62	12 75	12 75	12 50	12 39
1899.....	13 00	14 00	16 25	18 00	18 00	18 00	18 75	21 00	27 50	30 00	30 00	27 00	20 96
1900.....	25 00	23 50	22 50	21 50	19 00	15 00	13 25	12 50	12 75	15 50	16 75	17 50	17 90
1901.....	18 00	18 00	18 75	20 00	19 00	18 50	18 50	20 00	20 75	21 00	21 00	21 00	19 54
1902.....	21 20	22 37	24 00	24 00	24 00	24 00	24 20	24 50	24 87	25 00	24 62	24 16	23 91
1903.....	24 00	24 00	24 00	23 75	23 75	21 00	19 70	18 50	17 75	17 00	16 25	13 00	20 22
1904.....	14 00	16 50	16 60	16 87	15 87	14 65	14 12	15 31	16 00	16 69	20 12	22 00	16 56

## WHOLESALE STORE PRICES OF CUT NAILS AT PHILADELPHIA.

The following table, which has been compiled by the Duncan-Iron Company, gives the average wholesale store prices of cut nails, per keg of 100 pounds, at Philadelphia from 1860 to 1904.

Years.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Average.
	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
1860.....	3 25	3 25	3 25	3 25	3 25	3 25	3 25	3 25	3 00	3 00	2 75	2 75	3 13
1861.....	2 75	2 75	2 75	2 75	2 75	2 75	2 75	2 75	2 75	2 75	2 75	2 75	2 75
1862.....	3 00	3 00	3 00	3 15	3 25	3 25	3 50	3 50	3 50	3 50	4 00	5 00	3 47
1863.....	5 00	5 25	5 25	5 25	5 25	5 25	5 00	5 00	5 00	5 00	5 00	5 25	5 13
1864.....	5 30	5 50	6 90	7 00	7 00	7 00	8 50	10 00	10 00	9 50	9 00	8 50	7 85
1865.....	8 50	8 50	8 00	7 50	6 00	5 50	5 25	5 25	7 00	8 00	7 75	7 75	7 08
1866.....	7 75	7 75	7 50	7 25	6 75	6 60	6 50	6 50	6 75	6 75	6 75	6 75	6 97
1867.....	6 75	6 75	6 50	6 00	5 75	5 75	5 75	5 75	5 50	5 50	5 50	5 50	5 92
1868.....	5 25	5 25	5 25	5 25	5 00	5 00	5 00	5 00	5 00	5 25	5 25	5 50	5 17
1869.....	5 50	5 25	5 00	4 75	4 50	4 50	4 50	4 50	5 00	5 00	5 00	4 75	4 85
1870.....	4 75	4 50	4 25	4 25	4 25	4 50	4 50	4 50	4 50	4 25	4 25	4 25	4 40
1871.....	4 25	4 50	4 50	4 50	4 75	4 75	4 50	4 25	4 25	4 50	4 75	4 75	4 52
1872.....	4 75	5 00	5 00	5 50	5 50	5 50	5 50	5 50	5 75	6 00	6 00	5 50	5 46
1873.....	5 00	5 25	5 25	5 25	5 25	5 00	4 75	4 75	4 75	4 75	4 50	4 25	4 90
1874.....	4 15	4 00	4 00	4 10	4 10	4 10	4 10	4 10	4 00	3 75	3 75	3 75	3 99
1875.....	3 65	3 65	3 65	3 60	3 50	3 50	3 50	3 25	3 25	3 25	3 25	3 10	3 42
1876.....	3 00	3 00	2 75	2 75	2 75	3 00	3 00	3 25	3 25	3 00	3 00	3 00	2 98
1877.....	2 90	2 80	2 80	2 75	2 60	2 50	2 50	2 40	2 40	2 40	2 40	2 40	2 57
1878.....	2 40	2 50	2 50	2 50	2 40	2 30	2 25	2 20	2 20	2 20	2 15	2 15	2 31
1879.....	2 15	2 15	2 10	2 25	2 25	2 25	2 25	2 40	3 00	3 50	3 70	4 25	2 69
1880.....	4 90	5 25	5 25	4 75	3 40	2 90	2 80	3 00	3 15	3 00	2 90	2 90	3 68
1881.....	2 90	2 90	3 00	3 15	3 05	3 00	3 00	3 05	3 15	3 30	3 30	3 30	3 09
1882.....	3 40	3 40	3 40	3 30	3 25	3 35	3 40	3 50	3 65	3 65	3 65	3 65	3 47
1883.....	3 40	3 35	3 20	3 10	3 10	3 10	3 00	3 00	3 00	2 90	2 85	2 75	3 06
1884.....	2 60	2 60	2 60	2 60	2 60	2 50	2 40	2 30	2 20	2 10	2 10	2 10	2 39
1885.....	2 10	2 25	2 30	2 30	2 30	2 30	2 20	2 20	2 25	2 40	2 60	2 75	2 33
1886.....	2 65	2 45	2 40	2 40	2 25	2 10	2 10	2 20	2 20	2 20	2 10	2 15	2 27
1887.....	2 30	2 50	2 55	2 50	2 40	2 25	2 25	2 20	2 20	2 15	2 15	2 10	2 30
1888.....	2 00	2 10	2 10	2 10	2 00	2 00	2 10	2 00	2 00	2 00	2 00	2 00	2 03
1889.....	1 90	1 90	1 90	1 90	1 90	2 00	2 00	2 00	2 00	2 10	2 20	2 20	2 00
1890.....	2 20	2 15	2 10	2 00	2 00	1 90	1 90	1 90	1 90	2 00	2 00	2 00	2 00
1891.....	1 90	1 90	1 85	1 90	1 90	1 85	1 85	1 85	1 85	1 80	1 80	1 85	1 86
1892.....	1 75	1 80	1 80	1 80	1 85	1 85	1 85	1 90	1 90	1 90	1 80	1 75	1 83
1893.....	1 75	1 75	*1 50	1 50	1 40	1 40	1 40	1 35	1 35	1 30	1 30	1 25	1 44
1894.....	1 20	1 20	1 15	1 10	1 00	1 10	1 10	1 05	1 05	1 00	1 00	95	1 08
1895.....	1 00	1 00	95	90	1 00	1 50	1 50	1 75	2 20	2 30	2 30	2 30	1 56
1896.....	2 30	2 30	2 45	2 45	2 45	2 53	2 53	2 53	2 53	2 53	2 00	*1 70	2 36
1897.....	1 60	1 55	1 55	1 50	1 45	1 45	1 40	1 40	1 45	1 45	1 40	1 40	1 47
1898.....	1 35	1 35	1 30	1 30	1 30	1 30	1 30	1 30	1 30	1 30	1 30	1 30	1 31
1899.....	1 40	1 65	1 75	1 95	1 95	2 20	2 30	2 35	2 60	2 75	2 80	2 80	2 21
1900.....	2 80	2 80	2 80	2 62	2 45	2 42	2 30	2 30	2 25	2 28	2 30	2 25	2 46
1901.....	2 25	2 27	2 27	2 30	2 30	2 30	2 30	2 30	2 35	2 30	2 30	2 30	2 29
1902.....	2 30	2 20	2 25	2 30	2 30	2 30	2 30	2 30	2 30	2 30	2 30	2 30	2 29
1903.....	2 33	2 36	2 36	2 41	2 41	2 41	2 41	2 41	2 41	2 41	2 20	2 20	2 36
1904.....	2 05	2 00	2 00	2 05	2 05	2 05	2 05	2 00	1 95	1 90	2 00	2 05	2 01

\* Early in 1893 the base price and schedule of extras of cut nails were changed to correspond with the wire-nail schedule, and in December, 1896, the schedule of extras was again changed to correspond with the new wire nail schedule. A comparison of prices since 1893 with 1892 and previous years would be misleading.

## WHOLESALE PRICES OF CUT NAILS IN THE UNITED STATES.

The prices in this table, per 100-pound kegs, from 1835 to 1849 inclusive are taken from the Report of the Secretary of the Treasury for 1849; from 1850 to 1904 they have been compiled by the Duncannon Iron Company. In 1893 the base price and schedule of extras were changed and the schedule of extras was again changed in December, 1896. A comparison of prices since 1893 with those for 1892 and previous years would be misleading.

Years.	Price.	Years.	Price.	Years.	Price.	Years.	Price.
1835.....	\$6.00	1853.....	\$4.85	1871.....	\$4.52	1889.....	\$2.00
1836.....	6.00	1854.....	4.76	1872.....	5.46	1890.....	2.00
1837.....	6.00	1855.....	4.10	1873.....	4.90	1891.....	1.86
1838.....	6.00	1856.....	3.92	1874.....	3.99	1892.....	1.83
1839.....	6.12	1857.....	3.72	1875.....	3.42	1893.....	1.44
1840.....	5.50	1858.....	3.53	1876.....	2.98	1894.....	1.08
1841.....	5.25	1859.....	3.86	1877.....	2.57	1895.....	1.56
1842.....	4.75	1860.....	3.13	1878.....	2.31	1896.....	2.36
1843.....	4.25	1861.....	2.75	1879.....	2.69	1897.....	1.47
1844.....	4.50	1862.....	3.47	1880.....	3.68	1898.....	1.31
1845.....	4.75	1863.....	5.13	1881.....	3.09	1899.....	2.21
1846.....	4.50	1864.....	7.85	1882.....	3.47	1900.....	2.46
1847.....	4.50	1865.....	7.08	1883.....	3.06	1901.....	2.29
1848.....	4.25	1866.....	6.97	1884.....	2.39	1902.....	2.29
1849.....	4.00	1867.....	5.92	1885.....	2.33	1903.....	2.36
1850.....	3.71	1868.....	5.17	1886.....	2.27	1904.....	2.01
1851.....	3.28	1869.....	4.85	1887.....	2.30	.....	.....
1852.....	3.13	1870.....	4.40	1888.....	2.03	.....	.....

