AMERICAN IRON AND STEEL ASSOCIATION

1885

STATISTICS

OF

THE AMERICAN AND FOREIGN IRON TRADES

FOR 1884.

ANNUAL REPORT OF THE SECRETARY

OF THE

AMERICAN

IRON AND STEEL ASSOCIATION,

CONTAINING

STATISTICS OF THE AMERICAN IRON TRADE TO JANUARY 1, 1885, AND A REVIEW OF THE PRESENT CONDITION OF THE IRON INDUSTRY IN FOREIGN COUNTRIES.

GEORGE W. COPE,

SECRETARY.

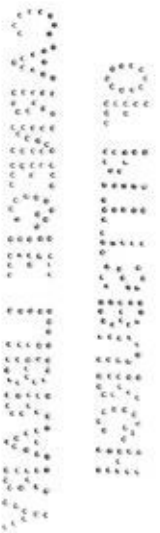
PRESENTED TO THE MEMBERS, MAY 15, 1885.

PHILADELPHIA:

THE AMERICAN IRON AND STEEL ASSOCIATION,

No. 261 South Fourth Street.

1885.



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PRELIMINARY STATEMENT.

B. F. JONES, Esq., Pittsburgh, Pa.

President of The American Iron and Steel Association.

Dear Sir:—I have the honor to submit to you herewith, and to the members of the Association, my First Annua Report.

In the preparation of this report it has not been my aim to introduce any novelty or to depart widely from the plan upon which the reports of this Association have been based for the past twelve years. The reputation which the publications of the Association have earned in that time has been largely due to the completeness of the information which my esteemed predecessor, Mr. James M. Swank, collected upon all branches of the iron and steel trades, and the accuracy with which that information was presented. Recognizing this fact it has been my endeavor to make my report harmonize with those which have preceded it and constitute another volume in the series of authentic statistical publications issued under the auspices of the American Iron and Steel Association.

The work of the Association during the past year included, in addition to its routine business, the publication and distribution of an unusually large number of tariff pamphlets and the preparation and publication of a revised edition of our Directory to the Iron and Steel Works of the United States. The interest taken in the discussion of the tariff question in many sections of the country during the political campaign of last year presented an opportunity for the inculcation of tariff sentiments which could not be neglected. As far as the means at the disposal of the Association permitted, the work of instilling sound Protective doctrine in the minds of our citizens of all political affiliations was prosecuted vigorously, and that work was undoubtedly productive of good results. The people.of this country are to-day more generally convinced of the wisdom of our Protective policy than at any previous time in our recent history.

During the past year a number of changes have been made in the officers of the Association. On the 15th of December, 1884, Hon. Daniel J. Morrell, the President, tendered his resignation in consequence of long-continued ill health. A meeting of the Board of Managers was called on the 6th of January following to elect a successor, and to transact other business. At that meeting, after adopting an appropriate tribute to Mr. Morrell's long and valuable services in connection with the work of the Association, Mr. B. F. Jones, the head of the well-known firm of Jones & Laughlins, iron manufacturers, of Pittsburgh, was chosen to fill the vacancy. Mr. Jones was not only the unanimous choice of the Board of Managers, but the members of the Association

generally, in all sections of the country, had previously expressed themselves in favor of his selection. In addition to the offices previously authorized by the Association the office of Vice-President and General Manager was at the same time created. The complete list of officers elected by the Board of Managers is as follows:

President—B. F. JONES, of Pittsburgh, Pennsylvania.

Vice-Presidents—JOSEPH WHARTON, SAMUEL M. FELTON, ABRAM S. HEWITT, WILLIAM METCALF.

Vice-President and General Manager—JAMES M. SWANK.

Secretary—GEORGE W. COPE.

Treasurer—ANDREW WHEELER.

Executive Committee—B. F. JONES, (Chairman,) WILLIAM METCALF, J. B. MOORHEAD, FREDERICK J. SLADE, JOSEPH WHARTON, SAMUEL M. FELTON, E. Y. TOWNSEND, DAVID REEVES, ANDREW WHEELER, W. E. C. COXE, PARIS HALDEMAN, PERCIVAL ROBERTS.

Auditing Committee—DAVID REEVES, PERCIVAL ROBERTS, POWELL STACKHOUSE.

In the preparation of my report I have enjoyed the ready and sympathetic counsel of Mr. JAMES M. SWANK, whose long experience as Secretary of this Association has made his judgment and advice most valuable. My thanks are also due to Mr. WILLIAM M. SWEET and Mr. WILLIAM M. BENNEY for very efficient assistance in the collection of statistics and in the performance of other clerical work. To Hon. JOSEPH NIMMO, JR., Chief of the Bureau of Statistics of the Treasury Department, I am under obligations for special statistical information concerning the imports and exports of the United States. The co-operation of other persons, who have supplied me with information on special subjects, is acknowledged in the proper connection in the body of the report.

Very Respectfully,

GEORGE W. COPE, *Secretary.*

No. 261 SOUTH FOURTH STREET, PHILADELPHIA, May 15, 1885.

STATISTICS OF THE AMERICAN IRON TRADE FOR 1884.

REVIEW OF THE DOMESTIC IRON TRADE IN 1884 AND DURING THE FIRST FOUR MONTHS OF 1885.

THE year which has elapsed since the publication of the last annual report has been a critical period for American manufacturers. With the exception of a brief season of good business early in 1884 the demand for iron and steel steadily decreased with the passage of the months until the competition among manufacturers for orders caused prices to be greatly reduced. This compelled vigorous efforts to be made to lower the cost of production, and among other measures adopted was a reduction in wages. In many sections of the country and in most branches of the trade this unfortunate consequence of falling prices was carried into effect, but in the West the power of the Amalgamated Association of Iron and Steel Workers was sufficient to resist reductions in the wages of its members who were employed in iron rolling mills. With this exception no class of employés in iron or steel manufacturing establishments escaped bearing its share of the unprofitable condition of the iron trade. But in many cases it happened that prices fell more rapidly than the cost could be reduced, and manufacturers found themselves obliged to discharge their workmen, close their doors, and submissively await a propitious time for the resumption of activity, or else they continued operations at a loss in the hope of securing some advantage in the future. As a consequence of all these unfavorable circumstances the winter of 1884–5 was a most unsatisfactory period in the American iron trade. The experience of the winter was trying to the workingman, but its hardships were alleviated by the fact that the cost of the necessaries of life have never been lower than at this time, and his savings went much further than during any winter of the years immediately following the panic of 1873. We have therefore heard less of distress among the families of employed or unemployed workingmen recently than we did in the winters of 1877 and 1878, and much less of distress among American workpeople generally than among European operatives, who are even in good times not in receipt of sufficient wages to enable them

to accumulate a little fund to tide over a period of dull trade such as now exists throughout the civilized world.

In such a period of reconstruction, reorganization, and changes necessary to conform to the requirements of a different condition of industrial matters strikes were naturally to be expected, but it is very remarkable how infrequent such occurrences were in the iron trade, notwithstanding the serious nature of the reductions in wages which were made. Strikes of some magnitude took place in a few of the bituminous coal-mining districts of the country, and their results affected the local iron works, but this can hardly be regarded as a feature of the iron trade. Among almost all the workingmen engaged in our iron and steel industries good sense prevailed, and the reductions in wages were accepted because the gravity of the situation and its necessary sacrifices were thoroughly comprehended. Heavy failures are usually accompaniments of a decreasing demand and rapidly falling prices, but in that respect the year under review has been remarkable. Only a few failures have taken place in the iron trade since last May, and even these were not all in the branches which suffered the greatest decline in prices. In most cases the involved firms were able to secure extensions, thus showing that their affairs were not in an absolutely hopeless condition.

The causes of the shrinkage in demand and the decline in prices can easily be given. In the spring of 1884 indications pointed to a year of good business. Large contracts for steel rails were known to have been secured by the steel works, pig-iron manufacturers had booked heavy orders for delivery during the year, and it was expected that an active trade would be developed in other lines. But it happened that the agricultural interests of the country were depressed on account of the limited demand for cotton, breadstuffs, and provisions for foreign export, and the reduced earnings of many railroad lines throughout the country, dependent upon the movement of agricultural products, so seriously affected the market value of their stocks and securities that failures occurred in May among large New York banking houses which were deeply interested. At the same time other firms and corporations were compelled to succumb by reason of the results of bad management which were then exposed. The financial disturbance which thus occurred was denominated a "stock panic," as it was on the surface confined to Wall street. Its effects, however, were far reaching. Railroad companies found it difficult to sell securities or

to borrow money. A good authority says: "Thirty-seven railroads, embracing 11,000 miles, or nearly one-tenth the railway mileage of the country, were taken in charge by receivers as officers of the courts in 1884." Manufacturers were consequently compelled to exercise the greatest prudence in selling rails and railroad supplies. Orders for steel rails were canceled or deliveries were postponed, and the manufacturers found their order books in bad condition. A competition for fresh orders then took place which ran prices down rapidly. All branches of the iron trade were affected. When the wheat crop was harvested, although the earth had yielded most bountifully and great expectations of reviving prosperity had been based upon such a result, it was ascertained that the crops were excellent throughout the world, so that the demand from abroad upon this country for breadstuffs was very light, and the consequence was that the plethora of grain caused prices to fall until wheat sold at a lower figure than had been known for very many years. Farmers hoarded their grain if they were not compelled to sell it, and on the 1st of March of this year it was estimated that one-third of last season's crop of wheat was held in the granaries, elevators, and storehouses, while of the corn crop over 37 per cent. was still unconsumed. Under these circumstances money could not be expected to circulate freely in agricultural districts; and railroad companies, manufacturers, and merchants felt the effects in the dullness of their respective branches of business. Added to these disturbing and depressing influences came a Presidential election contest, which began with the nominations by the national party conventions in June and continued with increasing excitement until November. Although there was a spirited contest in only a few States, they were of such importance that the interference with the business of their citizens was a matter of great moment. Even after the election had taken place business interests were not permitted to recover their wonted tranquillity until several weeks had passed, owing to the closeness of the vote, which rendered the declaration of the official count in the State of New York necessary for the settlement of all disputes. But by that time winter was at hand and all hope of a good fall trade had departed.

The result of the Presidential election was in itself not calculated to inspire with confidence the manufacturing interests, which had suffered so seriously from the lessened demand for their products in 1884. The transfer of the Presidency from one political party to another would naturally be accompanied with a shock of some se-

verity to the business of the country. In this case the choice of the people belonged to a party many of whose leading members are hostile to our manufacturing interests. The prospect of the influence of the Presidential office being exerted in favor of lower duties on foreign goods, together with the possibility of changes in other features of national policy, helped to intensify the prevailing depression in business. In anticipation of still lower prices as a result of apprehended tariff agitation manufacturers reduced wages and all other elements of cost, even succeeding in securing cheaper anthracite coal in the East; they appealed to the railroad companies to reduce freights; they cut down their purchases of materials to almost their daily requirements, and in every direction instituted a system of rigid economy. But by the beginning of February it was generally believed that the Free Traders would not have control of the new Administration, and a feeling of confidence simultaneously sprung up in manufacturing circles. At a meeting of the Executive Committee of this Association, which was held on the 12th of February, the conclusion was reached that it would be well to publicly express the feeling of hopefulness which was animating the iron trade, and an address on the condition of business was issued. This address recounted various reasons for believing that the depression in business was nearing its end, and as an important means of restoring business prosperity to the country it counseled the cultivation everywhere of a spirit of confidence in the incoming Administration. The wisdom of the position assumed by this Association was demonstrated on the 4th of March when President Cleveland was inducted into office, his inaugural address being reassuring and in no way unfriendly. In selecting the members of his Cabinet he also seems to have been free from reactionary influences, and so far as it is possible to comprehend his motives by his official actions it seems clearly established that the President will not use the opportunities of his position to overthrow or undermine our Protective system.

With the dread of the adoption of a reactionary policy by the new National Administration happily dispelled, with the domestic market very largely in the hands of home producers so that imports are exceeded in value by exports, with our currency on a gold basis so that no unsettling of values is to be apprehended soon from that quarter, with no political excitement distracting the minds of our people, and with a majority of members in the next House of Representatives believed to be in favor of Protection, the manu-

facturers of the United States are in a position to take instant advantage of any favorable change in the condition of business. How this change may be brought about we are unable to explain, but it may be very much nearer at hand than is now supposed.