## AVERAGE PRICES OF HAMMERED BAR IRON AT PHILADELPHIA.

The following table gives the average yearly prices of hammered bar iron at Philadelphia from 1794 to 1844, in gross tons.

Years.	Average	Years.	Average	Years.	Average	Years.	Average
Gross tons.	price.	Gross tons.	price.	Gross tons.	price.	Gross tons.	price.
1794.....	\$77.50	1807.....	\$110.50	1820.....	\$103.50	1833.....	\$82.50
1795.....	82.50	1808.....	104.00	1821.....	90.50	1834.....	82.50
1796.....	106.50	1809.....	107.50	1822.....	94.50	1835.....	81.50
1797.....	101.50	1810.....	108.00	1823.....	90.00	1836.....	100.00
1798.....	97.50	1811.....	105.00	1824.....	82.50	1837.....	111.00
1799.....	98.50	1812.....	106.00	1825.....	97.50	1838.....	93.50
1800.....	100.50	1813.....	106.00	1826.....	101.50	1839.....	96.50
1801.....	117.50	1814.....	133.00	1827.....	100.00	1840.....	90.00
1802.....	99.00	1815.....	144.50	1828.....	100.00	1841.....	85.00
1803.....	97.50	1816.....	127.00	1829.....	97.00	1842.....	83.50
1804.....	98.50	1817.....	114.00	1830.....	87.50	1843.....	77.50
1805.....	101.00	1818.....	110.00	1831.....	85.00	1844.....	75.00
1806.....	108.50	1819.....	110.00	1832.....	85.00	.....	.....

## AVERAGE PRICES OF GRAY FORGE PIG IRON AT PHILADELPHIA.

The following table gives the average prices, per gross ton, of gray forge pig iron at Philadelphia from 1882 to 1904.

Years.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Aver.
	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
1882.....	24 00	24 00	23 75	23 50	22 75	22 00	22 50	21 50	22 00	22 25	21 75	21 25	22 60
1883.....	21 00	20 50	20 00	20 00	19 50	19 00	19 00	19 00	18 75	18 75	18 50	18 00	19 33
1884.....	18 25	18 00	18 00	18 00	18 00	18 00	18 00	17 50	17 50	17 50	17 25	16 50	17 71
1885.....	16 00	16 00	16 00	16 00	15 75	15 00	15 00	15 00	15 50	15 50	15 50	15 75	15 58
1886.....	16 25	16 50	16 75	16 50	16 50	16 00	16 00	15 75	16 00	16 25	16 75	17 50	16 40
1887.....	18 50	19 00	19 00	18 50	18 00	17 85	17 60	17 25	17 00	17 00	17 00	16 75	17 79
1888.....	16 75	17 00	17 00	16 50	16 00	15 75	15 75	15 75	16 00	16 00	16 00	16 00	16 21
1889.....	15 50	15 25	15 25	15 00	14 75	14 90	15 00	15 25	15 25	15 60	16 75	17 25	15 48
1890.....	17 90	17 38	17 00	16 10	15 65	15 50	15 25	15 10	15 00	15 00	15 00	15 00	15 82
1891.....	14 50	14 50	14 75	14 75	14 75	14 75	14 60	14 50	14 35	14 35	14 25	14 25	14 52
1892.....	14 25	14 25	14 00	14 00	13 75	13 50	13 00	13 00	13 00	13 25	13 25	13 25	13 54
1893.....	13 10	13 00	13 00	13 00	13 00	13 00	13 00	12 94	12 58	12 25	12 00	11 94	12 73
1894.....	11 56	11 37	11 00	10 75	10 50	10 50	10 50	10 50	10 50	10 50	10 50	10 50	10 73
1895.....	10 50	10 50	10 50	10 50	10 45	11 12	12 05	12 31	12 70	12 87	12 44	11 90	11 49
1896.....	11 55	11 50	11 30	11 19	11 00	11 00	10 90	10 75	10 75	10 81	11 12	11 25	11 09
1897.....	11 06	11 00	10 65	10 50	10 25	10 10	10 10	10 05	10 50	10 50	10 50	10 50	10 48
1898.....	10 37	10 25	10 25	10 25	10 25	10 25	10 25	10 25	10 19	10 00	10 00	10 41	10 23
1899.....	10 75	11 69	14 37	15 00	15 30	16 50	17 81	18 10	19 50	19 65	20 19	20 31	16 60
1900.....	20 35	20 19	19 19	18 50	17 80	16 50	14 56	14 45	14 12	13 55	14 12	14 50	16 49
1901.....	14 50	14 19	14 00	14 37	14 30	14 06	13 87	13 75	13 75	13 75	13 94	14 44	14 08
1902.....	15 65	16 62	17 75	18 19	18 35	19 44	20 80	21 00	20 50	20 25	20 94	20 90	19 20
1903.....	20 50	20 00	19 50	19 10	18 62	18 00	17 50	15 81	14 94	14 05	13 75	13 75	17 13
1904.....	13 50	13 50	13 50	13 75	13 55	13 31	13 12	13 00	12 87	13 19	14 75	16 00	13 67

## AVERAGE PRICES OF BESSEMER PIG IRON AT PITTSBURGH.

The following table gives the average prices of Bessemer pig iron at Pittsburgh from 1886 to 1904, in gross tons.

Years.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Aver.
	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
1886.....	20 00	19 65	19 25	19 00	19 00	18 40	17 85	17 70	17 70	18 85	19 55	20 60	18 96
1887.....	21 55	22 65	22 85	22 70	21 25	21 25	22 00	21 60	21 15	20 65	19 75	19 00	21 37
1888.....	18 10	17 80	17 35	17 25	16 55	16 65	17 10	17 15	17 95	18 00	17 50	17 15	17 38
1889.....	16 75	16 35	16 50	16 25	16 00	16 00	16 35	17 50	18 00	20 75	21 75	23 75	18 00
1890.....	23 60	22 55	20 25	17 85	17 55	19 00	18 62	18 10	18 00	17 35	17 00	16 60	18 87
1891.....	15 95	16 25	16 50	16 10	16 50	16 25	16 25	16 00	15 60	15 50	15 15	15 35	15 95
1892.....	15 65	15 25	14 75	14 50	14 36	14 10	14 00	14 00	13 96	13 90	14 03	13 90	14 37
1893.....	13 59	13 51	13 75	13 86	13 51	13 50	13 21	13 08	12 19	11 60	11 46	11 17	12 87
1894.....	10 90	10 75	10 56	10 49	12 44	13 15	12 60	12 12	11 53	11 02	10 66	10 31	11 38
1895.....	10 06	10 15	10 23	10 69	11 15	12 39	14 14	15 02	17 19	15 77	13 94	11 87	12 72
1896.....	11 81	12 95	12 25	13 32	12 83	12 47	12 12	10 91	11 31	11 71	12 46	11 54	12 14
1897.....	10 77	10 72	10 57	9 91	9 52	9 74	9 39	9 54	10 04	10 70	10 52	10 09	10 13
1898.....	10 00	10 06	10 37	10 35	10 41	10 42	10 31	10 35	10 45	10 40	10 22	10 64	10 33
1899.....	11 00	11 69	14 77	15 06	16 32	18 70	20 45	22 37	23 85	24 50	24 69	25 00	19 03
1900.....	24 97	25 00	24 90	24 90	24 90	21 16	17 00	16 07	14 19	13 37	13 70	13 75	19 49
1901.....	13 43	14 60	16 87	16 94	16 70	16 00	16 00	16 00	16 00	16 00	16 31	16 37	15 93
1902.....	16 70	16 94	17 37	18 75	20 75	21 56	21 60	22 19	22 50	23 00	23 81	22 92	20 67
1903.....	22 85	21 91	21 85	21 28	20 01	19 72	18 93	18 35	17 22	16 00	15 19	14 40	18 98
1904.....	13 90	13 66	14 03	14 19	13 60	12 81	12 46	12 76	12 69	13 10	15 15	16 72	13 76

## PRICES OF NO. 1 FOUNDRY PIG IRON AT PHILADELPHIA.

The following table of average prices of No. 1 foundry pig iron at Philadelphia, per gross ton, has been compiled by the American Iron and Steel Association from weekly quotations.

Yrs.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Average.
	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
1856...	27 50	27 50	27 67	28 00	28 00	27 62	27 00	27 00	27 00	26 87	26 00	26 00	27 18
1857...	26 25	26 50	26 62	27 75	27 87	27 75	27 25	26 75	26 37	25 75	23 50	23 75	26 34
1858...	23 50	22 50	22 50	22 50	22 50	22 12	21 37	21 50	22 00	21 50	21 75	22 50	22 19
1859...	22 75	23 62	24 50	23 87	23 50	23 12	23 00	23 12	22 87	23 25	23 25	23 12	23 33
1860...	23 00	23 00	23 37	22 37	22 75	22 75	22 75	22 50	22 25	22 37	22 75	22 50	22 70
1861...	22 12	21 75	21 25	21 87	21 12	20 50	19 87	18 75	18 75	18 62	18 87	19 62	20 26
1862...	20 00	20 75	20 75	21 50	21 50	22 75	24 00	24 37	24 50	25 25	30 50	31 12	23 92
1863...	32 00	33 25	35 50	36 00	34 75	33 50	32 75	31 75	33 00	35 75	41 12	43 50	35 24
1864...	43 17	48 62	50 12	54 50	57 25	57 62	69 12	73 62	72 25	63 75	61 50	59 12	59 22
1865...	58 12	53 12	50 37	45 50	39 12	35 00	35 67	40 12	44 33	49 87	51 00	50 75	46 08
1866...	50 37	49 00	46 12	41 75	41 37	43 87	46 50	47 25	48 12	48 75	49 50	49 50	46 84
1867...	48 75	46 50	44 75	41 00	42 75	43 00	43 33	44 00	44 50	44 50	43 75	42 12	44 08
1868...	38 67	36 75	37 87	38 33	37 00	37 00	38 17	39 50	40 17	41 37	42 87	43 25	39 25
1869...	42 00	40 25	41 50	40 00	39 50	40 87	41 62	41 12	40 75	40 50	39 75	39 50	40 61
1870...	36 25	34 50	34 50	33 25	33 25	32 50	32 75	33 50	33 25	32 25	31 50	31 25	33 23
1871...	30 50	30 87	34 25	35 37	35 50	35 00	35 75	36 00	36 50	36 67	37 25	37 25	35 08
1872...	37 00	40 75	47 00	49 50	49 50	53 37	51 33	52 75	53 87	53 33	51 25	47 62	48 94
1873...	45 17	48 00	48 37	47 75	46 00	45 00	43 75	43 50	42 50	38 00	33 00	32 50	42 79
1874...	32 00	32 00	32 00	32 00	31 50	31 50	31 50	31 00	29 50	29 00	26 25	24 00	30 19
1875...	25 67	26 50	27 00	27 00	26 00	26 00	26 00	26 00	25 00	24 00	23 75	23 50	25 58
1876...	23 25	23 00	23 00	22 75	22 00	22 00	22 00	22 00	21 75	21 75	21 50	21 25	22 19
1877...	20 75	20 00	20 00	19 50	19 00	18 75	18 25	18 00	18 25	18 50	18 00	18 00	18 92
1878...	18 50	18 50	18 50	18 50	18 00	17 25	17 25	17 50	17 50	17 00	16 50	17 00	17 67
1879...	17 25	17 50	17 87	18 00	18 50	18 75	19 25	20 75	24 25	30 00	28 00	30 50	21 72
1880...	40 00	41 00	37 50	31 00	25 00	23 00	23 50	25 00	23 25	23 00	24 50	25 00	28 48
1881...	25 00	25 50	26 00	25 00	25 00	24 00	24 50	24 50	25 25	25 50	25 75	26 00	25 17
1882...	26 00	26 00	25 75	25 50	25 50	25 50	25 50	25 50	26 00	26 25	26 00	25 75	25 77
1883...	25 00	24 50	24 00	23 50	22 00	21 00	21 50	22 00	22 00	21 50	21 00	21 00	22 42
1884...	20 50	20 50	20 50	20 00	20 00	20 00	20 00	19 50	19 50	19 50	19 25	18 50	19 81
1885...	18 00	18 00	18 00	18 00	17 87	17 75	17 75	17 75	18 00	18 25	18 25	18 25	17 99
1886...	18 50	18 50	18 75	18 50	18 50	18 25	18 25	18 25	18 50	19 00	19 50	20 00	18 71
1887...	21 50	21 50	21 00	20 75	20 85	21 00	21 00	21 00	21 00	20 50	20 50	20 50	20 93
1888...	21 00	20 75	20 50	19 75	18 50	18 00	18 00	18 00	18 00	18 00	18 00	18 00	18 88
1889...	18 00	18 00	18 00	17 35	17 00	17 25	17 25	17 50	17 50	17 50	18 50	19 25	17 76
1890...	19 90	19 50	19 25	18 25	18 00	18 00	18 00	18 00	18 00	18 00	18 00	18 00	18 41
1891...	17 50	17 50	17 50	17 50	17 50	17 50	17 50	17 50	17 50	17 75	17 50	17 50	17 52
1892...	17 50	17 00	16 50	16 00	15 95	15 69	15 06	15 00	15 00	15 00	15 17	15 12	15 75
1893...	14 80	14 75	14 69	14 58	14 85	15 00	15 00	14 50	14 33	14 20	13 75	13 75	14 52
1894...	13 37	13 00	13 00	12 60	12 50	12 50	12 50	12 50	12 50	12 50	12 50	12 50	12 66
1895...	12 08	12 00	12 06	12 00	12 06	12 50	13 80	13 75	14 20	14 50	14 44	13 85	13 10
1896...	13 56	13 50	13 45	13 25	12 83	12 75	12 75	12 75	12 50	12 56	12 81	12 75	12 95
1897...	12 75	12 75	12 60	12 12	11 87	11 75	11 75	11 75	11 87	12 00	12 00	12 00	12 10
1898...	12 00	11 87	11 75	11 75	11 65	11 44	11 25	11 30	11 50	11 70	11 75	11 97	11 66
1899...	12 12	13 25	16 00	16 50	16 60	18 62	20 37	21 70	23 50	23 70	25 00	25 00	19 36
1900...	25 00	24 50	23 62	23 19	22 60	20 00	17 75	17 20	17 00	16 00	16 40	16 50	19 98
1901...	16 05	16 00	16 00	16 00	16 00	16 00	15 87	15 50	15 50	15 50	15 75	16 25	15 87
1902...	17 55	18 37	19 44	20 37	21 00	22 87	24 20	24 50	24 50	24 45	24 87	24 20	22 19
1903...	24 00	23 75	23 50	22 70	21 37	20 62	19 00	18 00	17 50	16 70	16 00	15 85	19 92
1904...	15 50	15 50	15 45	15 75	15 40	15 19	14 94	15 00	15 00	15 12	16 40	17 62	15 57

AVERAGE WHOLESALE STORE PRICES OF BEST REFINED ROLLED  
BAR IRON AT PHILADELPHIA, PER GROSS TON.