THE PRODUCTION OF IRON AND STEEL IN 1883 AND 1884.

The production of iron and steel in the United States in 1884 is given in the following table in comparison with that of 1883.

PRODUCTS.	Net tons. (Except nails.)		Decrease Per cent.
	1883.	1884.	
Pig iron	5,146,972	4,589,613	11
All kinds of rolled iron, except rails	2,283,920	1,931,747	15
Bessemer steel rails	1,286,554	1,116,621	13
Open-hearth steel rails	9,186	2,670	71
Iron rails	64,954	25,560	61
Kegs of cut nails included in rolled iron	7,762,737	7,581,379	2
Crucible steel ingots	80,455	59,662	26
Open-hearth steel ingots	133,679	131,617	1
Bessemer steel ingots	1,654,627	1,540,595	7
Blooms from ore, pig iron, and scrap	74,758	57,005	24

This table presents some very striking comparisons. The decrease in the production of open-hearth steel rails, iron rails, crucible steel ingots, and blooms made from ore, pig iron, and scrap, was very great. These articles are seriously affected by the inroads of cheap steel. In no other branch was the decrease so serious. Rolled iron shrunk 15 per cent., Bessemer steel rails 13 per cent., and pig iron 11 per cent., but open-hearth steel ingots, nails, and Bessemer steel ingots held their own remarkably well in the face of the depression in business.

PRICES OF IRON AND STEEL IN 1883, 1884, AND 1885.

The following table will show the range of prices for all leading iron and steel products from July, 1883, until the close of April, 1885. Monthly quotations are given, averaged from weekly quotations. The prices quoted are for a ton of 2,240 pounds, except for bar iron and nails, which are quoted by the pound and the keg respectively.

MONTHS.	Old iron T rails, at Philadelphia.	Best refined bar iron, from store, Philadelphia.	Steel rails, at mills in Pennsylvania.	No. 1 anthracite foundry pig iron, at Philadelphia.	Gray forge pig iron, at Philadelphia.	All muck bar iron, at Pittsburgh.	Nails, (gross price,) at Pittsburgh.	Gray forge pig iron, Lake ore mixed, at Pittsburgh.
July, 1883	$22.50	2.25c.	$38.00	$21.50	$19.00	2.0c.	$3.00	$18.50
August	23.50	2.2c.	38.00	22.00	19.00	2.0c.	3.00	18.50
September	23.50	2.2c.	37.50	22.00	18.75	2.0c.	2.85	18.50
October	23.25	2.2c.	37.00	21.50	18.75	1.9c.	2.75	18.50
November	23.00	2.2c.	35.00	21.00	18.50	1.8c.	2.60	18.50
December	23.00	2.1c.	34.50	21.00	18.00	1.8c.	2.50	18.00
January, 1884	22.50	2.0c.	34.00	20.50	18.25	1.8c.	2.40	18.00
February	23.00	2.0c.	34.00	20.50	18.00	1.8c.	2.60	18.00
March	22.75	2.0c.	34.00	20.50	18.00	1.8c.	2.50	17.75
April	22.00	2.0c.	34.00	20.00	18.00	1.8c.	2.35	17.50
May	21.25	2.0c.	33.00	20.00	18.00	1.75c.	2.30	17.50
June	18.75	2.0c.	32.00	20.00	18.00	1.7c.	2.25	17.50
July	18.50	2.0c.	30.00	20.00	18.00	1.7c.	2.20	17.00
August	18.25	2.0c.	28.00	19.50	17.50	1.65c.	2.15	16.75
September	18.25	1.9c.	27.00	19.50	17.50	1.65c.	2.15	16.50
October	18.00	1.9c.	28.00	19.50	17.50	1.65c.	2.05	16.50
November	18.00	1.9c.	28.00	19.25	17.25	1.65c.	2.05	16.50
December	16.75	1.9c.	27.00	18.50	16.50	1.65c.	2.05	16.50
January, 1885	17.50	1.8c.	27.00	18.00	16.00	1.65c.	2.05	16.25
February	17.50	1.8c.	27.00	18.00	16.00	1.65c.	2.25	16.00
March	17.50	1.8c.	26.50	18.00	16.00	1.65c.	2.25	16.00
April	17.75	1.8c.	26.00	18.00	16.00	1.65c.	2.25	15.50

It will be observed that, while some articles in this list have sold at steadily declining prices, others have reacted from the lowest point touched, such as old rails and nails. The period comprised in this table covers the lowest prices ever known in this country for steel rails and bar iron. Pig iron has been sold considerably lower, but as coal is dearer now than it was then the producer is not benefited by the difference in price. These prices being averages it is not practicable in such a table to show the lowest price touched. In September last and again in March steel rails were sold as low as $26, and in the closing months of 1884 nails were sold in the West at $1.80 cash for car-load lots. The shrinkage in these prices from the beginning to the end of 1884 was as follows: Old rails at Philadelphia, from $22.50 to $16.75; bar iron at Philadelphia, 2c. to 1.8c.; bar iron at Pittsburgh, 1.8c. to 1.65c.; steel

rails in Pennsylvania, $34 to $27; No. 1 anthracite foundry pig iron at Philadelphia, $20.50 to $18; anthracite gray forge pig iron at Philadelphia, $18.25 to $16; nails at Pittsburgh, $2.40 to $2.05; gray forge pig iron at Pittsburgh, $18 to $16.25.

The price of Connellsville coke has varied but slightly since April of last year, when a coke pool was formed which included the owners of the greater part of the ovens. Furnace coke was put at $1.10 per ton, on board cars at ovens, and that rate ruled steadily, with only occasional cutting by independent coke manufacturers, until April 1st of the present year, when $1.20 was fixed.

OUR IMPORTS OF IRON AND STEEL FROM 1871 TO 1884.

The foreign value of the importations of iron and steel, including iron ore and tinplates, into the United States in the calendar year 1884 was $38,211,800, as compared with $48,714,297 in 1883, or a reduction of almost exactly ten and a half million dollars. The value of these importations for the past fourteen years has been as follows, including the value of iron ore from 1879, in which year the importation of ore first assumed importance.

Years.	Values.	Years.	Values.
1871	$57,866,299	1878	$18,013,010
1872	75,617,677	1879	34,013,036
1873	60,005,538	1880	81,880,171
1874	37,652,192	1881	63,777,729
1875	27,363,101	1882	68,715,689
1876	20,016,603	1883	48,714,297
1877	19,874,399	1884	38,211,800

It is difficult to ascertain the exact quantities of iron and steel imported into this country, as a record is not kept by the custom house officials of the weight of every piece of metal which is received here. For many years up to July 1, 1883, it was impossible to learn how many tons of cotton-ties and wire rods were brought here from abroad, and it was equally impossible to ascertain the total quantity of steel received from foreign countries. Since July 1, 1883, new regulations have been put in force in order to carry out the provisions of the new tariff act, and much of this information is now available. Under the circumstances our tables of quantities are somewhat complicated. In the following table we include the quantities of pig, bar, band, plate, and sheet iron, rails, old iron, and tinplates for every year mentioned; of castings, anchors, cables, etc., for every year down to and including 1882; and of steel scrap,

cotton-ties, various forms of steel, wire-rods, wire, etc., for 1884 only.

Years.	Net tons.	Years.	Net tons.
1871	1,278,965	1878	236,434
1872	1,325,034	1879	862,382
1873	717,761	1880	2,112,341
1874	337,845	1881	1,322,439
1875	268,477	1882	1,335,371
1876	228,716	1883	777,650
1877	236,777	1884	733,260

The following table is chiefly of interest in showing the addition made to our knowledge of the importations of iron and steel by the new regulations.

Commodities.	Net tons of 2,000 pounds.				
	1880.	1881.	1882.	1883.	1884.
Pig iron	784,968	520,835	604,978	361,366	206,381
Castings	114	632	2,079	.....	.....
Bar iron	126,987	47,820	79,220	47,409	40,998
Band, hoop, and scroll iron	25,322	827	6,021	1,003	332
Railroad bars of iron	132,459	137,013	41,992	757	94
Railroad bars of steel	158,230	249,308	182,135	38,220	3,074
Sheet and plate iron	11,580	8,411	13,160	9,114	7,863
Old and scrap iron	694,273	151,107	164,591	72,000	30,192
Anchors, cables, chains, etc	1,393	1,520	1,530	.....	1,930
Tinplates and terne plates	177,015	204,966	239,665	247,781	242,123
Scrap steel	.....	.....	.....	.....	8,388
Cotton-ties	.....	.....	.....	.....	17,518
Steel hoops, sheets, and plates	.....	.....	.....	.....	1,500
Steel ingots, bars, etc	.....	.....	.....	.....	24,610
Iron and steel wire rods	.....	.....	.....	.....	145,525
Wire and wire rope	.....	.....	.....	.....	2,732
Total	2,112,341	1,322,439	1,335,371	777,650	733,260

It will be seen from the additional items given for 1884 that the quantities of iron and steel imported in 1880 to 1883 must have been much larger than those given in the table. The figures shown for 1884, embracing almost three-quarters of a million tons, should cause our manufacturers and our lawmakers to realize that we are far from being independent of other countries. The present rate of importation is very much below that for 1884, but we are undoubtedly importing as many tons of tinplates as we did last year. That is a trade which should be in the hands of Americans, and it is disgraceful in the extreme that we permit Great Britain to monopolize it without making strenuous efforts to secure at least

some part of it. We give here a table showing the annual quantity of tinplates imported into this country for a series of years.

Years.	Net tons.	Years.	Net tons.
1871	92,925	1878	120,808
1872	95,904	1879	172,760
1873	108,838	1880	177,015
1874	89,351	1881	204,966
1875	101,981	1882	239,665
1876	100,740	1883	247,781
1877	125,976	1884	242,123

In the fourteen years here embraced our total imports of tinplates were 2,120,833 net tons, valued at $189,986,305 as invoiced. This is by no means the cost to the consumer, who also paid ocean freight, insurance, commissions, importers' profit, and perhaps jobbers' profit. Is this not a branch of trade worth striving for? Is it not of sufficient importance for the Government to recognize and to endeavor to secure for the people of our own country?

OUR IMPORTS OF IRON ORE IN 1882, 1883, AND 1884.

The following statement shows the quantities and values of iron ore imported into the United States during the calendar years 1882, 1883, and 1884, arranged by ports of entry.

Districts.	1882.		1883.		1884.	
	Gross tons.	Values.	Gross tons.	Values.	Gross tons.	Values.
Baltimore	243,182	$654,629	236,998	$612,626	184,521	$357,136
Beaufort, S. C.	.....	.....	1,473	4,243	1,749	5,005
Boston	1,664	3,322	2,470	5,277	2,865	7,765
Buffalo Creek	273	755	.....	.....	.....	.....
Champlain	2	7	5	28	.....	.....
Cuyahoga	9,420	33,181	6,525	17,810	30,964	121,154
Detroit	48	98	.....	.....	10	27
Genesee	6,851	21,651	784	1,740	758	1,897
Huron	264	677	14	4	10	150
New York	145,909	421,776	36,800	94,226	29,401	82,995
Oswegatchie	905	2,783	942	2,866	.....	.....
Oswego	37,635	120,008	17,862	40,744	11,179	27,856
Perth Amboy, N. J.	31,558	101,859	10,082	29,189	50,836	124,257
Philadelphia	111,944	279,818	170,420	386,386	169,507	388,900
Puget's Sound	.....	.....	3,521	7,084	2,012	4,024
Sandusky	.....	.....	.....	.....	2,177	5,387
Vermont	.....	.....	2,979	5,758	1,831	7,125
Total	589,655	$1,640,564	490,875	$1,207,991	487,820	$1,133,678

The reports of the Bureau of Statistics for the calendar year do

not show from which countries the iron ore was shipped. An approximation to the actual facts can be obtained from the published statement for the fiscal year ended June 30, 1884. In that year 68 per cent. of our total imports of iron ore came from Spain; 11 per cent. from Italy; 10 per cent. from Algeria; 5 per cent. from Canada; and the remaining 6 per cent. from Greece, England, Portugal, Turkey in Asia, France, and Mexico, the quantity received from the last-named country having been one ton. No receipts from Cuba were reported at that time, but during the latter part of the year 1884 the Juragua Iron Company Limited shipped a number of cargoes from Cuba, and it is possible that this year it will send to this country in the neighborhood of 100,000 tons. The quantity of iron ore imported into this country since 1879, prior to which time the annual importations did not amount to 100,000 tons, is given in the following table.