Years.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Aver.
	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
1850....	65 00	65 00	65 00	62 50	60 00	57 50	57 50	57 50	57 50	56 00	56 00	55 00	59 54
1851.....	55 00	55 00	55 00	55 00	55 00	55 00	55 00	55 00	54 00	54 00	54 00	54 00	54 67
1852.....	54 00	54 00	52 50	52 50	52 50	52 50	52 50	55 00	60 00	70 00	70 00	80 00	58 79
1853.....	90 00	90 00	90 00	87 50	85 00	80 00	80 00	77 50	77 50	80 00	80 00	85 00	83 54
1854.....	90 00	90 00	90 00	90 00	90 00	92 50	95 00	95 00	95 00	92 50	90 00	90 00	91 67
1855.....	82 50	80 00	75 00	72 50	70 00	70 00	70 00	72 50	72 50	75 00	77 50	77 50	74 58
1856.....	75 00	77 50	77 50	77 50	75 00	72 50	70 00	70 00	72 50	72 50	72 50	72 50	73 75
1857.....	72 50	72 50	72 50	72 50	72 50	72 50	70 00	70 00	70 00	70 00	70 00	67 50	71 04
1858.....	65 00	65 00	65 00	62 50	62 50	65 00	62 50	60 00	60 00	60 00	60 00	60 00	62 29
1859.....	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00
1860.....	60 00	57 50	57 50	57 50	57 50	57 50	57 50	60 00	60 00	60 00	60 00	60 00	58 75
1861.....	60 00	60 00	60 00	60 00	60 00	60 00	60 00	60 00	62 50	62 50	62 50	62 50	60 83
1862.....	62 50	62 50	62 50	62 50	65 00	65 00	70 00	72 50	75 00	77 50	82 50	87 50	70 42
1863.....	87 50	90 00	90 00	90 00	90 00	87 50	87 50	87 50	87 50	90 00	95 00	110 00	91 04
1864.....	115 00	125 00	130 00	140 00	150 00	160 00	165 00	170 00	160 00	150 00	147 50	145 00	146 46
1865.....	142 50	135 00	130 00	110 00	100 00	92 50	90 00	85 00	92 50	95 00	100 00	105 00	106 46
1866.....	105 00	100 00	97 50	95 00	92 50	95 00	105 00	100 00	100 00	97 50	95 00	95 00	98 13
1867.....	95 00	92 50	92 50	92 50	90 00	87 50	87 50	85 00	82 50	82 50	82 50	85 00	87 08
1868.....	85 00	85 00	85 00	87 50	87 50	87 50	85 00	85 00	85 00	85 00	85 00	85 00	85 63
1869.....	82 50	82 50	82 50	82 50	82 50	82 50	82 50	82 50	80 00	80 00	80 00	80 00	81 67
1870.....	80 00	77 50	77 50	77 50	75 00	77 50	77 50	80 00	85 00	82 50	80 00	77 50	78 96
1871.....	72 50	75 00	75 00	77 50	75 00	77 50	77 50	80 00	82 50	82 50	82 50	85 00	78 54
1872.....	73 92	78 40	87 36	94 08	96 32	98 56	103 04	105 28	107 52	118 72	107 52	100 80	97 63
1873.....	96 32	94 08	96 32	94 08	94 08	91 84	85 12	82 88	80 64	76 16	73 92	71 68	86 43
1874.....	73 92	73 92	71 68	71 68	67 20	67 20	62 72	67 20	67 20	67 20	62 72	62 72	67 95
1875.....	62 72	60 48	62 72	62 72	62 72	62 72	62 72	60 48	60 48	60 48	56 00	56 00	60 85
1876.....	56 00	52 44	52 44	52 44	52 44	52 44	52 44	52 44	50 40	50 40	50 40	49 28	52 08
1877.....	48 72	47 60	47 04	44 80	44 80	44 80	44 80	44 80	44 80	44 80	44 80	44 80	45 55
1878.....	44 80	44 80	44 80	44 80	44 80	44 80	44 80	44 80	44 80	44 80	42 56	42 56	44 24
1879.....	40 32	42 56	44 80	44 80	44 80	44 80	47 04	49 28	57 12	67 20	67 20	72 24	51 85
1880.....	80 64	85 12	82 32	71 68	56 00	51 07	50 02	53 76	54 88	52 64	52 64	53 76	62 04
1881.....	56 00	56 00	56 00	56 00	53 76	53 76	54 88	57 12	60 48	62 72	64 96	64 96	58 05
1882.....	64 96	67 20	67 20	62 72	58 24	60 48	60 48	60 48	60 48	60 48	58 24	56 00	61 41
1883.....	53 76	52 64	51 52	50 40	50 40	50 40	50 40	49 28	49 28	49 28	49 28	47 04	50 31
1884.....	44 80	44 80	44 80	44 80	44 80	44 80	44 80	44 80	42 56	42 56	42 56	42 56	44 05
1885.....	40 32	40 32	40 32	40 32	40 32	40 32	40 32	40 32	40 32	40 32	40 32	40 32	40 32
1886.....	41 44	42 56	42 56	42 56	42 56	42 56	42 56	42 56	42 56	43 68	44 80	44 80	43 12
1887.....	48 16	50 40	51 52	51 52	51 52	49 28	49 28	49 28	49 28	48 16	47 04	47 04	49 37
1888.....	49 28	49 28	47 04	43 68	42 56	41 44	42 56	42 56	42 56	44 80	47 04	44 80	44 99
1889.....	44 80	42 56	40 32	40 32	41 44	44 80	42 56	43 68	43 68	44 80	44 80	44 80	45 83
1890.....	49 28	49 28	47 04	47 04	47 04	44 80	42 56	43 68	44 80	44 80	44 80	44 80	45 83
1891.....	44 80	42 56	42 56	42 56	42 56	42 56	42 56	42 56	42 56	41 44	41 44	42 56	42 56
1892.....	41 44	41 44	41 44	42 56	42 56	42 56	42 56	42 56	41 44	41 44	41 44	40 32	41 81
1893.....	40 32	40 32	39 20	39 20	39 20	39 20	38 08	38 08	36 96	35 84	35 84	34 72	38 08
1894.....	34 72	33 60	32 48	31 36	29 12	29 12	29 12	29 12	28 00	28 00	26 88	28 00	29 96
1895.....	26 88	26 88	28 00	29 12	30 24	30 24	35 84	38 08	38 08	35 84	35 84	32 48	32 29
1896.....	32 48	31 36	30 24	31 36	31 36	31 36	31 36	31 36	31 36	31 36	31 36	31 36	31 36
1897.....	31 36	31 36	31 36	28 00	28 00	28 00	28 00	28 00	28 00	30 24	30 24	30 24	29 40
1898.....	31 36	30 24	30 24	28 00	28 00	28 00	28 00	28 00	28 00	28 00	28 00	28 00	28 65
1899.....	29 12	32 48	38 08	39 20	42 56	44 80	51 52	53 76	56 00	56 00	56 00	56 00	46 29
1900.....	56 00	52 64	52 64	50 40	47 49	42 56	40 32	35 84	35 84	35 84	39 20	39 20	44 00
1901.....	39 20	39 20	39 20	41 44	41 44	41 44	41 44	41 44	41 44	42 56	42 56	42 56	41 16
1902.....	42 56	44 80	47 04	47 04	47 04	49 28	49 28	49 28	49 28	49 28	49 28	49 28	47 79
1903.....	49 28	49 28	49 28	49 28	48 38	48 38	45 02	43 23	40 54	40 54	38 30	38 30	44 83
1904.....	38 30	38 30	38 30	38 30	38 30	38 30	38 30	38 30	38 30	38 30	38 30	40 54	38 49

## AVERAGE PRICES OF AMERICAN AND BRITISH PIG IRON.

The following table gives the average annual prices of gray forge pig iron at Pittsburgh and of No. 1 foundry pig iron at Philadelphia from 1873 to 1904; also the average annual price of Bessemer pig iron at Pittsburgh from 1886 to 1904; also the average annual prices of Cleveland pig iron in the Cleveland district in England and of West Coast Bessemer pig iron. Bessemer pig iron at Pittsburgh should be compared with West Coast Bessemer. No British pig iron prices for a long series of years are available which are exactly comparable with the prices of our No. 1 foundry pig iron at Philadelphia.

Years.	United States.			Great Britain.	
	Gray forge, Pittsburgh.	No. 1 foundry, Phila.	Bessemer, Pittsburgh.	Cleveland pig iron, No. 3, f. o. b.	West Coast Bes- semer, f. o. b.
1873.....	\$35.80	\$42.79	.....	£5 15s. 0d.	£8 9s. 3d.
1874.....	27.16	30.19	.....	3 15 6	5 9 7
1875.....	23.67	25.53	.....	3 0 0	4 1 7
1876.....	21.74	22.19	.....	2 13 0	3 14 2
1877.....	20.60	18.92	.....	2 5 6	3 12 9
1878.....	18.09	17.67	.....	2 2 3	3 0 0
1879.....	22.15	21.72	.....	2 1 2	2 17 6
1880.....	27.98	28.48	.....	2 10 6	4 4 6
1881.....	22.94	25.17	.....	1 19 1	3 1 2
1882.....	23.84	25.77	.....	2 3 5	2 18 6
1883.....	19.04	22.42	.....	1 19 5	2 11 9
1884.....	17.17	19.81	.....	1 16 8	2 6 10
1885.....	15.27	17.99	.....	1 13 0	2 4 6
1886.....	16.58	18.71	\$18.96	1 10 8	2 3 7
1887.....	19.02	20.93	21.37	1 14 2	2 6 2
1888.....	15.99	18.88	17.38	1 12 8	2 4 8
1889.....	15.35	17.76	18.00	2 3 9	2 12 3
1890.....	15.78	18.41	18.87	2 7 9	.....
1891.....	14.06	17.52	15.95	2 0 1	.....
1892.....	12.81	15.75	14.37	1 18 7	2 9 7
1893.....	11.77	14.52	12.87	1 14 11	2 6 0
1894.....	9.75	12.66	11.38	1 15 11	2 5 6
1895.....	10.94	13.10	12.72	1 16 2	2 6 6
1896.....	10.39	12.95	12.14	1 18 2	2 9 3
1897.....	9.03	12.10	10.13	2 0 10	2 10 6
1898.....	9.18	11.66	10.33	2 2 0	2 14 7
1899.....	16.72	19.36	19.03	3 0 2	3 10 3
1900.....	16.90	19.98	19.49	3 9 1	4 2 1
1901.....	14.20	15.87	15.93	2 5 7	3 1 0
1902.....	19.49	22.19	20.67	2 9 2	3 0 5
1903.....	17.52	19.92	18.98	2 6 6	2 18 7
1904.....	12.89	15.57	13.76	2 3 10	2 14 6

## AVERAGE PRICES OF BAR IRON AT PITTSBURGH.

The following table gives the average prices per 100 pounds of bar iron at mills at Pittsburgh from 1882 to 1904; for 1882 and 1883 for common bar iron; from 1884 to 1892 for all muck bar iron; and from 1893 to 1904 for best refined bar iron.

Years.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Aver.
	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
1882.....	2 50	2 50	2 50	2 45	2 35	2 50	2 50	2 50	2 50	2 50	2 20	2 20	2 43
1883.....	2 20	2 00	2 00	2 00	2 00	2 00	2 00	2 00	2 00	1 90	1 80	1 80	1 97
1884.....	1 80	1 80	1 80	1 80	1 75	1 70	1 70	1 65	1 65	1 65	1 65	1 65	1 72
1885.....	1 65	1 65	1 65	1 65	1 65	1 65	1 60	1 55	1 60	1 60	1 65	1 70	1 63
1886.....	1 70	1 70	1 70	1 70	1 70	1 65	1 65	1 65	1 65	1 70	1 75	1 85	1 70
1887.....	2 00	2 00	2 00	2 00	2 00	2 00	1 90	1 90	1 90	1 90	1 90	1 85	1 95
1888.....	1 85	1 80	1 80	1 75	1 75	1 70	1 70	1 70	1 80	1 80	1 80	1 80	1 77
1889.....	1 75	1 70	1 65	1 65	1 60	1 60	1 60	1 72	1 75	1 80	1 80	1 90	1 71
1890.....	1 90	1 90	1 85	1 85	1 75	1 80	1 80	1 85	1 85	1 85	1 85	1 85	1 84
1891.....	1 80	1 75	1 75	1 70	1 70	1 70	1 70	1 70	1 70	1 70	1 68	1 68	1 71
1892.....	1 70	1 68	1 62	1 60	1 58	1 60	1 70	1 68	1 64	1 67	1 64	1 60	1 64
1893.....	1 59	1 56	1 57	1 55	1 55	1 52	1 52	1 50	1 50	1 40	1 35	1 35	1 50
1894.....	1 30	1 25	1 20	1 20	1 25	1 25	1 20	1 17	1 17	1 15	1 15	1 10	1 20
1895.....	1 10	1 10	1 10	1 10	1 12	1 22	1 32	1 36	1 44	1 42	1 40	1 37	1 25
1896.....	1 25	1 25	1 21	1 20	1 20	1 20	1 20	1 20	1 20	1 20	1 22	1 25	1 21
1897.....	1 22	1 20	1 20	1 14	1 04	99	95	99	1 07	1 15	1 15	1 15	1 10
1898.....	1 15	1 15	1 05	1 05	1 05	1 05	1 05	1 05	1 08	1 10	1 04	1 00	1 07
1899.....	1 12	1 22	1 38	1 65	1 75	1 88	2 00	2 28	2 50	2 60	2 56	2 50	1 95
1900.....	2 50	2 50	2 50	2 45	2 34	2 20	2 00	2 00	2 00	1 81	1 73	1 75	2 15
1901.....	1 75	1 82	1 90	1 90	1 90	1 86	1 75	1 75	1 75	1 75	1 75	1 75	1 80
1902.....	1 87	1 90	1 90	1 95	2 02	2 10	1 86	1 95	2 00	1 92	1 85	2 00	1 94
1903.....	2 00	2 00	2 00	2 00	2 00	1 77	1 70	1 70	1 70	1 70	1 34	1 30	1 77
1904.....	1 30	1 31	1 38	1 50	1 50	1 50	1 50	1 50	1 50	1 50	1 52	1 76	1 48

## AVERAGE PRICES OF COMMON BAR IRON AT CHICAGO.

The following table, compiled from weekly quotations in the *Iron Age*, gives the average prices, per 100 pounds, of common bar iron at Chicago, in carload lots, from 1889 to 1904.

Years.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Aver.
1889.....	\$1 70	\$1 67	\$1 62	\$1 60	\$1 55	\$1 55	\$1 60	\$1 65	\$1 70	\$1 75	\$1 85	\$1 92	\$1 68
1890.....	1 95	1 90	1 80	1 75	1 70	1 80	1 80	1 85	1 90	1 85	1 80	1 77	1 82
1891.....	1 70	1 72	1 70	1 65	1 65	1 67	1 67	1 67	1 75	1 75	1 67	1 70	1 69
1892.....	1 65	1 67	1 62	1 57	1 52	1 55	1 62	1 65	1 65	1 62	1 62	1 62	1 61
1893.....	1 57	1 55	1 57	1 52	1 50	1 47	1 47	1 45	1 47	1 45	1 40	1 35	1 48
1894.....	1 25	1 20	1 15	1 10	1 05	1 05	1 10	1 10	1 05	1 00	1 05	1 05	1 10
1895.....	1 05	1 00	1 00	1 10	1 10	1 20	1 30	1 40	1 50	1 50	1 50	1 40	1 25
1896.....	1 30	1 35	1 30	1 30	1 30	1 30	1 30	1 30	1 30	1 30	1 15	1 25	1 29
1897.....	1 25	1 25	1 12	1 05	1 05	1 00	1 07	1 10	1 10	1 15	1 10	1 10	1 11
1898.....	1 05	1 05	1 05	1 07	1 10	1 12	1 02	1 05	1 05	1 05	1 02	1 05	1 06
1899.....	1 05	1 15	1 45	1 57	1 62	1 80	1 85	2 00	2 25	2 30	2 30	2 30	1 80
1900.....	2 30	2 30	2 30	2 15	2 05	1 75	1 40	1 30	1 35	1 35	1 40	1 45	1 76
1901.....	1 45	1 45	1 55	1 60	1 55	1 55	1 55	1 60	1 62	1 70	1 65	1 65	1 58
1902.....	1 67	1 75	1 85	1 87	1 86	1 75	1 77	1 80	1 88	1 81	1 76	1 75	1 79
1903.....	1 76	1 81	1 85	1 82	1 80	1 72	1 66	1 62	1 54	1 44	1 39	1 35	1 65
1904.....	1 35	1 40	1 48	1 49	1 45	1 31	1 32	1 34	1 35	1 36	1 45	1 63	1 41

## AVERAGE PRICES OF GRAY FORGE PIG IRON AT PITTSBURGH.

The following table gives the average prices of gray forge pig iron at Pittsburgh from 1882 to 1904, in gross tons.

Years.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Aver.
	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
1882.....	25 00	26 00	25 50	25 00	24 00	.....	24 00	24 00	23 00	22 50	21 75	21 50	23 84
1883.....	21 00	20 50	20 00	19 50	18 50	18 50	18 50	18 50	18 50	18 50	18 50	18 00	19 04
1884.....	18 00	18 00	17 75	17 50	17 50	17 50	17 00	16 75	16 50	16 50	16 50	16 50	17 17
1885.....	16 25	16 00	16 00	15 50	15 50	15 00	15 00	14 50	14 75	14 75	14 75	15 25	15 27
1886.....	16 50	16 50	16 50	16 50	16 50	16 25	15 75	15 50	15 75	16 50	17 75	19 00	16 58
1887.....	20 50	21 00	20 50	20 25	19 00	18 50	18 50	18 50	18 25	18 25	17 75	17 00	19 02
1888.....	17 00	16 75	16 50	15 65	15 50	15 25	14 75	15 00	16 25	16 50	16 50	16 25	15 99
1889.....	15 50	14 75	15 00	14 25	14 00	14 00	14 15	14 90	15 50	16 60	17 25	18 25	15 35
1890.....	18 00	18 00	17 00	15 35	15 25	15 25	15 25	15 25	15 25	15 00	15 00	14 75	15 78
1891.....	14 25	14 50	15 00	14 12	14 00	14 00	14 00	14 00	14 00	13 85	13 50	13 50	14 06
1892.....	13 50	13 25	13 00	13 00	12 94	12 75	12 75	12 50	12 50	12 50	12 50	12 50	12 81
1893.....	12 30	12 25	12 25	12 25	12 25	12 25	12 00	12 00	11 69	10 87	10 66	10 44	11 77
1894.....	9 88	9 72	9 61	9 47	9 55	9 78	9 94	10 00	10 02	9 84	9 72	9 47	9 75
1895.....	9 17	9 09	8 99	9 27	9 81	10 55	11 45	11 97	13 37	13 12	12 65	11 85	10 94
1896.....	10 90	11 00	10 92	10 85	10 79	10 62	10 37	9 63	9 50	9 87	10 34	9 94	10 39
1897.....	9 66	9 54	9 41	8 85	8 70	8 36	8 36	8 29	8 85	9 75	9 56	9 00	9 03
1898.....	9 00	8 97	9 06	9 22	9 12	9 14	9 11	9 19	9 36	9 33	9 24	9 46	9 18
1899.....	9 89	10 87	13 29	14 50	15 07	15 94	17 50	18 37	20 90	21 19	21 56	21 52	16 72
1900.....	21 00	21 25	20 90	20 50	19 12	17 80	15 50	14 00	13 37	13 00	13 03	13 32	16 90
1901.....	13 25	13 56	14 62	14 56	14 62	14 15	14 00	13 87	13 81	14 10	14 69	15 12	14 20
1902.....	16 00	16 37	17 44	18 56	19 75	20 06	21 00	20 69	20 81	21 60	21 06	20 55	19 49
1903.....	20 50	20 50	20 87	20 45	19 87	18 87	17 90	16 04	15 25	14 20	13 00	12 80	17 62
1904.....	12 81	12 75	13 17	13 09	12 62	12 27	11 92	11 89	11 75	12 30	14 25	15 85	12 89

## AVERAGE PRICES OF CHARCOAL PIG IRON AT PHILADELPHIA.

From 1799 to 1827 the prices given in the following table are for best charcoal pig iron, at Philadelphia, per gross ton; from 1827 to 1833 for an average of all grades; from 1833 to 1840 for gray iron; and from 1840 to 1849 for No. 1 foundry pig iron.