Years.	Gross tons.	Years.	Gross tons.
1879	284,141	1882	589,655
1880	493,408	1883	490,875
1881	782,887	1884	487,820

OUR EXPORTS OF IRON AND STEEL FROM 1871 TO 1884.

A new classification of exports has been adopted by the Bureau of Statistics of the Treasury Department, and the iron and steel group now very properly embraces iron ore, scales and balances, sewing machines, and steam fire-engines, which were separately classified before July 1, 1883. We have corrected our figures to correspond with the new official arrangement, but have been able to include iron ore only for 1884. The following table shows the total value of the exports from the United States to all countries of domestic iron and steel and manufactures thereof from 1871 to 1884.

Years.	Values.	Years.	Values.	Years.	Values.
1871	$14,185,359	1876	$13,641,724	1881	$18,216,121
1872	12,595,539	1877	18,549,922	1882	22,348,834
1873	14,173,772	1878	15,101,899	1883	22,716,040
1874	17,312,239	1879	14,223,646	1884	19,303,150
1875	17,976,833	1880	15,156,703		

Only 4,182 net tons of iron ore were exported in 1884, valued at

$12,255. The exports of iron and steel consisted of machinery valued at $4,131,810; sewing machines, $3,264,935; 189 locomotives, $2,057,271; fire-arms, $1,427,600; saws and tools, $1,234,473; stationary engines and boilers, $456,930; scales and balances, $397,563; miscellaneous castings, $293,494; 3,948 tons of cut nails, $247,497; stoves, $198,883; printing presses, $196,953; 5,504 tons of steel rails, $176,891; 11,889 car-wheels, $109,255; cutlery, $94,671; 4,301 tons of pig iron, $92,336; 932 tons of bar iron, $52,872; 1,254 tons of iron rails, $46,644; 517 tons of plate, sheet, and hoop iron, $45,907; fire-engines, $28,273; 129 tons of steel ingots, bars, etc., $21,799; other manufactures of iron and steel, $4,714,838: total value, including iron ore, $19,303,150. Comparing the iron and steel imports and exports in 1884 we find that 1,254 net tons of iron rails were exported against only 94 tons imported; 5,504 tons of steel rails were exported against 3,074 tons imported; and 2,509 tons of wire were exported against 2,732 tons imported. The total value of iron and steel imports in 1884 is almost exactly double the total value of iron and steel exports. If the value of the imports of tinplates and wire rods, amounting to $21,414,349, be deducted from the total value of the iron and steel imports, $38,211,800, the remainder, $16,797,451, will be considerably below the value of our iron and steel exports, $19,303,150. These two items are the dark spots in our import trade, owing to low duties.

THE PRODUCTION OF PIG IRON IN 1884.

The total production of pig iron in the United States in 1884 was 4,589,613 net tons, or 4,097,868 gross tons. As compared with the production of 1883, when 5,146,972 net tons were made, there was a falling off of 557,359 net tons, or 11 per cent. The year's production was much above that of the "boom" year 1880, and was only 51,951 tons under that of 1881. The production of pig iron in the last six years has been as follows, using both net and gross tons (2,000 and 2,240 pounds respectively).

Years.	Net tons.	Gross tons.
1879	3,070,875	2,741,853
1880	4,295,414	3,835,191
1881	4,641,564	4,144,254
1882	5,178,122	4,623,323
1883	5,146,972	4,595,510
1884	4,589,613	4,097,868

Although the production of 1884 was considerably below that of

1883 the falling off did not occur in all classes of pig iron in the same proportion. In bituminous pig iron the shrinkage was comparatively slight, having been only 5 per cent., while in anthracite and charcoal pig iron it was heavy, having been 16 and 20 per cent. respectively. The following table shows the production of pig iron in the past six years, classified according to the fuel used, in net tons.

Fuel Used.	1879.	1880.	1881.	1882.	1883.	1884.
Bituminous	1,438,978	1,950,205	2,268,264	2,438,078	2,689,650	2,544,742
Anthracite	1,273,024	1,807,651	1,734,462	2,042,138	1,885,596	1,586,453
Charcoal	358,873	537,558	638,838	697,906	571,726	458,418
Total	3,070,875	4,295,414	4,641,564	5,178,122	5,146,972	4,589,613

In recent years the pig iron classed as anthracite has been made with a very considerable admixture of coke with the anthracite coal used. This change in the furnace practice of the anthracite districts of the country has been noted from year to year in the reports of this Association, but in 1884 it was more decided than in any previous year. Our returns show that of 1,586,453 tons of anthracite pig iron produced last year 1,339,883 tons were made with mixed anthracite coal and coke. The rapid progress made in the past two years in this respect is shown by the following table.

Details.	1883. Net tons.	1884. Net tons.
Total production of anthracite pig iron	1,885,596	1,586,453
Made with mixed anthracite and coke	920,142	1,339,883
Remainder made with anthracite alone	965,454	246,570

From this showing it seems possible that in a short time anthracite coal will be used in very few blast furnaces without the admixture of some coke with it. Thus far the quantity of coke used in anthracite furnaces has only slightly exceeded one-third of the quantity of anthracite, our returns for 1884 showing that 1,534,996 gross tons of anthracite and 599,877 gross tons of coke were consumed in the manufacture of the pig iron classed as anthracite.

In 1884 pig iron was produced in twenty-three States and one Territory (Washington). In 1883 twenty-four States and the same Territory produced pig iron. Maine and Minnesota dropped out of the list in 1884, but North Carolina re-entered it. The following table shows the production of pig iron in 1884 by States, in the order of their prominence.

States.	Net tons.	States.	Net tons.
Pennsylvania	2,385,402	Georgia	42,655
Ohio	567,113	Maryland	27,342
Illinois	327,568	Colorado	15,837
New York	239,486	Connecticut	14,174
Alabama	189,664	Texas	5,140
Michigan	172,834	Massachusetts	4,902
Virginia	157,483	Oregon	3,640
Tennessee	134,597	Indiana	2,568
New Jersey	82,935	California	2,157
Missouri	60,043	Washington Territory	540
West Virginia	55,231	North Carolina	435
Wisconsin	52,815		
Kentucky	45,052	Total	4,589,613

Examining the details of production it will be observed that Pennsylvania as usual made over 50 per cent. of the total. Ohio made over 12 per cent. As compared with 1883 there was a general decline in production, but some States show an increase, as follows: Illinois, 89,911 tons, or 38 per cent.; Alabama, 17,199 tons, or 10 per cent.; Virginia, 4,576 tons, or 3 per cent.; Texas, 2,759 tons, or 116 per cent.; Wisconsin, 922 tons, or 2 per cent. In the Lower Susquehanna district of Pennsylvania the increased production in 1884 over 1883 was 82,020 tons; in the Miscellaneous Bituminous district of the same State the increase was 49,306 tons; in the Mahoning Valley of Ohio, 2,023 tons. Among the principal districts and States showing a much smaller production in 1884 than in 1883 the Lehigh Valley of Pennsylvania is most conspicuous, having fallen off 144,120 tons, or 25 per cent.; the State of Ohio comes next with a decrease of 112,530 tons, or 17 per cent.; Allegheny County, Pennsylvania, which includes Pittsburgh, declined 105,420 tons, or 18 per cent.; New York fell off 92,478 tons, or 28 per cent.; the Schuylkill Valley, Pennsylvania, 58,855 tons, or 17 per cent.; the Miscellaneous Bituminous district of Ohio, 56,918 tons, or 22 per cent.; New Jersey, 55,838 tons, or 40 per cent.; Missouri, 43,253 tons, or 42 per cent.

The Southern States have shipped such a considerable quantity of pig iron to the North during the past year that their production is a matter of much interest. But, notwithstanding its entrance into new centres of consumption, Southern pig iron was not produced in excessive quantity last year. Including all the States south of Pennsylvania and Ohio, but excluding Missouri, the furnaces in this section turned out 6 per cent. less pig iron in 1884

than in 1883. Since 1880, however, the South has increased its production very considerably, as is shown by the following table.

STATES.	Net tons.				
	1880.	1881.	1882.	1883.	1884.
Alabama	77,190	98,081	112,765	172,465	189,664
Virginia	29,934	83,711	87,731	152,907	157,483
Tennessee	70,873	87,406	137,602	133,963	134,597
West Virginia	70,338	66,409	73,220	88,398	55,231
Kentucky	57,708	45,973	66,522	54,629	45,052
Georgia	27,321	37,404	42,440	45,364	42,655
Maryland	61,437	48,756	54,524	49,153	27,342
Texas	2,500	3,000	1,321	2,381	5,140
North Carolina	.....	800	1,150	.....	435
Total	397,301	471,540	577,275	699,260	657,599

The principal pig-iron district in the South is known as the Chattanooga district. It includes the furnaces in Southeastern Tennessee, Alabama, and Georgia. The following table shows the growth of this district since 1872.

YEARS.	Net tons.		
	Bituminous.	Charcoal.	Total.
1872	8,360	15,457	23,817
1873	8,602	29,784	38,386
1874	17,059	37,133	54,192
1875	22,985	28,931	51,916
1876	25,950	23,817	49,767
1877	40,326	28,870	69,196
1878	48,469	26,496	74,965
1879	67,998	36,124	104,122
1880	113,695	45,014	158,709
1881	146,220	57,625	203,845
1882	184,090	71,106	255,196
1883	246,063	70,430	316,493
1884	279,047	69,063	348,110

Eighteen States and one Territory produced charcoal pig iron in 1884. Massachusetts, Connecticut, North Carolina, Texas, Michigan, Oregon, California, and Washington Territory made no other kind of pig iron in that year. The States of Maine and Minnesota, which were in the list of producing States in 1883, dropped out in 1884. North Carolina re-entered the list. Michigan decreased its production very little in 1884 as compared with 1883.

Alabama made a slight increase, and Texas more than doubled its production. All other States show a decrease, which in some instances was very great, in the quantity of charcoal pig iron produced. The following table shows the production of charcoal pig iron by States in 1884.

States.	Net tons.	States.	Net tons.
Michigan	172,834	Georgia	9,615
Alabama	59,448	Kentucky	7,882
Missouri	31,558	Texas	5,140
Wisconsin	25,812	Massachusetts	4,902
Ohio	24,880	Oregon	3,640
New York	23,488	California	2,157
Pennsylvania	23,155	Washington Territory	540
Tennessee	18,806	North Carolina	435
Maryland	15,123		
Virginia	14,829	Total	458,418
Connecticut	14,174		

Fourteen States made pig iron with bituminous coal and coke in 1884, Illinois, West Virginia, Colorado, and Indiana making no other kind of pig iron. As compared with 1883 Illinois and Wisconsin increased their production very considerably, and Tennessee, Alabama, Virginia, Maryland, and Georgia also made gains. Pennsylvania shows the largest decrease, followed by Missouri, West Virginia, Colorado, Indiana, and Kentucky. The following table shows the production of bituminous coal and coke pig iron in 1884 by States, arranged according to their importance, excluding all pig iron made with other fuels.

States.	Net tons.	States.	Net tons.
Pennsylvania	1,084,011	Georgia	33,040
Ohio	542,233	Missouri	28,485
Illinois	327,568	Wisconsin	27,003
Virginia	142,654	Colorado	15,837
Alabama	130,216	Maryland	2,935
Tennessee	115,791	Indiana	2,568
West Virginia	55,231		
Kentucky	37,170	Total	2,544,742

Only four States made anthracite pig iron in 1884. New Jersey makes no other kind of pig iron, but in some of the furnaces in that State coke is used mixed with anthracite. In every State the production of 1884 was considerably smaller than that of 1883.

The following table shows the production of anthracite pig iron in 1884 by States.

STATES.	Net tons.	STATES.	Net tons.
Pennsylvania	1,278,236	Maryland	9,284
New York	215,998		
New Jersey	82,935	Total	1,586,453

The production of Pennsylvania is so large that it is customary to divide the State into districts. The following table shows the progress made in this State from 1849 to 1869, the former date being the earliest for which we can obtain complete statistics for all the districts.

YEARS.	Net tons.						
	Lehigh.	Schuylkill.	Upper Susquehanna.	Lower Susquehanna.	Bituminous.	Charcoal.	Total.
1849	44,351	29,570	28,654	19,693	5,488	155,643	283,399
1856	121,380	68,437	71,078	86,300	29,941	96,154	473,290
1860	152,351	92,345	66,698	92,350	(?)	(?)	650,000
1864	191,683	112,806	106,964	108,237	122,220	53,171	695,081
1869	300,916	150,409	123,273	109,986	191,072	50,000	925,656

In the above table the production of bituminous pig iron could not be obtained for 1856 and 1869, and the figures used are those of 1854 and 1867 respectively. It will be observed that in 1849 more charcoal pig iron was produced in Pennsylvania than all other kinds, but the manufacture of pig iron with mineral fuel had been firmly established, and the succeeding years witnessed a great decline in charcoal pig iron and an equally great increase in other kinds of pig iron. By the year 1872 the production of anthracite pig iron had greatly increased in the Lehigh, Schuylkill, Upper Susquehanna, and Lower Susquehanna districts, to which it was confined; the production of bituminous coal and coke pig iron had also increased in the Shenango Valley, Allegheny county, and other parts of Western Pennsylvania, classified as "miscellaneous bituminous;" but the production of charcoal pig iron, which was carried on in various parts of the State, had decreased. The following table shows the production of pig iron in the different districts of Pennsylvania from 1872 to 1884.

YEARS.	Anthracite. Net tons.				Bituminous. Net tons.			Charcoal. Net tons.	Total. Net tons.
	Lehigh Valley.	Schuylkill V.	Upper Susq.	Lower Susq.	Shenango V.	Allegheny Co.	Misc. Coke.		
1872	449,663	232,225	127,260	159,305	160,188	110,599	117,224	45,033	1,401,497
1873	389,969	236,409	129,304	157,403	160,831	158,789	111,014	45,854	1,389,573
1874	316,789	232,420	88,243	137,556	156,419	143,660	97,068	40,978	1,213,133
1875	280,360	123,184	71,731	79,717	137,025	131,856	102,520	34,491	960,884
1876	261,274	144,969	79,217	103,369	138,495	128,555	130,635	23,099	1,009,613
1877	335,059	155,434	56,776	111,252	145,179	141,749	178,271	29,636	1,153,356
1878	416,907	144,558	84,547	137,719	122,958	217,299	189,285	29,360	1,342,633
1879	456,350	191,748	125,971	165,500	150,861	267,315	214,123	35,895	1,607,763
1880	544,987	306,926	168,128	217,889	215,313	300,497	286,007	43,374	2,083,121
1881	560,190	309,049	125,785	218,329	198,968	385,453	341,104	51,908	2,190,786
1882	609,338	342,701	201,367	300,240	264,078	358,840	322,717	49,975	2,449,256
1883	575,987	337,433	165,629	337,419	290,069	592,475	301,564	38,315	2,638,891
1884	431,867	278,578	148,352	419,439	246,086	487,055	350,870	23,155	2,385,402

The production of pig iron in Ohio has for some time been sufficiently important to justify the separation of this State into districts. The charcoal pig iron of Ohio has always been made principally in the Hanging Rock region, while bituminous pig iron is produced in many sections, but chiefly in the Mahoning Valley. The production of the different districts since 1872 is shown in the following table.

YEARS.	Charcoal. Net tons.		Bituminous Coal and Coke. Net tons.				Total. Net tons.
	Miscellaneous.	Hanging Rock.	Hanging Rock.	Mahoning V.	Hocking Valley.	Miscellaneous.	
1872	8,182	87,440	23,169	152,756	.....	128,196	399,743
1873	8,133	92,365	28,601	136,972	.....	139,958	406,029
1874	6,962	85,873	26,015	121,403	.....	184,748	425,001
1875	4,558	57,413	36,899	115,993	1,250	199,780	415,893
1876	6,109	42,822	44,260	137,546	7,483	165,057	403,277
1877	1,905	40,212	44,544	136,526	23,895	153,316	400,398
1878	.....	33,513	31,137	134,400	65,690	156,251	420,991
1879	.....	43,445	43,097	147,844	51,908	161,457	447,751
1880	4,336	64,854	60,316	226,877	85,719	232,105	674,207
1881	4,682	61,487	77,500	245,737	88,146	232,994	710,546
1882	3,108	55,546	77,364	258,478	78,770	225,634	698,900
1883	2,394	38,134	82,455	244,265	48,439	263,956	679,643
1884	.....	24,880	64,781	246,288	24,126	207,038	567,113

Our information is very meagre concerning the pig iron produced in Ohio before 1872. The following table, however, will show the relative proportions of the charcoal and bituminous pig iron production of this State from 1854 to 1866.

YEARS.	Net tons.		
	Charcoal.	Bituminous.	Total.
1854	58,654	16,800	75,454
1864	65,794	85,483	151,277
1866	87,888	97,198	185,086

The following table exhibits the production of anthracite, charcoal, and bituminous pig iron in the United States in the thirty-one years from 1854 to 1884.

YEARS.	Net tons of 2,000 pounds.			
	Anthracite.	Charcoal.	Bituminous.	Total.
1854	339,435	342,298	54,485	736,218
1855	381,866	339,922	62,390	784,178
1856	443,113	370,470	69,554	883,137
1857	390,385	330,321	77,451	798,157
1858	361,430	285,313	58,351	705,094
1859	471,745	284,041	84,841	840,627
1860	519,211	278,331	122,228	919,770
1861	409,229	195,278	127,037	731,544
1862	470,315	186,660	130,687	787,662
1863	577,638	212,005	157,961	947,604
1864	684,018	241,853	210,125	1,135,996
1865	479,558	262,342	189,682	931,582
1866	749,367	332,580	268,396	1,350,343
1867	798,638	344,341	318,647	1,461,626
1868	893,000	370,000	340,000	1,603,000
1869	971,150	392,150	553,341	1,916,641
1870	930,000	365,000	570,000	1,865,000
1871	956,608	385,000	570,000	1,911,608
1872	1,369,812	500,587	984,159	2,854,558
1873	1,312,754	577,620	977,904	2,868,278
1874	1,202,144	576,557	910,712	2,689,413
1875	908,046	410,990	947,545	2,266,581
1876	794,578	308,649	990,009	2,093,236
1877	934,797	317,843	1,061,945	2,314,585
1878	1,092,870	293,399	1,191,092	2,577,361
1879	1,273,024	358,873	1,438,978	3,070,875
1880	1,807,651	537,558	1,950,205	4,295,414
1881	1,734,462	638,838	2,268,264	4,641,564
1882	2,042,138	697,906	2,438,078	5,178,122
1883	1,885,596	571,726	2,689,650	5,146,972
1884	1,586,453	458,418	2,544,742	4,589,613

The production of spiegeleisen in the United States is gradually increasing. Its increase, however, is due more to an enlarged output by established works than to the embarkation of new companies in its manufacture. The production of 1884 was confined to the States of Pennsylvania, New Jersey, and Colorado, and the

greater part of it was made by two companies—Carnegie Bros. & Co. Limited and the Cambria Iron Company. The other manufacturers are the New Jersey Zinc and Iron Company, the Passaic Zinc Company, of New Jersey; the Lehigh Zinc and Iron Company, the Bethlehem Iron Company, of Pennsylvania; and the Colorado Coal and Iron Company, of Colorado. The zinc companies used the residuum from franklinite after extracting the zinc from it, and the other companies used manganiferous iron ores, both native and foreign. An increasing quantity of native ore is being used for this purpose, and manufacturers claim that if it were necessary this country could depend entirely upon its own resources for the production of this essential steel-making material, though in that event it would probably cost more, as our manganiferous iron ores are scattered over a wide area in small deposits. The spiegeleisen produced in the United States is included in our statistics of pig-iron production. The quantity made annually since 1875 is shown in the following table, which also includes a small quantity of high-grade ferromanganese produced in 1884 by Carnegie Bros. & Co. Limited.

Years.	Net tons.	Years.	Net tons.
1875	7,832	1880	19,603
1876	6,616	1881	21,086
1877	8,845	1882	21,963
1878	10,674	1883	24,574
1879	13,931	1884	33,893

A smaller number of furnaces was built in 1884 than in any recent year. Our reports show only 7 new furnaces completed in that year—5 in Pennsylvania, 1 in Virginia, and 1 in North Carolina. At the close of 1884 only 5 new furnaces were in actual course of construction—2 in Pennsylvania, 2 in Tennessee, and 1 in Michigan. Quite a number of old furnaces were being rebuilt, however, and several furnaces were partly finished on which work had been suspended. Indications point to the early resumption of work in a few of these instances of suspended activity, but in most cases the projected enterprises will not be pushed any further. In Pennsylvania, Alabama, and Wisconsin new schemes for the erection of additional furnaces are taking shape.

The following table shows the number of furnaces in and out of blast in the pig-iron districts of Pennsylvania and Ohio at the close of 1883 and 1884.

	Districts.	December 31, 1883.			December 31, 1884.		
		In blast.	Out of blast.	Total.	In blast.	Out of blast.	Total.
Pennsylvania.	Lehigh Valley	29	22	51	24	27	51
	Schuylkill Valley	23	22	45	17	27	44
	Upper Susquehanna	13	12	25	7	15	22
	Lower Susquehanna	23	11	34	21	15	36
	Shenango Valley	12	17	29	9	18	27
	Allegheny County	11	5	16	7	10	17
	Miscellaneous bituminous	18	18	36	20	16	36
	Charcoal	13	22	35	5	27	32
Ohio.	Hanging Rock bituminous	8	6	14	7	8	15
	Mahoning Valley	8	10	18	6	12	18
	Hocking Valley	4	10	14	1	13	14
	Miscellaneous bituminous	8	12	20	4	14	18
	Hanging Rock charcoal	11	10	21	10	9	19
	Miscellaneous charcoal	.....	3	3	.....	2	2

The following table shows the number of furnaces in and out of blast in every State and Territory at the close of 1883 and 1884.

States and Territories.	December 31, 1883.			December 31, 1884.		
	In blast.	Out of blast.	Total.	In blast.	Out of blast.	Total.
Maine	.....	1	1	.....	1	1
Vermont	.....	1	1	.....	1	1
Massachusetts	3	2	5	.....	5	5
Connecticut	4	5	9	2	7	9
New York	26	29	55	15	39	54
New Jersey	8	12	20	5	15	20
Pennsylvania	142	129	271	110	155	265
Maryland	8	14	22	4	16	20
Virginia	12	30	42	15	27	42
North Carolina	.....	5	5	1	5	6
Georgia	3	3	6	2	5	7
Alabama	14	5	19	15	7	22
Texas	1	1	2	1	1	2
West Virginia	6	6	12	2	10	12
Kentucky	5	13	18	5	12	17
Tennessee	9	11	20	9	8	17
Ohio	39	51	90	28	58	86
Indiana	2	1	3	1	2	3
Illinois	4	12	16	4	12	16
Missouri	2	15	17	.....	16	16
Michigan	12	16	28	11	17	28
Wisconsin	5	10	15	3	11	14
Minnesota	.....	1	1	.....	1	1
Colorado	1	.....	1	1	.....	1
Utah Territory	.....	1	1	.....	1	1
Oregon	1	.....	1	1	.....	1
California	.....	1	1	.....	1	1
Washington Territory	.....	1	1	1	.....	1
Total	307	376	683	236	433	669

The foregoing statements would not be complete without the following summary showing the number of furnaces in the United States in and out of blast at the close of 1883 and 1884, separated according to the fuel used.

KIND OF FUEL.	December 31, 1883.			December 31, 1884.		
	In blast.	Out of blast.	Total.	In blast.	Out of blast.	Total.
Bituminous	105	116	221	86	134	220
Anthracite	118	104	222	84	135	219
Charcoal	84	156	240	66	164	230
Total	307	376	683	236	433	669

During the past year we have revised our list of blast furnaces in the United States, eliminating many establishments which are not likely to be put in operation again. The number of stacks has thus been reduced to 669, notwithstanding the addition of some new furnaces during 1884. The total number of stacks is now smaller than in any year since 1873. Even yet it is larger than it should be, as there is no doubt that quite a large number of furnaces still counted as available for smelting purposes will never again be put in blast. As their owners do not consider them abandoned we retain them in our list. The following table shows the number of active or available furnaces in the country at the close of every year since 1872.