Years.	Average	Years.	Average	Years.	Average	Years.	Average
Gross tons.	price.	Gross tons.	price.	Gross tons.	price.	Gross tons.	price.
1799.....	\$36.25	1812.....	\$47.50	1825.....	\$46.75	1838.....	\$32.25
1800.....	35.75	1813.....	47.25	1826.....	46.50	1839.....	30.00
1801.....	32.75	1814.....	46.00	1827.....	39.25	1840.....	32.75
1802.....	30.75	1815.....	53.75	1828.....	35.00	1841.....	28.50
1803.....	29.25	1816.....	50.25	1829.....	35.00	1842.....	28.00
1804.....	29.75	1817.....	47.00	1830.....	35.00	1843.....	26.75
1805.....	30.75	1818.....	42.25	1831.....	35.00	1844.....	28.25
1806.....	35.75	1819.....	36.50	1832.....	35.00	1845.....	32.25
1807.....	38.75	1820.....	35.00	1833.....	38.25	1846.....	31.25
1808.....	40.00	1821.....	35.00	1834.....	30.25	1847.....	31.50
1809.....	40.00	1822.....	35.00	1835.....	30.25	1848.....	28.50
1810.....	38.00	1823.....	35.25	1836.....	41.50	1849.....	24.50
1811.....	44.00	1824.....	40.00	1837.....	41.25	.....	.....

AVERAGE PRICES OF NORTHERN COKE PIG IRON  
AT CHICAGO.

The following table, which we have compiled from quotations in the *Iron Age*, gives the average monthly and yearly prices of Northern coke pig iron at Chicago, per gross ton, in carload lots, on track, from 1889 to 1904. From 1889 to 1895 inclusive the prices are for Northern No. 1 foundry pig iron, but from 1896 to 1904 they are for Northern No. 2 foundry pig iron.

Years.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Average.
	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
1889.....	16 75	16 00	16 00	16 00	16 00	15 50	15 75	16 00	16 50	18 00	18 50	20 00	16 75
1890.....	20 50	19 50	18 50	18 00	17 00	16 75	16 75	16 75	17 00	17 00	16 50	15 75	17 50
1891.....	15 25	15 50	15 50	15 75	15 50	15 50	15 50	15 75	15 75	15 50	15 50	15 50	15 54
1892.....	15 25	15 00	14 50	14 75	14 50	14 50	14 50	14 50	14 50	14 25	13 75	13 75	14 48
1893.....	14 00	13 75	13 50	14 00	14 00	14 00	13 50	13 50	13 50	13 50	13 50	13 50	13 69
1894.....	13 00	12 50	12 00	11 25	11 25	11 25	11 00	10 50	10 25	10 25	10 50	11 17	11 17
1895.....	10 25	10 25	10 25	10 25	10 50	11 00	13 00	13 50	14 00	14 50	14 50	14 50	12 21
1896.....	13 55	12 50	12 00	12 00	11 69	11 50	11 25	11 18	10 75	10 88	11 19	11 25	11 64
1897.....	11 02	11 00	10 88	10 75	10 38	10 25	10 25	10 25	10 40	11 00	11 00	11 00	10 68
1898.....	11 00	10 93	10 75	10 91	11 00	11 00	11 00	11 00	11 00	11 00	11 00	11 00	10 97
1899.....	11 12	12 12	14 60	15 12	15 37	17 60	18 87	20 30	21 87	23 00	23 10	23 50	18 05
1900.....	23 50	23 50	23 50	23 37	22 30	20 37	18 25	15 90	15 00	14 50	14 50	14 75	19 12
1901.....	14 75	14 25	15 25	15 50	15 50	15 00	15 00	15 00	15 00	14 75	14 88	15 50	15 03
1902.....	15 90	16 50	18 16	18 62	20 50	21 50	21 25	21 75	23 00	23 00	23 00	23 00	20 51
1903.....	23 10	23 00	22 87	22 52	20 37	19 50	17 90	16 87	16 06	15 35	14 75	14 46	18 90
1904.....	14 12	13 56	13 70	14 00	13 50	13 35	13 25	13 25	13 50	13 75	15 63	16 60	14 02

AVERAGE PRICES OF SOFT STEEL BARS AT CHICAGO.

The following table, which we have compiled from quotations in the *Iron Age*, gives the average monthly and yearly prices, per 100 pounds, of soft steel bars at Chicago, in carload lots, from 1893 to 1904. In 1892 the average yearly price was \$1.75. Average monthly quotations for that year are not available.

Years.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Average.
	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
1893.....	1 70	1 65	1 65	1 67	1 62	1 60	1 65	1 62	1 60	1 52	1 47	1 40	1 60
1894.....	1 25	1 35	1 25	1 20	1 25	1 35	1 30	1 30	1 25	1 25	1 20	1 20	1 26
1895.....	1 15	1 15	1 15	1 15	1 25	1 35	1 40	1 55	1 65	1 65	1 60	1 45	1 37
1896.....	1 40	1 37	1 35	1 40	1 30	1 30	1 25	1 25	1 25	1 20	1 25	1 25	1 30
1897.....	1 20	1 17	1 12	1 05	1 00	1 05	1 10	1 12	1 17	1 20	1 20	1 15	1 13
1898.....	1 15	1 15	1 12	1 10	1 07	1 05	1 07	1 10	1 15	1 12	1 10	1 10	1 11
1899.....	1 15	1 20	1 50	1 60	1 70	1 90	2 00	2 20	2 30	2 35	2 40	2 35	1 89
1900.....	2 35	2 35	2 35	2 20	2 10	1 85	1 40	1 25	1 30	1 30	1 35	1 40	1 77
1901.....	1 40	1 45	1 55	1 65	1 60	1 55	1 55	1 65	1 65	1 65	1 65	1 65	1 58
1902.....	1 67	1 65	1 75	1 75	1 75	1 75	1 75	1 75	1 75	1 75	1 75	1 75	1 73
1903.....	1 75	1 76	1 76	1 76	1 76	1 76	1 76	1 76	1 76	1 76	1 54	1 46	1 72
1904.....	1 46	1 46	1 49	1 51	1 51	1 51	1 51	1 51	1 49	1 46	1 46	1 50	1 49

## AVERAGE PRICES OF WIRE NAILS AT CHICAGO.

The following table, compiled from quotations in the *Iron Age*, gives the average monthly and yearly base prices of standard sizes of wire nails, per keg of 100 pounds, in carload lots, free on board at Chicago, from 1886 to 1904 inclusive. Regular quotations for standard sizes of wire nails were not made until 1886. In this year our statistics of wire nail production begin.

Years.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Average.
	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
1886.....									3 50	3 50	3 55	3 50	3 51
1887.....	3 50	3 65	3 65	3 45	3 20	3 00	2 95	3 00	3 00	2 90	2 75	2 75	3 15
1888.....	2 70	2 60	2 65	2 70	2 60	2 50	2 35	2 45	2 55	2 55	2 55	2 40	2 55
1889.....	2 55	2 40	2 35	2 35	2 30	2 30	2 30	2 25	2 35	2 55	3 15	3 00	2 49
1890.....	2 90	2 95	2 75	2 40	2 30	2 40	2 40	2 50	2 55	2 40	2 30	2 25	2 51
1891.....	2 22	2 27	2 22	2 12	2 05	2 02	2 07	2 02	2 00	1 90	1 85	1 80	2 04
1892.....	1 82	1 87	1 85	1 75	1 70	1 57	1 70	1 70	1 67	1 57	1 60	1 60	1 70
1893.....	1 57	1 55	1 65	1 65	1 60	1 50	1 47	1 47	1 47	1 40	1 30	1 27	1 49
1894.....	1 17	1 20	1 15	1 00	1 07	1 20	1 20	1 15	1 10	1 05	1 05	1 00	1 11
1895.....	95	95	1 00	95	1 10	1 50	1 95	2 20	2 40	2 40	2 42	2 42	1 69
1896.....	2 42	2 42	2 57	2 55	2 70	2 70	2 70	2 70	2 70	2 70	*1 60	2 54	2 54
1897.....	1 50	1 45	1 50	1 45	1 42	1 42	1 35	1 37	1 50	1 52	1 50	1 50	1 46
1898.....	1 55	1 57	1 55	1 47	1 45	1 43	1 36	1 36	1 45	1 47	1 40	1 37	1 45
1899.....	1 59	1 73	2 09	2 25	2 35	2 60	2 70	2 80	3 10	3 20	3 28	3 53	2 60
1900.....	3 53	3 53	3 53	3 28	2 53	2 48	2 43	2 43	2 35	2 35	2 35	2 35	2 76
1901.....	2 35	2 45	2 45	2 45	2 45	2 45	2 45	2 45	2 45	2 42	2 35	2 25	2 41
1902.....	2 16	2 20	2 20	2 20	2 20	2 20	2 20	2 20	2 15	2 05	2 00	2 00	2 15
1903.....	2 08	2 12	2 20	2 15	2 15	2 15	2 15	2 15	2 15	2 15	2 15	2 00	2 13
1904.....	2 04	2 05	2 09	2 10	2 10	2 07	2 05	1 90	1 75	1 75	1 77	1 88	1 96

\* A new nail card was adopted in December, 1896, which greatly reduced prices. The average price given for wire nails in December on the new card, namely, \$1.60 per keg, would be equivalent to \$1.10 per keg on the old card.

## AVERAGE PRICES OF TANK PLATES AT CHICAGO.

We are indebted to the *Iron Trade Review* for the following table, which gives in net tons the average monthly and yearly prices of tank plates at Chicago for the last ten years.