1872.....612	1877.....716	1882.....687
1873.....657	1878.....692	1883.....683
1874.....693	1879.....697	1884.....669
1875.....713	1880.....701	
1876.....712	1881.....716	

At the close of 1884 there were only 236 furnaces in blast, which is the smallest number of furnaces in blast at the close of any year since 1876. In this connection, however, it must be observed that the mere number of furnaces in or out of blast means but little, as our blast-furnace managers are continually improving their works and increasing their production. The following table shows the number of furnaces in blast at the close of every year since 1873.

1873.....410	1877.....270	1881.....455
1874.....365	1878.....265	1882.....417
1875.....293	1879.....388	1883.....307
1876.....236	1880.....446	1884.....236

The following table shows the quantity of each kind of pig iron held in stock by the furnace owners or their agents at the close of each year since 1874, when the collection of this information first began, together with the relation which the year's stock bears to the year's production.

YEARS.	Net tons.				Per cent. of year's production.
	Anthracite.	Bituminous.	Charcoal.	Total.	
1874	248,988	216,479	330,317	795,784	30
1875	274,743	165,482	320,683	760,908	34
1876	268,122	174,302	244,374	686,798	33
1877	239,493	156,818	246,040	642,351	28
1878	226,734	144,835	202,996	574,565	22
1879	33,507	39,275	68,892	141,674	5
1880	175,862	184,626	96,170	456,658	11
1881	90,351	36,495	84,050	210,896	5
1882	107,259	157,196	165,239	429,694	8
1883	178,020	171,802	183,978	533,800	10
1884	178,993	191,845	222,162	593,000	13

The territorial distribution of pig-iron stocks at the close of 1884 was as follows.

DISTRICTS.	Net tons of 2,000 pounds.			
	Anthracite.	Charcoal.	Bituminous.	Total.
New England, New York, and New Jersey	63,730	28,859	.....	92,589
Pennsylvania	113,920	14,297	93,632	221,849
Ohio	.....	19,441	33,597	53,038
States south of Penna., Ohio, and Missouri	1,343	61,932	47,156	110,431
Western States	.....	97,633	17,460	115,093
Total	178,993	222,162	191,845	593,000

The consumption of pig iron in the United States in 1884 can be approximately ascertained as follows: We produced 4,097,868 gross tons of pig iron, and imported 184,269 tons, to which must be added 476,607 tons of pig iron held in stock at the beginning of 1884, making a total supply of 4,758,744 tons. From this quantity must be deducted 529,464 gross tons of pig iron held in stock at the close of 1884, which leaves 4,229,280 tons as the probable consumption of 1884. No account is taken of the stocks of foreign pig iron held in bonded warehouses or of exports of domestic pig iron, as they were all quite small. Our annual consumption of pig iron since 1874, estimated upon precisely the same basis, has been as follows.

Years.	Gross tons.	Years.	Gross tons.
1874	2,500,000	1880	3,990,415
1875	2,000,000	1881	4,982,565
1876	1,900,000	1882	4,963,278
1877	2,150,000	1883	4,834,740
1878	2,500,000	1884	4,229,280
1879	3,432,534		

PRODUCTION OF IRON AND STEEL RAILS IN 1884.

The total production of all kinds of rails in 1884 was 1,144,851 net tons. This was considerably below the production of 1883 and very far below that of either 1881 or 1882. It was but little above that of 1879, when 1,113,273 net tons were produced. In the following table we give the details of the rail production of 1884 as compared with the production of the three preceding years, in net tons.

Kind of Rails.	1881.	1882.	1883.	1884.
Iron rails	488,581	227,874	64,954	25,560
Bessemer steel rails	1,330,302	1,438,155	1,286,554	1,116,621
Open-hearth steel rails	25,217	22,765	9,186	2,670
Total	1,844,100	1,688,794	1,360,694	1,144,851

For convenience we add a table giving the total rail production of the country in the last five years, in both net and gross tons.

	1880.	1881.	1882.	1883.	1884.
Net tons	1,461,837	1,844,100	1,688,794	1,360,694	1,144,851
Gross tons	1,305,212	1,646,518	1,507,851	1,214,905	1,022,188

The decline in the production of 1884 as compared with 1883 was 215,843 net tons, or 16 per cent. This falling off in production was naturally to be expected in view of the decline in the construction of new railroads and the general depression in business which prevailed in 1884. The most significant fact about these figures is that less than 3 per cent. of the production of 1884, or only 28,230 tons, consisted of iron and open-hearth steel rails, almost the entire production having been of Bessemer steel. The iron rails made were almost entirely light rails. For even this purpose Bessemer steel is rapidly supplanting iron.

The production of iron and steel rails in this country since the beginning of the manufacture of Bessemer steel rails in 1867 has been as follows.

YEARS.	Net tons of 2,000 pounds.				
	Bessemer steel rails.	Open-hearth steel rails.	Total steel rails.	Iron rails, all kinds.	Total iron and steel rails.
1867	2,550	.....	2,550	459,558	462,108
1868	7,225	.....	7,225	499,489	506,714
1869	9,650	.....	9,650	583,936	593,586
1870	34,000	.....	34,000	586,000	620,000
1871	38,250	.....	38,250	737,483	775,733
1872	94,070	.....	94,070	905,930	1,000,000
1873	129,015	.....	129,015	761,062	890,077
1874	144,944	.....	144,944	584,469	729,413
1875	290,863	.....	290,863	501,649	792,512
1876	412,461	.....	412,461	467,168	879,629
1877	432,169	.....	432,169	332,540	764,709
1878	550,398	9,397	559,795	322,890	882,685
1879	683,964	9,149	693,113	420,160	1,113,273
1880	954,460	13,615	968,075	493,762	1,461,837
1881	1,330,302	25,217	1,355,519	488,581	1,844,100
1882	1,438,155	22,765	1,460,920	227,874	1,688,794
1883	1,286,554	9,186	1,295,740	64,954	1,360,694
1884	1,116,621	2,670	1,119,291	25,560	1,144,851

The production of street rails is included in the total production of rails. In 1884 the quantity of street rails rolled was 31,357 net tons, of which 30,572 tons were Bessemer steel and only 785 tons were iron. These figures show an increase of 11,917 tons upon the production of 1883, which was 19,440 tons.

The production of rails of all kinds in the United States from 1849 to 1884 has been as follows.

Years.	Net tons.	Years.	Net tons.	Years.	Net tons.	Years.	Net tons.
1849	24,318	1858	163,712	1867	462,108	1876	879,629
1850	44,083	1859	195,454	1868	506,714	1877	764,709
1851	50,603	1860	205,038	1869	593,586	1878	882,685
1852	62,478	1861	189,818	1870	620,000	1879	1,113,273
1853	87,864	1862	213,912	1871	775,733	1880	1,461,837
1854	108,016	1863	275,768	1872	1,000,000	1881	1,844,100
1855	138,674	1864	335,369	1873	890,077	1882	1,688,794
1856	180,018	1865	356,292	1874	729,413	1883	1,360,694
1857	161,918	1866	430,778	1875	792,512	1884	1,144,851

Of the total production of rails in 1884 Pennsylvania made nearly 68 per cent., as compared with 63 per cent. in 1883. Illinois made nearly 26 per cent. in 1884, as compared with 17 per cent. in 1883. These two States made almost 94 per cent. of all the rails rolled in the country in 1884, as compared with 80 per cent. in 1883.

In the following table the production of rails in 1884 is arranged by States in the order of their prominence.

States.	Net tons.	States.	Net tons.
Pennsylvania	775,872	Tennessee	500
Illinois	294,458	Kentucky	300
New York	31,625	Wyoming Territory	282
Ohio	25,175	Wisconsin	250
Massachusetts	5,862	Texas	200
Colorado	4,030	Virginia	95
California	2,937	Missouri	22
Indiana	1,844		
West Virginia	899	Total	1,144,851
Alabama	500		

The production of iron rails in 1884 was distributed as follows.

States.	Net tons.	States.	Net tons.
Pennsylvania	10,916	Kentucky	300
Ohio	5,991	Wyoming Territory	282
Illinois	4,273	Texas	200
Indiana	1,844	Virginia	95
West Virginia	637	Missouri	22
Alabama	500		
Tennessee	500	Total	25,560

The territorial distribution of the production of Bessemer steel rails from 1874 to 1884 was as follows.

Years.	Net tons of 2,000 pounds.			
	Pennsylvania.	Illinois.	Other States.	Total.
1874	66,902	48,280	29,762	144,944
1875	112,843	111,189	66,831	290,863
1876	203,750	133,713	74,998	412,461
1877	250,531	89,519	92,119	432,169
1878	308,093	143,785	98,520	550,398
1879	368,187	197,881	117,896	683,964
1880	495,716	257,583	201,161	954,460
1881	688,276	346,272	295,754	1,330,302
1882	759,524	336,122	342,509	1,438,155
1883	819,544	231,355	235,655	1,286,554
1884	763,223	290,185	63,213	1,116,621

The "other States" in the above table were, in 1884, Massachusetts, New York, West Virginia, Ohio, Wisconsin, Colorado, and California. The decrease in their total production as compared

with 1883 was very great. It will be observed that there was a remarkable increase in the production of Illinois.

Of the production of Bessemer steel rails in 1884 only 5,015 net tons were rolled in iron-rail mills from purchased blooms, chiefly domestic, against 32,629 tons in 1883. It is probable that this feature of the steel-rail trade will almost entirely disappear in 1885, as the competition of the steel-rail manufacturers has forced prices so low that it is no longer remunerative to purchase blooms from which to roll rails.

The rails made in this country or imported into it are not always promptly laid in the tracks of railroads, but on the other hand they are not carried in stock like pig iron. We can therefore approximate our annual consumption of rails by adding the imports and production for each year. The following table shows the consumption of rails from 1867 to 1884, in net tons.

YEARS.	Made in United States.	Imported.		Approximate consumption.
		Iron.	Steel.	
1867	462,108	163,049		625,157
1868	506,714	250,081		756,795
1869	593,586	313,163		906,749
1870	620,000	399,153		1,019,153
1871	775,733	566,202		1,341,935
1872	1,000,000	381,064	149,786	1,530,850
1873	890,077	99,201	159,571	1,148,849
1874	729,413	7,796	100,515	837,724
1875	792,512	1,174	18,274	811,960
1876	879,629	287	None	879,916
1877	764,709	None	35	764,744
1878	882,685	None	10	882,695
1879	1,113,273	19,090	25,057	1,157,420
1880	1,461,837	132,459	158,230	1,752,526
1881	1,844,100	137,013	249,308	2,230,421
1882	1,688,794	41,992	182,135	1,912,921
1883	1,360,694	757	38,220	1,399,671
1884	1,144,851	94	3,074	1,148,019

The year of greatest consumption was 1881. Since then the consumption has gradually diminished until in 1884 it fell below the figures of 1879.

The following table shows the annual production in gross tons of Bessemer steel rails in the United States since the commencement of their manufacture, together with the average annual price at which they have been sold at works in Pennsylvania and the rates of duty imposed on foreign rails.

YEARS.	Product in Gross Tons.	Price in Currency.	Duty.
1867	2,277	$166.00	45 per cent. *ad valorem.*
1868	6,451	158.50	
1869	8,616	132.25	
1870	30,357	106.75	
1871	34,152	102.50	$28 per ton to Aug. 1, 1872; $25.20 to Mar. 3, 1875; $28 from that date to July 1, 1883.
1872	83,991	112.00	
1873	115,192	120.50	
1874	129,414	94.25	
1875	259,699	68.75	
1876	368,269	59.25	
1877	385,865	45.50	
1878	491,427	42.25	
1879	610,682	48.25	
1880	852,196	67.50	
1881	1,187,770	61.13	
1882	1,284,067	48.50	
1883	1,148,709	37.75	$17 per ton from July 1, 1883.
1884	996,983	30.75	
1885 (April)	.....	26.00	

PRODUCTION OF BESSEMER STEEL IN 1884.