Years.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Average.
	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
1896.....	27 00	27 00	27 00	25 50	26 25	31 50	35 50	40 00	42 00	40 00	36 50	33 00	32 60
1897.....	31 00	30 00	32 00	30 50	30 00	29 75	28 60	27 75	26 75	25 40	25 50	26 00	28 60
1898.....	25 00	25 00	25 00	24 25	23 00	22 00	22 00	22 00	22 75	24 25	25 00	23 00	23 60
1899.....	23 00	22 50	22 00	22 75	23 00	22 75	23 00	23 50	24 00	24 00	24 00	25 00	23 29
1900.....	26 50	29 50	39 00	45 00	45 00	53 50	55 50	60 50	65 00	64 00	60 00	58 00	50 12
1901.....	52 50	50 00	45 25	42 00	38 75	32 75	28 00	25 00	26 00	25 00	29 25	30 75	35 44
1902.....	31 00	30 00	32 40	34 40	35 00	35 00	35 00	35 00	35 00	35 00	35 00	35 00	33 98
1903.....	35 00	35 00	35 25	36 25	38 60	43 00	43 00	43 00	43 00	40 60	40 50	41 00	39 52
1904.....	35 00	37 00	38 00	40 00	37 75	35 00	35 00	35 00	35 00	35 00	35 00	35 00	36 06
1905.....	35 30	35 30	35 30	35 30	35 30	35 30	35 30	35 30	29 30	29 30	29 30	30 10	33 37

## AVERAGE PRICES OF RAILROAD WROUGHT SCRAP AT CHICAGO.

The following table, which has been compiled from quotations in the *Iron Age*, gives the average prices of No. 1 railroad wrought scrap at Chicago, per net ton, in carload lots. For 1896 and preceding years the prices are for No. 1 forge scrap.

Years.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Aver.
	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
1889.....	20 00	20 00	19 50	18 50	17 50	17 50	18 00	18 00	19 50	21 00	21 50	22 00	19 42
1890.....	20 50	19 50	19 00	18 50	18 00	19 00	20 00	20 50	21 00	21 00	20 50	19 00	19 71
1891.....	18 25	18 50	18 50	18 25	18 50	18 50	18 75	19 00	18 50	18 25	17 75	17 50	18 35
1892.....	17 50	17 50	16 75	16 00	15 00	14 50	15 00	15 00	15 00	15 00	16 00	16 00	15 77
1893.....	15 50	15 50	15 00	15 00	14 00	12 50	12 00	11 00	10 50	10 25	10 25	10 50	12 67
1894.....	9 50	9 00	9 00	9 00	9 00	9 00	9 00	9 00	9 00	9 00	8 50	8 50	8 96
1895.....	8 50	8 00	8 50	8 50	9 00	10 50	11 50	14 00	15 00	14 00	13 00	12 50	11 08
1896.....	10 50	11 50	12 25	12 50	11 50	10 00	10 00	9 50	10 00	11 00	12 50	13 00	11 19
1897.....	10 50	11 00	11 50	11 25	10 00	9 50	9 50	9 50	10 75	11 50	11 25	11 00	10 60
1898.....	11 50	11 75	11 50	11 50	11 50	10 75	10 50	10 50	10 75	11 25	11 50	11 75	11 23
1899.....	11 75	12 00	14 00	16 00	16 00	15 50	16 00	16 00	19 00	23 50	24 00	23 50	17 27
1900.....	21 00	20 90	19 90	19 20	16 50	12 50	10 75	10 25	10 75	12 25	13 40	14 60	15 17
1901.....	14 12	14 00	15 00	16 00	15 50	14 00	14 12	14 50	16 00	15 75	15 50	15 00	14 96
1902.....	15 40	16 50	18 83	19 37	20 10	21 00	21 00	20 50	21 37	21 30	21 00	19 83	19 68
1903.....	19 50	19 50	19 75	20 40	19 12	16 12	14 65	14 19	14 06	13 55	12 00	10 00	16 07
1904.....	10 85	12 50	12 80	12 50	11 37	10 50	10 44	11 12	11 85	12 50	15 44	17 55	12 45

## AVERAGE PRICES OF HEAVY MELTING SCRAP AT CHICAGO.

The following table gives the average prices of heavy melting scrap at Chicago, per gross ton, in carload lots, since 1901.

Years.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Aver.
	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
1901.....	11 50	12 00	12 75	14 00	13 50	13 00	12 50	12 00	12 50	13 25	13 50	13 50	12 83
1902.....	13 65	14 12	16 50	16 50	17 40	19 25	19 00	18 25	18 37	18 50	18 50	18 50	17 38
1903.....	18 05	18 12	18 31	18 35	17 62	16 50	16 30	16 00	13 75	12 80	11 25	9 00	15 50
1904.....	10 12	10 87	11 50	11 25	9 75	9 30	9 00	9 25	10 00	10 87	12 55	14 15	10 72

## AVERAGE PRICES OF STEEL BARS AT PITTSBURGH.

The following table, compiled from the *American Manufacturer*, gives the average prices of steel bars, per 100 lbs., at Pittsburgh.

Years.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Aver.
	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
1896.....	1 20	1 20	1 16	1 15	1 15	1 15	1 15	1 14	1 07	1 05	1 07	1 10	1 13
1897.....	1 07	1 05	1 00	95	92	90	90	90	1 00	1 00	1 00	1 00	97
1898.....	1 00	1 00	99	95	95	95	95	96	99	1 00	1 01	1 00	98
1899.....	1 07	1 09	1 48	1 75	1 71	2 05	2 00	2 21	2 50	2 60	2 46	2 25	1 93
1900.....	2 25	2 25	2 25	2 12	1 94	1 79	1 24	1 05	1 12	1 15	1 18	1 20	1 63
1901.....	1 20	1 27	1 44	1 50	1 50	1 50	1 52	1 50	1 50	1 52	1 60	1 60	1 47
1902.....	1 58	1 50	1 50	1 67	1 80	1 80	1 72	1 75	1 75	1 69	1 60	1 68	1 67
1903.....	1 64	1 60	1 60	1 60	1 60	1 60	1 60	1 60	1 60	1 60	1 37	1 30	1 56
1904.....	1 30	1 30	1 33	1 35	1 32	1 30	1 30	1 31	1 33	1 30	1 32	1 38	1 32

**AVERAGE PRICES OF LAKE SUPERIOR CHARCOAL PIG IRON  
AT CHICAGO.**

The following table, which has been compiled from quotations in the *Iron Age*, gives the average monthly and yearly prices of Lake Superior charcoal pig iron per gross ton, in carload lots, on track, at Chicago, from 1889 to 1904.

Years.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Aver- age.
	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
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

**AVERAGE PRICES OF HEAVY CAST SCRAP AT CHICAGO.**

The following table, which we have compiled from quotations in the *Iron Age*, gives the average monthly and yearly prices, per net ton, of heavy cast iron and steel scrap at Chicago, in carload lots, from 1889 to 1904.

Years.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Aver- age.
	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
1889.....	13 50	13 25	13 00	12 50	11 50	11 00	11 50	12 00	12 00	13 00	13 50	14 50	12 60
1890.....	14 00	13 50	13 50	13 00	13 00	13 00	13 00	14 00	13 50	13 50	13 50	14 00	13 37
1891.....	12 50	12 50	12 25	12 00	12 00	12 25	12 00	12 75	12 25	12 25	12 00	12 00	12 23
1892.....	12 00	12 50	12 00	11 50	11 50	11 50	11 50	11 50	11 50	11 50	11 50	11 50	11 67
1893.....	11 25	11 25	11 25	11 25	11 00	10 25	10 00	9 00	8 00	8 50	9 50	9 50	10 06
1894.....	8 75	7 75	7 50	7 50	7 25	7 25	7 25	7 25	7 25	7 50	7 50	7 50	7 52
1895.....	7 50	7 00	7 00	7 00	7 00	7 75	8 00	9 25	9 50	9 50	10 50	10 50	8 37
1896.....	9 50	9 25	9 25	9 50	9 25	8 50	8 25	7 50	7 00	7 50	8 25	8 00	8 48
1897.....	7 00	7 00	7 25	7 50	7 00	7 00	7 25	7 25	7 25	7 50	7 50	7 50	7 25
1898.....	7 50	8 25	8 00	8 50	8 75	8 00	7 75	8 00	8 25	8 25	8 25	8 25	8 15
1899.....	8 25	9 00	11 50	12 00	11 50	11 50	12 00	12 50	15 00	16 00	15 50	14 00	12 40
1900.....	13 00	12 25	11 85	11 60	11 00	10 00	9 00	9 00	9 15	11 00	11 60	11 60	10 92
1901.....	12 00	11 50	11 75	12 00	11 50	10 75	10 50	10 50	11 00	11 25	11 12	11 00	11 24
1902.....	11 70	12 37	14 33	14 00	14 40	14 50	14 70	16 00	16 87	17 00	17 00	17 50	15 03
1903.....	17 30	16 62	18 12	17 80	16 75	14 62	14 20	14 00	13 00	12 40	11 62	10 50	14 74
1904.....	10 50	11 37	12 00	11 12	10 25	8 80	8 94	9 87	10 70	11 05	12 69	14 15	10 95

## AVERAGE PRICES OF ANGLES, BEAMS, AND CHANNELS AT CHICAGO.

The following table, which we have compiled from quotations in the *Iron Age*, gives the average monthly and yearly prices, per 100 pounds, of structural shapes at Chicago, in carload lots. From 1889 to 1902 the prices given cover angles only, but for 1903 and 1904 beams and channels are included.

Years.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Aver. age.
	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
1889.....	2 15	2 12	2 12	2 12	2 10	2 10	2 15	2 25	2 25	2 30	2 35	2 40	2 20
1890.....	2 55	2 55	2 50	2 35	2 25	2 25	2 30	2 35	2 35	2 35	2 35	2 35	2 37
1891.....	2 30	2 25	2 25	2 25	2 25	2 15	2 10	2 10	2 10	2 05	2 10	2 10	2 17
1892.....	2 00	1 95	1 95	1 90	1 85	1 85	2 10	2 10	2 05	2 00	1 95	1 90	1 97
1893.....	1 95	1 90	1 90	1 90	1 90	1 80	1 77	1 77	1 77	1 77	1 70	1 62	1 81
1894.....	1 55	1 35	1 40	1 35	1 35	1 45	1 45	1 40	1 40	1 40	1 40	1 40	1 41
1895.....	1 30	1 30	1 30	1 25	1 30	1 50	1 60	1 75	1 75	1 75	1 75	1 60	1 51
1896.....	1 50	1 50	1 45	1 45	1 45	1 45	1 35	1 35	1 30	1 30	1 30	1 35	1 40
1897.....	1 25	1 25	1 25	1 20	1 15	1 15	1 10	1 12	1 17	1 20	1 20	1 20	1 19
1898.....	1 30	1 15	1 15	1 30	1 25	1 20	1 20	1 30	1 30	1 30	1 30	1 30	1 25
1899.....	1 40	1 40	1 55	1 75	1 75	1 90	2 15	2 25	2 40	2 40	2 40	2 40	1 98
1900.....	2 40	2 40	2 40	2 40	2 40	2 15	1 95	1 75	1 55	1 55	1 55	1 55	2 00
1901.....	1 55	1 55	1 55	1 75	1 75	1 75	1 75	1 75	1 75	1 75	1 75	1 75	1 70
1902.....	1 75	1 75	1 75	1 75	1 75	1 75	1 75	1 75	1 75	1 75	1 75	1 75	1 75
1903.....	1 75	1 75	1 75	1 75	1 75	1 75	1 75	1 75	1 75	1 75	1 75	1 76	1 75
1904.....	1 76	1 76	1 76	1 76	1 76	1 76	1 76	1 76	1 64	1 56	1 56	1 60	1 70

## AVERAGE PRICES OF BUSHELING SCRAP AT CHICAGO.

The following table, which we have compiled from quotations in the *Iron Age*, gives the average monthly and yearly prices, per net ton, of busheling scrap at Chicago, in carload lots. For 1898 and preceding years the prices are for No. 1 mill scrap.

Years.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Aver.
	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
1889.....	14 00	14 00	14 00	13 50	13 00	13 00	14 00	14 25	14 50	16 00	17 00	17 50	14 56
1890.....	16 50	16 50	15 50	14 50	14 00	15 50	16 00	16 50	16 50	16 00	15 50	14 50	15 62
1891.....	14 00	13 75	13 75	13 50	13 50	13 75	14 25	14 50	14 25	13 75	13 25	12 50	13 73
1892.....	12 50	12 50	11 50	11 00	10 50	10 00	11 00	11 00	11 00	11 00	11 00	11 00	11 17
1893.....	10 75	10 75	10 75	10 50	10 00	9 00	9 00	8 50	8 00	8 00	8 00	8 00	9 27
1894.....	8 25	6 75	6 75	6 50	6 50	6 50	6 50	6 50	7 00	7 00	7 00	7 00	6 85
1895.....	6 50	6 50	6 50	6 50	7 00	7 50	8 00	9 00	10 00	9 00	8 00	7 50	7 67
1896.....	6 50	7 00	7 50	7 75	7 50	7 00	6 75	6 50	6 00	6 50	7 50	7 50	7 00
1897.....	7 00	7 00	7 00	6 75	6 00	5 50	5 75	5 75	6 50	7 00	6 50	6 50	6 44
1898.....	6 50	6 75	7 00	7 00	6 50	6 50	6 50	6 50	6 62	6 75	6 25	6 75	6 63
1899.....	7 00	7 75	8 75	9 00	9 00	8 75	8 50	9 00	13 00	14 50	13 50	13 00	10 15
1900.....	10 75	10 25	9 85	9 85	8 70	7 35	6 70	6 25	6 45	6 70	6 70	6 70	8 02
1901.....	9 00	10 00	10 00	12 00	11 00	10 50	10 50	10 50	12 00	12 25	11 50	10 50	10 81
1902.....	11 35	11 87	13 50	13 50	13 50	13 62	14 40	15 00	15 00	15 00	14 87	14 16	13 81
1903.....	14 00	14 00	14 00	14 00	13 87	12 87	12 20	11 50	10 94	10 20	9 12	7 87	12 05
1904.....	8 25	8 69	8 55	8 87	8 00	7 40	7 12	7 69	8 00	9 00	11 00	12 60	8 76

## AVERAGE PRICES OF STEEL BILLETS AT PITTSBURGH.

The following table gives the average prices of steel billets at mills at Pittsburgh from 1891 to 1904, per gross ton.

Years.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Aver.
	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
1891.....	25 65	25 87	26 31	25 35	25 62	25 44	25 80	25 25	25 00	24 85	24 31	24 50	25 33
1892.....	25 00	24 00	23 33	22 87	22 57	22 81	23 29	24 08	24 24	23 55	24 83	23 00	23 63
1893.....	21 75	21 56	22 34	22 72	21 69	21 87	21 37	20 62	19 19	17 94	17 31	16 87	20 44
1894.....	16 10	15 94	15 46	15 69	17 75	18 60	17 75	17 75	17 30	16 00	15 49	15 11	16 58
1895.....	14 79	15 01	14 94	15 42	16 25	18 85	21 06	22 05	24 35	22 19	19 90	17 00	18 48
1896.....	16 60	17 69	17 19	19 80	19 55	19 42	19 50	19 22	19 41	19 73	19 89	18 00	18 83
1897.....	15 90	15 50	15 62	14 65	13 96	14 12	14 00	14 29	15 50	16 55	15 87	15 00	15 08
1898.....	15 00	15 12	15 37	15 30	14 94	14 75	14 75	15 62	16 00	15 80	15 12	15 90	15 31
1899.....	17 06	18 87	24 25	25 25	27 66	31 87	33 80	36 37	41 50	41 50	39 00	36 87	31 12
1900.....	34 50	33 10	33 00	32 00	28 90	27 25	21 00	18 20	17 06	16 80	19 19	19 75	25 06
1901.....	19 75	20 31	22 87	24 00	24 00	24 37	24 00	24 20	24 87	26 70	27 00	27 50	24 13
1902.....	27 60	29 37	31 25	31 50	32 20	32 37	31 75	31 75	31 00	30 40	28 50	29 20	30 57
1903.....	29 60	30 00	30 62	30 20	30 25	28 87	27 40	27 00	27 00	27 00	24 00	23 00	27 91
1904.....	23 00	23 00	23 00	23 00	23 00	23 00	23 00	23 00	21 25	19 50	20 40	21 00	22 18

## RATES OF TRANSPORTATION OF WHEAT IN THE UNITED STATES.

The following table, compiled by the statistician of the New York Produce Exchange, gives the average freight charges per bushel for wheat from Chicago to New York from 1869 to 1904.

Calendar years.	By lake and canal.*	By lake and rail.	By all rail.	Calendar years.	By lake and canal.*	By lake and rail.	By all rail.
	Cents.	Cents.	Cents.		Cents.	Cents.	Cents.
1869.....	25.12	25.00	35.10	1887.....	8.51	12.00	†15.74
1870.....	17.11	22.00	33.30	1888.....	5.93	11.00	†14.50
1871.....	20.24	25.00	31.00	1889.....	6.89	† 8.70	15.00
1872.....	24.47	28.00	33.50	1890.....	5.85	8.50	14.31
1873.....	19.19	26.90	33.20	1891.....	5.96	8.53	15.00
1874.....	14.10	16.90	28.70	1892.....	5.61	7.55	14.23
1875.....	11.43	14.60	24.10	1893.....	6.33	8.44	14.70
1876.....	9.58	11.80	16.50	1894.....	4.44	7.00	12.88
1877.....	11.24	15.80	20.30	1895.....	4.11	6.95	12.17
1878.....	9.15	11.40	17.70	1896.....	5.38	7.32	12.00
1879.....	11.60	13.30	17.30	1897.....	4.35	7.37	12.32
1880.....	12.27	15.70	19.90	1898.....	4.42	4.96	11.55
1881.....	8.19	10.40	14.40	1899.....	5.65	6.63	11.13
1882.....	7.89	10.90	14.60	1900.....	4.42	5.05	† 9.98
1883.....	8.37	11.50	16.50	1901.....	5.14	5.57	† 9.92
1884.....	6.31	9.95	13.12	1902.....	5.25	5.78	†10.60
1885.....	5.87	9.02	14.00	1903.....	5.44	6.17	†11.33
1886.....	8.71	12.00	16.50	1904.....	4.71	5.02	†11.11

\* Including canal tolls until 1882, but not Buffalo transfer charges.

† Averages based upon officially published tariffs; actual rates lower.

† For domestic consumption; local rate for export only 9.08 cents in 1900, 9.02 cents in 1901, and 8.75 cents in 1902; and, when consigned or delivered to steamer, 8.89 cents in 1903 and 8.47 cents in 1904.



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