Seven States produced Bessemer steel ingots in 1884, namely, Massachusetts, New York, Pennsylvania, West Virginia, Ohio, Illinois, and Colorado. Of these States Massachusetts and West Virginia made their first Bessemer steel in 1884. The first blow in Massachusetts was made by the Worcester Steel Works, at Worcester, on June 2d, and the first blow in West Virginia was made by the Riverside Iron Works, at Benwood, near Wheeling, on the 11th of the same month. The specialty of the Worcester Steel Works is rails, but the Riverside Iron Works make a specialty of nails. The steel plant of the Riverside Iron Works was the second one put in operation in the United States for the manufacture of steel for nails, the Bellaire Nail Works, of Bellaire, Ohio, having made the first blow at their Bessemer steel works on the 28th of April, 1884. The erection of steel works for the manufacture of other products than rails is steadily increasing. On the 25th of March, 1884, Messrs. Oliver Bros. & Phillips put in operation at Pittsburgh with very satisfactory results a 2-ton pneumatic converter, operated on the Clapp-Griffiths principle. The Otis Iron and Steel Company, of Cleveland, Ohio, whose specialty is plates, has also added a Bessemer converter to its open-hearth steel plant. It may also be said that the steel-rail works of the country are rapidly being diverted from their original purpose of making steel rails

exclusively. Several of them are now manufacturing steel for almost every purpose but rails. The number of Bessemer steel works in the United States is twenty-one, located and equipped as follows.

Names of Companies.	Converters.
Worcester Steel Works, Worcester, Mass.	two 4-ton
Albany and Rensselaer Iron and Steel Company, Troy, N. Y.	two 7-ton
Bethlehem Iron Company, Bethlehem, Pennsylvania	four 7-ton
Pennsylvania Steel Company, Steelton, Pennsylvania	two 7-ton three 8-ton
Lackawanna Iron and Coal Company, Scranton, Pa.	two 5-ton
Scranton Steel Company, Scranton, Pennsylvania	two 4-ton
Cambria Iron Company, Johnstown, Pennsylvania	two 6½-ton
Carnegie Bros. & Co. Limited, Bessemer, Pennsylvania	three 10-ton
Pittsburgh Bessemer Steel Company Limited, Pittsburgh, Pa.	two 4-ton
Pittsburgh Steel Casting Company, Pittsburgh, Pennsylvania	one 5-ton
Oliver Brothers & Phillips, Pittsburgh, Pa. (Clapp-Griffiths)	one 2-ton
Riverside Iron Works, Wheeling, W. Va.	two 5-ton
Cleveland Rolling Mill Company, Cleveland, Ohio	two 10-ton
Otis Iron and Steel Company, Cleveland, Ohio	one 5-ton
Bellaire Nail Works, Bellaire, Ohio	two 4-ton
North Chicago Rolling Mill Company, Chicago (2 plants)	two 6-ton three 10-ton
Union Steel Company, Chicago, Illinois	two 6-ton
Joliet Steel Company, Joliet, Illinois	two 8-ton
St. Louis Ore and Steel Company, St. Louis, Missouri	two 7-ton
Colorado Coal and Iron Company, South Pueblo, Colorado	two 5-ton
Total number of converters	46

The Benwood Iron Works, of Wheeling, West Virginia, have begun the erection of a Bessemer plant to make steel for nails, and it will probably be completed this year. Several Bessemer steel works are projected, but their erection has not yet been commenced. Of the works above mentioned two were idle throughout 1884, namely, the Union Steel Company and the St. Louis Ore and Steel Company, leaving nineteen active works.

The production of Bessemer steel ingots in 1884 was 1,540,595 net tons, a decrease of 114,032 tons, or 7 per cent., on the production of 1883, which was 1,654,627 tons. The production of Bessemer steel ingots in this country since 1872 has been as follows.

Years.	Net tons.	Years.	Net tons.	Years.	Net tons.
1872	120,108	1877	560,587	1882	1,696,450
1873	170,652	1878	732,226	1883	1,654,627
1874	191,933	1879	928,972	1884	1,540,595
1875	375,517	1880	1,203,173		
1876	525,996	1881	1,539,157		

The following table shows the territorial distribution of the production of Bessemer steel ingots since 1874.

YEARS.	Net tons of 2,000 pounds.			
	Pennsylvania.	Illinois.	Other States.	Total.
1874	85,625	62,492	43,816	191,933
1875	148,374	136,356	90,787	375,517
1876	258,452	171,963	95,581	525,996
1877	328,599	111,299	120,689	560,587
1878	426,481	179,500	126,245	732,226
1879	514,165	250,980	163,827	928,972
1880	643,894	304,614	254,665	1,203,173
1881	844,501	375,763	318,893	1,539,157
1882	933,631	397,436	365,383	1,696,450
1883	1,044,396	273,325	336,906	1,654,627
1884	1,031,484	339,068	170,043	1,540,595

While there was a decreased production of Bessemer steel ingots in 1884 as compared with 1883, and a decreased production of Bessemer steel rails, the quantity of Bessemer steel worked up into other forms than rails shows a considerable increase. This may be attributed partly to the very low price and slack demand prevailing for rails which caused the steel manufacturers to seek other and more remunerative outlets, and partly to the gradual acquisition of the skill and knowledge necessary to adapt Bessemer steel to miscellaneous uses. The quantity of Bessemer steel produced in other forms than rails was estimated at 150,045 net tons in 1882, and 193,874 tons in 1883, but in 1884 we have reports from steel works and iron rolling mills showing that 318,593 net tons were rolled into other forms than rails, 15,027 tons going into plates and sheets and 303,566 tons into bars, structural shapes, rods, hoops, etc. A portion of this miscellaneous steel product is made from old steel rails and imported blooms and billets, but much the larger part of it is rolled from material obtained from our Bessemer steel works.

PRODUCTION OF OPEN-HEARTH, CRUCIBLE, BLISTER, AND MISCELLANEOUS STEEL IN 1884.

The production of open-hearth steel ingots in 1884 fell but slightly below that of 1883, the figures for the two years being respectively 131,617 net tons and 133,679 tons. The production of 1884 was made in eight States, namely, New Hampshire, Massachusetts, New York, New Jersey, Pennsylvania, Ohio, Illinois, and California. The first steel ever made in California was made by the open-hearth process by the Pacific Rolling Mill Company, of

San Francisco, on July 15, 1884. Kentucky and Tennessee possess open-hearth steel works, but they were not operated in 1884. The works in Vermont were abandoned last year. A conspicuous fact in connection with the production of last year is that New Jersey and Pennsylvania greatly increased their output of open-hearth steel as compared with 1883.

We have endeavored to ascertain in what forms open-hearth steel is mainly finished, and our reports, though not quite complete, indicate that 60 per cent. of it is worked into plates and sheets, 4 per cent. into rails, and the remaining 36 per cent. into bars and other shapes and steel castings.

The following table gives the production of open-hearth steel ingots and direct castings in the United States by districts from 1874 to 1884, in net tons.

YEARS.	New York and New England.	New Jersey and Pennsylvania.	Western and Southern States.	Total. Net tons.
1874	5,300	1,700	.....	7,000
1875	3,010	4,240	1,800	9,050
1876	6,085	7,547	7,858	21,490
1877	6,652	7,771	10,608	25,031
1878	8,228	12,231	15,667	36,126
1879	14,660	19,575	22,055	56,290
1880	20,560	50,736	41,657	112,953
1881	24,600	68,363	53,983	146,946
1882	25,536	73,222	61,784	160,542
1883	17,904	72,333	43,442	133,679
1884	11,300	86,901	33,416	131,617

The production of crucible steel in 1884 exhibits the effect of the depression in business and the competition of the cheaper kinds of steel. Only 59,662 net tons of ingots were produced in 1884 as compared with 80,455 tons in 1883. The decrease on the production of 1883 was 20,793 net tons, or almost 26 per cent. Crucible steel, however, will always be in demand to a certain extent for special purposes. Eight States made crucible steel in 1884, namely, Massachusetts, Connecticut, New York, New Jersey, Pennsylvania, Tennessee, Ohio, and Michigan. The first crucible steel made in Michigan was turned out in February, 1884, by the Detroit Steel and Spring Works.

The following table gives the production of crucible steel ingots and direct castings in various sections of the country from 1874 to 1884, in net tons.

YEARS.	New England.	New York.	New Jersey.	Pennsylvania.	Western States.	Southern States.	Total. Net tons.
1874	1,509	2,696	8,164	23,289	570	100	36,328
1875	1,620	2,300	7,098	26,615	1,500	268	39,401
1876	1,098	2,300	6,806	28,217	700	261	39,382
1877	1,974	2,032	6,749	27,983	1,400	292	40,430
1878	1,602	2,800	7,377	30,585	480	62	42,906
1879	1,608	2,300	8,651	43,614	605	2	56,780
1880	660	3,500	10,387	57,077	800	.....	72,424
1881	2,780	4,961	14,500	66,290	1,231	.....	89,762
1882	1,000	4,693	12,400	65,139	1,857	.....	85,089
1883	2,373	2,976	10,539	63,687	880	.....	80,455
1884	1,832	1,975	11,549	42,295	2,003	8	59,662

A small quantity of steel is annually made by various minor processes, and is sold in the form of blister, puddled, or patented steel. Its production in 1884 was confined to four States, namely, New York, New Jersey, Pennsylvania, and Ohio. The following table shows the production of this kind of steel in the United States from 1874 to 1884, in net tons.

YEARS.	New England.	New York.	New Jersey.	Pennsylvania.	Western States.	Southern States.	Total. Net tons.
1874	376	200	.....	4,417	1,300	60	6,353
1875	1,500	.....	100	7,340	.....	3,667	12,607
1876	.....	139	652	7,601	1,700	214	10,306
1877	.....	.....	.....	9,870	2,034	20	11,924
1878	192	220	.....	8,069	75	.....	8,556
1879	950	215	.....	3,004	1,000	295	5,464
1880	72	617	.....	6,658	1,018	100	8,465
1881	200	.....	.....	2,113	734	.....	3,047
1882	.....	.....	.....	2,114	900	.....	3,014
1883	713	1,105	.....	2,558	1,222	.....	5,598
1884	.....	2,100	50	2,096	865	.....	5,111

The following table gives the production of crucible steel ingots, blister steel, and puddled and patented steel, from 1865 to 1884.

Years.	Net tons.	Years.	Net tons.	Years.	Net tons.
1865	15,262	1872	37,000	1879	62,244
1866	18,973	1873	48,500	1880	80,889
1867	19,000	1874	42,681	1881	92,809
1868	21,500	1875	52,008	1882	88,103
1869	23,000	1876	49,688	1883	86,053
1870	35,000	1877	52,354	1884	64,773
1871	37,000	1878	51,462		

PRODUCTION OF ALL KINDS OF STEEL FROM 1872 TO 1884.

In the following table is shown the production of all kinds of steel in the United States for the past thirteen years.

YEARS.	Net tons of 2,000 pounds.				
	Bessemer steel ingots.	Crucible steel ingots.	Open-hearth steel ingots.	All other steel.	Total.
1872	120,108	29,260	3,000	7,740	160,108
1873	170,652	34,786	3,500	13,714	222,652
1874	191,933	36,328	7,000	6,353	241,614
1875	375,517	39,401	9,050	12,607	436,575
1876	525,996	39,382	21,490	10,306	597,174
1877	560,587	40,430	25,031	11,924	637,972
1878	732,226	42,906	36,126	8,556	819,814
1879	928,972	56,780	56,290	5,464	1,047,506
1880	1,203,173	72,424	112,953	8,465	1,397,015
1881	1,539,157	89,762	146,946	3,047	1,778,912
1882	1,696,450	85,089	160,542	3,014	1,945,095
1883	1,654,627	80,455	133,679	5,598	1,874,359
1884	1,540,595	59,662	131,617	5,111	1,736,985

THE GROWTH OF OUR PIG-IRON INDUSTRY BY DECADES.

The following table shows the production of the pig-iron industry of the United States from 1810.

Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.
1810	54,000	1840	315,000	1870	1,665,179
1820	20,000	1850	564,755	1880	3,835,191
1830	165,000	1860	821,223	1884	4,097,868

PRODUCTION OF BARS, SHAPES, PLATES, SHEETS, AND OTHER ROLLED IRON IN 1884.

By the term rolled iron we include (1) cut nails and spikes; (2) bar, shaped, bolt, rod, skelp, and hoop iron, and rolled axles; (3) plate and sheet iron; and (4) all sizes of iron rails. The total production of rolled iron in the United States in 1884 was 1,957,307 net tons, as compared with 2,348,874 tons in 1883, which is a decrease of 391,567 tons, or over 16 per cent. This is the smallest production of any year since 1878.

Of the total production of rolled iron in 1884 Pennsylvania produced 47 per cent., Ohio made 16 per cent., and Illinois made 5 per cent. These three States together made over two-thirds of the total quantity rolled.

The detailed statistics of the production of the different forms of rolled iron in 1884 are given in the following table.

STATES.	Bar, rod, bolt, hoop, skelp, and shaped iron Net tons.	Plate and sheet iron except nail plate. Net tons.	Cut nails.		Iron rails. Net tons.	Total. Net tons.
			Kegs.	Net tons.		
Maine	9,638	.....	.....	.....	.....	9,638
New Hampshire	4,264	50	.....	.....	.....	4,314
Massachusetts	36,909	12,791	557,195	27,860	.....	77,560
Rhode Island	14,000	.....	.....	.....	.....	14,000
Connecticut	15,054	.....	.....	.....	.....	15,054
New York	84,963	3,267	14,500	725	.....	148,001
New Jersey	43,781		305,307	15,265	.....	
Pennsylvania	565,725	222,321	2,281,676	114,084	10,916	913,046
Delaware	17,894	10,121	.....	.....	.....	28,015
Maryland and D. C.	24,586	9,270	.....	.....	.....	33,856
Virginia	17,807	.....	207,678	10,384	95	28,286
Alabama	11,458	937	100,000	5,000	500	17,895
Texas	800	.....	.....	.....	200	1,000
West Virginia	3,673	14,342	1,098,611	54,931	637	93,844
Kentucky	17,885		41,522	2,076	300	
Tennessee	8,709	.....	120,164	6,008	500	15,217
Ohio	198,811	40,230	1,310,715	65,536	5,991	310,568
Indiana	15,022	.....	443,234	22,162	1,844	39,028
Illinois	55,910	.....	712,650	35,632	4,273	95,815
Missouri	11,666	6,892	.....	.....	22	18,580
Michigan	7,208	2,363	.....	.....	.....	9,571
Wisconsin	45,486	.....	162,851	8,142	.....	53,628
Minnesota	200	.....	.....	.....	.....	200
Nebraska	.....	.....	40,000	2,000	.....	2,000
Colorado	2,822	.....	55,944	2,797	.....	5,619
Wyoming Ty	1,463	.....	.....	.....	282	1,745
California	14,360	.....	129,332	6,467	.....	20,827
Total	1,230,094	322,584	7,581,379	379,069	25,560	1,957,307

The manufacture of rolled iron is as widely distributed throughout the country as the manufacture of pig iron, no less than twenty-six States, one Territory, and the District of Columbia having contributed toward the production included in the above table. Kansas and Iowa also contain rolling mills, but the works in the former State were idle in 1884 and the Burlington Rolling Mill in the latter was not completed in time to secure a place in the statistics of production for the year. For the first time Minnesota appears among the producers of rolled iron, the Standard Iron Works having been started at Minneapolis in August, 1884, for the manufacture of bar iron. Texas also makes its first appearance in this list, the Houston Rolling Mills and Iron Company having put a rolling mill in operation at Houston in May, 1884, for the manufacture of light rails, bar iron, and railroad supplies. It is the intention of this company also to manufacture cotton-ties.

In the production of bar, rod, bolt, hoop, skelp, and shaped iron there was a decrease of 281,328 net tons in 1884, or 19 per cent., as compared with 1883, the figures for the two years being 1,230,094 tons and 1,511,422 tons respectively. Pennsylvania made 46 per cent. of the total production of these forms of rolled iron in 1884, Ohio made 16 per cent., and New York made 7 per cent., these three States turning out over two-thirds of the whole product.

In the production of plate and sheet iron there was a decrease of 61,778 net tons, or 16 per cent., in 1884 as compared with 1883, the figures for the two years being respectively 322,584 tons and 384,362 tons. Pennsylvania made 69 per cent. of the total production in 1884 and Ohio made over 12 per cent. All the other States combined made less than one-fifth of the total product.

The production of cut nails and spikes reached its maximum in 1883, when 7,762,737 kegs of 100 pounds each were made in sixteen States. In 1884 the production was 7,581,379 kegs, showing a decrease of only 181,358 kegs, or 2 per cent., on 1883. Maine made nails in 1883 but not in 1884. Wisconsin began to make nails in 1884, the North Chicago Rolling Mill Company having added a nail factory to its large iron works at Milwaukee. The following table gives the production of nails since 1872.

Years.	Kegs.	Years.	Kegs.	Years.	Kegs.	Years.	Kegs.
1872.....	4,065,322	1876.....	4,157,814	1880.....	5,370,512	1884.....	7,581,379
1873.....	4,024,704	1877.....	4,828,918	1881.....	5,794,206		
1874.....	4,912,180	1878.....	4,396,130	1882.....	6,147,097		
1875.....	4,726,881	1879.....	5,011,021	1883.....	7,762,737		

The most prominent nail-manufacturing district in the United States is the Wheeling district, which includes the nail factories in West Virginia and in that part of Ohio which lies near Wheeling. The following table shows the production of this district in the last five years, as compared with the total production of the country.

Districts.	Kegs of 100 pounds.				
	1880.	1881.	1882.	1883.	1884.
West Virginia.....	1,025,155	1,241,102	1,023,711	1,327,484	1,098,611
Part of Ohio.....	445,248	461,020	474,435	874,926	892,959
Total Wheeling district..	1,470,403	1,702,122	1,498,146	2,202,410	1,991,570
Total United States.....	5,370,512	5,794,206	6,147,097	7,762,737	7,581,379

Of the total production of nails in the United States last year 393,482 kegs, or 5 per cent., were steel nails, of which 500 kegs were of combined iron and steel. We have included them in the figures given above. Their production was distributed as follows: West Virginia, 204,336 kegs; Ohio, 130,636 kegs; Pennsylvania, 29,324 kegs, of which none were made in the Eastern district, 11,324 kegs in the Central district, and 18,000 kegs in the Western district; New York, 14,500 kegs; Massachusetts, 11,450 kegs; Illinois, 3,236 kegs, including 500 kegs made of combined iron and steel. The production of steel nails in 1883 consisted of 18,224 kegs, of which 2,243 kegs were made of combined iron and steel. Their production was distributed as follows: New York, 14,768 kegs; Maine, 2,143 kegs of combined iron and steel; Illinois, 700 kegs of steel and 100 kegs of combined iron and steel; Massachusetts, 513 kegs. As very few steel nails were made in the United States prior to 1883 that year may therefore be said to have witnessed the beginning of this innovation, which made such rapid progress in 1884 and is destined to assume large proportions in the coming years.

The following table gives the production of all kinds of rolled iron in the United States from 1864 to 1884.

YEARS.	Net tons of 2,000 pounds.		
	Iron rails.	Other rolled iron.	Total.
1864	335,369	536,958	872,327
1865	356,292	500,048	856,340
1866	430,778	595,311	1,026,089
1867	459,558	579,838	1,039,396
1868	499,489	598,286	1,097,775
1869	583,936	642,420	1,226,356
1870	586,000	705,000	1,291,000
1871	737,483	710,000	1,447,483
1872	905,930	941,992	1,847,922
1873	761,062	1,076,368	1,837,430
1874	584,469	1,110,147	1,694,616
1875	501,649	1,097,867	1,599,516
1876	467,168	1,042,101	1,509,269
1877	332,540	1,144,219	1,476,759
1878	322,890	1,232,686	1,555,576
1879	420,160	1,627,324	2,047,484
1880	493,762	1,838,906	2,332,668
1881	488,581	2,155,346	2,643,927
1882	227,874	2,265,957	2,493,831
1883	64,954	2,283,920	2,348,874
1884	25,560	1,931,747	1,957,307

The maximum production of rolled iron was reached in 1881.

PRODUCTS OF FORGES AND BLOOMARIES IN 1884.

As has heretofore been explained, blooms and billets from ore are made chiefly in the Champlain district of New York, and blooms from pig and scrap iron are made chiefly in Pennsylvania. The former are used for conversion into plate and sheet iron, iron wire, and open-hearth and crucible steel; the latter almost wholly for conversion into plates and sheets. The make of each of these products in the last eleven years is given below, in net tons.

YEARS.	Blooms and billets from ore.	Blooms from pig and scrap iron.	Total. Net tons.	YEARS.	Blooms and billets from ore.	Blooms from pig and scrap iron.	Total. Net tons.
1874	36,450	25,220	61,670	1880	40,652	33,937	74,589
1875	24,416	24,827	49,243	1881	45,369	39,237	84,606
1876	20,784	23,844	44,628	1882	48,354	42,939	91,293
1877	24,227	23,073	47,300	1883	35,237	39,521	74,758
1878	24,139	25,906	50,045	1884	29,789	27,216	57,005
1879	30,282	32,071	62,353				

The production of both kinds of blooms has declined very rapidly in recent years, their use having been seriously affected by the cheapness of low-carbon steel blooms and billets which compete with them.

The following table shows the proportion of ore blooms and billets made in New York in the past ten years, and the proportion of pig and scrap blooms made in Pennsylvania in the same time.

YEARS.	Net tons of 2,000 pounds.			
	Ore blooms and billets made in New York.	Total make of ore blooms and billets.	Pig and scrap blooms made in Pennsylvania.	Total make of pig and scrap blooms.
1875	23,666	24,416	19,032	24,827
1876	20,202	20,784	13,401	23,844
1877	23,466	24,227	16,517	23,073
1878	22,829	24,139	15,121	25,906
1879	27,290	30,282	23,956	32,071
1880	34,351	40,652	24,319	33,937
1881	39,892	45,369	28,342	39,237
1882	43,911	48,354	29,408	42,939
1883	31,347	35,237	28,190	39,521
1884	27,745	29,789	19,992	27,216

The total production of both products from 1865 to 1884 has been as follows.

Years.	Net tons.	Years.	Net tons.	Years.	Net tons.
1865	63,977	1872	58,000	1879	62,353
1866	73,555	1873	62,564	1880	74,589
1867	73,073	1874	61,670	1881	84,606
1868	75,200	1875	49,243	1882	91,293
1869	69,500	1876	44,628	1883	74,758
1870	62,259	1877	47,300	1884	57,005
1871	63,000	1878	50,045		

THE IRON AND STEEL PRODUCTION OF ALLEGHENY COUNTY.

Allegheny county in Pennsylvania, which includes the city of Pittsburgh within its limits, is well known as the leading iron and steel producing county in the United States. The effects of the business depression prevailing in 1884 are seen, however, in its decreased production of all forms of iron and steel in that year. In the following table we give the production of iron and steel in this county from 1874 to 1884, in net tons.

YEARS.	Number of iron rolling mills.	Product of iron rails, bar, angle, bolt, rod, and hoop. Tons.	Product of sheet and plate, except nail plate. Tons.	Product of nails. Kegs of 100 pounds.	Total rolled iron, including nails. Net tons.
1874	31	194,114	52,361	562,995	274,625
1875	31	171,178	45,773	442,359	239,069
1876	31	189,511	31,488	538,874	247,943
1877	31	208,342	30,254	597,806	268,486
1878	31	226,687	33,445	444,013	282,333
1879	32	286,882	52,265	294,942	353,894
1880	30	287,253	80,899	419,098	389,107
1881	30	405,119	75,767	485,916	505,182
1882	31	336,628	71,038	459,228	430,627
1883	32	367,106	73,850	627,896	472,351
1884	31	318,813	68,669	459,512	410,457

YEARS.	Number of blast furnaces.	Make of pig iron. Net tons.	Number of steel works.*	Net tons crucible steel ingots.	Net tons all other steel, including Bessemer ingots.	Total make of steel. Net tons.
1874	11	143,660	11	17,915	6,000	23,915
1875	11	131,856	14	22,942	15,498	38,440
1876	11	128,555	14	25,009	54,467	79,476
1877	12	141,749	14	24,747	82,401	107,148
1878	12	217,299	14	27,866	106,948	134,814
1879	13	267,315	18	40,142	130,781	170,923
1880	15	300,497	17	52,136	169,819	221,955
1881	15	385,453	17	61,256	247,345	308,601
1882	16	358,840	18	59,596	258,501	318,097
1883	16	592,475	20	59,128	346,402	405,530
1884	17	487,055	22	38,885	289,376	328,261

* Bessemer steel works included; a few of these works are also iron rolling mills.

TOTAL PRODUCTION OF IRON AND STEEL FROM 1874 TO 1884.

The annexed table shows the total production of iron and steel in the United States in the eleven years from 1874 to 1884.

PRODUCTS.	Net tons of 2,000 pounds.											
	1874.	1875.	1876.	1877.	1878.	1879.	1880.	1881.	1882.	1883.	1884.
Pig iron	2,689,413	2,266,581	2,093,236	2,314,585	2,577,361	3,070,875	4,295,414	4,641,564	5,178,122	5,146,972	4,589,613
Spiegeleisen, included above	.....	7,832	6,616	8,845	10,674	13,931	19,603	21,086	21,963	24,574	33,893
Rolled iron, including nails and iron rails	1,694,616	1,699,516	1,509,989	1,476,759	1,555,576	2,047,484	2,332,668	2,643,927	2,493,831	2,348,874	1,957,307
Rolled iron, including nails and excluding rails	1,110,147	1,097,867	1,042,101	1,144,219	1,232,686	1,627,324	1,838,906	2,155,346	2,265,857	2,283,920	1,931,747
Kegs of cut nails and spikes, included in rolled iron	4,912,180	4,726,881	4,157,814	4,828,918	4,396,130	5,011,021	5,370,512	5,794,206	6,147,097	7,762,737	7,581,379
Bessemer steel rails	144,944	290,863	412,461	432,169	550,398	683,964	954,460	1,330,302	1,438,155	1,296,554	1,116,621
Open-hearth steel rails	.....	.....	.....	.....	9,397	9,149	13,615	25,217	22,765	9,186	2,670
Iron rails	584,469	501,649	467,168	332,540	322,890	420,160	493,762	488,581	227,874	64,954	25,560
Rails of all kinds	729,413	792,512	879,629	764,709	882,685	1,113,273	1,461,837	1,844,100	1,688,794	1,360,694	1,144,851
Crucible steel ingots	36,328	39,401	39,382	40,430	42,906	56,780	72,424	89,762	85,089	80,455	59,662
Open-hearth steel ingots	7,000	9,050	21,490	25,031	36,126	56,290	112,953	146,946	160,542	133,679	131,617
Bessemer steel ingots	191,933	375,517	525,996	560,587	732,226	928,972	1,203,173	1,539,157	1,696,450	1,654,627	1,540,595
Miscellaneous steel	6,353	12,607	10,306	11,924	8,556	5,464	8,465	3,047	3,014	5,598	5,111
Steel of all kinds	241,614	436,575	597,174	637,972	819,814	1,047,506	1,397,015	1,778,912	1,945,095	1,874,359	1,726,985
Blooms from ore and pig iron	61,670	49,243	44,628	47,300	50,045	62,353	74,589	84,606	91,293	74,758	57,005

PRODUCTION OF IRON ORE IN 1884.

The principal iron-ore district in the United States is the Lake Superior region. The mines of the Marquette Range, in Michigan, were the first opened, and for a number of years all shipments of Lake Superior ore came from the Marquette mines. In 1877 shipments began from the Menominee Range, lying partly in Michigan and partly in Wisconsin; and the mines of that portion of the Lake Superior region are now among the most important in the United States. In 1884 iron ore began to be shipped from the Vermillion Lake district, in Minnesota, and 62,124 gross tons were sent to lower lake ports during the season. Shipments from this district will be largely increased hereafter. The Gogebic district, in Michigan, is a very promising iron-ore region which has just been opened, the shipments in 1884 only amounting to 1,022 tons, but a much larger quantity will be sent from the district this year.

According to the statistics collected and published by Mr. A. P. Swineford, the editor of the Marquette *Mining Journal*, the production of the Marquette and Menominee iron-ore mines in 1884 was 2,455,924 gross tons, against 2,352,288 tons in 1883, which was an increase of 103,636 tons. The production of each of these districts in 1884 is shown in the following table in comparison with 1882, which was the year of largest production, in gross tons.

Districts.	1882.	1884.
Marquette	1,914,745	1,757,877
Menominee	1,032,647	698,047
Total	2,947,392	2,455,924

The total yearly production of iron ore in these two districts of the Lake Superior region since the beginning of their development has been as follows.

Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.
1856 and previous	86,319	1867	465,504	1878	1,125,093
1857	25,646	1868	510,522	1879	1,414,182
1858	22,876	1869	639,097	1880	1,987,598
1859	68,832	1870	859,507	1881	2,321,315
1860	114,401	1871	813,984	1882	2,947,392
1861	114,258	1872	948,553	1883	2,352,288
1862	124,169	1873	1,195,234	1884	2,455,924
1863	203,055	1874	935,488		
1864	247,059	1875	910,840		
1865	193,758	1876	993,311		
1866	296,713	1877	1,025,129		

The prices of Lake Superior iron ores at Cleveland, which declined in 1883, fell still lower in 1884. The following table shows the rates per gross ton for season contracts prevailing in the latter part of March of this year as compared with the prices fixed for similar contracts in the two previous years.

KINDS OF ORE.	1883.	1884.	1885.
Republic and Champion	$7.50	$6.00	$5.75
West Republic	7.50	6.25	5.75
Barnum, Cleveland, and Lake Superior specular	6.50	5.75	5.00
Chapin and Menominee	6.00	5.25	4.75
Hematites	4.75	4.50	4.00

The price of standard hard ores in 1858 at Cleveland, according to the Cleveland *Iron Trade Review*, was $8 per gross ton. Falling to $5.25 in 1861 and 1862 the price rose with occasional fluctuations until the highest point ever reached was touched in the latter part of 1873, ores then selling at $12. There was a gradual decline from that time until 1878 when $5.50 marked the bottom of the depression. In the "boom" the price of these ores advanced rapidly until $9.25 was reached in 1880. Since then the course of prices has been downward.

The following table gives the production of iron ore in New Jersey, according to the reports of Professor George H. Cook, State Geologist.

Years.	Gross tons.	Years.	Gross tons.
1790	10,000	1874	525,000
1830	20,000	1875	390,000
1855	100,000	1878	409,674
1860	164,900	1879	488,028
1864	226,000	1880	745,000
1867	275,067	1881	737,052
1870	362,636	1882	932,762
1871	450,000	1883	521,416
1872	600,000	1884	393,710
1873	665,000		

From a paper on the distribution and production of iron ore in the United States, prepared by Mr. James M. Swank, Vice-President and General Manager of this Association, we take the following table showing the production in 1883 and 1884 of the principal ore-producing districts of the country.

DISTRICTS.	Gross tons.	
	1883.	1884.
Lake Superior Mines of Michigan and Wisconsin	2,352,288	2,455,924
Vermillion Lake Mines of Minnesota	Not opened.	62,124
Missouri	295,430	233,225
Cornwall, Pennsylvania	363,143	412,320
Chateaugay Mines, near Lake Champlain	194,704	214,394
Other Lake Champlain Mines, including the Port Henry and Crown Point Mines	305,300	290,500
New Jersey	521,416	393,710
Salisbury District, Connecticut	35,000	25,000
Hudson River Ore and Iron Company, New York	20,000	90,000
Total	4,087,281	4,177,197

According to statistics collected by this Association the total quantity of domestic iron ore consumed in the blast furnaces, rolling mills, and forges of the country in 1884 was 7,639,581 gross tons. A very few establishments did not report their ore consumption, which in such cases was estimated on the practice of other works in the same locality.

THE PRODUCTION OF COAL IN 1884.

The statistics of the production of coal in Pennsylvania are obtained from two sources. Mr. John H. Jones, anthracite accountant, furnishes the figures for anthracite coal, and Mr. F. E. Saward, editor of the *Coal Trade Journal*, furnishes those for bituminous coal. Through the combined labors of these gentlemen we are enabled to present the following table showing the total coal production in Pennsylvania in the past three years.

KIND OF COAL.	Gross tons.		
	1882.	1883.	1884.
Anthracite	29,120,096	31,793,027	30,718,293
Bituminous	22,000,000	24,000,000	25,000,000
Total	51,120,096	55,793,027	55,718,293

The Monongahela Navigation Company controls the trade of the Monongahela river in Western Pennsylvania through its system of improvements. A very large quantity of bituminous coal and some coke annually passes down that river on its way to markets

along the Ohio river and even along the Mississippi. The first shipments from this region began in 1844. In the following table we give the statistics of the total shipments of coal and coke from the beginning of the trade, a thousand bushels being the equivalent of 38 gross tons, which makes the weight of a bushel 85.12 pounds.

Years.	Bushels.	Years.	Bushels.	Years.	Bushels.	Years.	Bushels.
1844.....	737,150	1855.....	22,234,009	1866.....	42,605,300	1877.....	79,480,918
1845.....	4,605,185	1856.....	8,584,095	1867.....	30,072,700	1878.....	76,825,255
1846.....	7,778,911	1857.....	28,973,596	1868.....	45,301,000	1879.....	65,588,000
1847.....	9,645,127	1858.....	25,696,669	1869.....	52,512,600	1880.....	89,377,150
1848.....	9,819,361	1859.....	28,286,671	1870.....	57,596,400	1881.....	90,035,360
1849.....	9,708,507	1860.....	37,947,732	1871.....	48,621,300	1882.....	106,168,300
1850.....	12,297,967	1861.....	20,865,722	1872.....	57,280,500	1883.....	112,395,389
1851.....	12,521,228	1862.....	18,583,956	1873.....	58,276,995	1884.....	81,706,852
1852.....	14,630,841	1863.....	26,444,252	1874.....	65,881,700		
1853.....	15,716,367	1864.....	35,070,917	1875.....	63,707,500		
1854.....	17,331,946	1865.....	39,522,792	1876.....	68,481,000		

The shipments of coke in 1884 aggregated only 2,437,752 bushels, most of the coke production of this region being transported to market by railroad.

Among the bituminous coal districts of Pennsylvania the Clearfield region is very prominent. The following table shows the quantity shipped from that region over the Pennsylvania Railroad since 1876, when it first reached a million tons.

Years.	Net tons.	Years.	Net tons.
1876.....	1,281,861	1881.....	2,401,987
1877.....	1,374,927	1882.....	2,838,970
1878.....	1,295,201	1883.....	2,857,710
1879.....	1,631,120	1884.....	3,173,363
1880.....	1,739,873		

We are not in possession of the complete statistics of the production of coal in the Clearfield region, which now has other outlets than the Pennsylvania Railroad. It is probable that its annual production is over 4,000,000 tons.

The statistics of the production of bituminous coal in the Cumberland coal field of Maryland are obtained from the Cumberland and Pennsylvania Railroad Company. In 1884 the shipments from this district exceeded those of any former year. The following table gives the shipments from the commencement of the trade in 1842, in gross tons.

Years.	Tons.	Years.	Tons.	Years.	Tons.	Years.	Tons.
1842.....	1,708	1854...	659,681	1866...	1,079,331	1878...	1,679,322
1843.....	10,082	1855...	662,272	1867...	1,193,822	1879...	1,730,709
1844.....	14,890	1856...	706,450	1868...	1,330,443	1880...	2,136,160
1845.....	24,653	1857...	582,486	1869...	1,882,669	1881...	2,261,918
1846.....	29,795	1858...	649,656	1870...	1,717,075	1882...	1,540,466
1847.....	52,940	1859...	724,354	1871...	2,345,153	1883...	2,544,173
1848.....	79,571	1860...	788,909	1872...	2,355,471	1884...	2,934,979
1849.....	142,449	1861...	269,674	1873...	2,674,101		
1850.....	196,848	1862...	317,634	1874...	2,410,895		
1851.....	257,679	1863...	748,345	1875...	2,342,773		
1852.....	334,178	1864...	657,996	1876...	1,835,081		
1853.....	533,979	1865...	903,495	1877...	1,574,339		

Several States are becoming very prominent in the production of bituminous coal, anthracite coal being almost entirely confined to Pennsylvania. In the following table we give the production, according to Mr. Saward, for the past two years of the States which produce a million tons or over, except Pennsylvania.

States.	Gross tons.	
	1883.	1884.
Illinois	10,508,791	10,101,005
Ohio	8,229,429	6,830,412
Iowa	3,881,300	3,903,458
West Virginia	2,805,565	3,000,000
Missouri	2,250,000	2,500,000
Maryland	2,206,172	2,469,051
Indiana	2,560,000	2,260,000
Alabama	1,400,000	2,000,000
Kentucky	1,650,000	1,550,000
Colorado	1,000,000	1,500,000
Tennessee	1,000,000	1,200,000
Kansas	850,000	1,100,000
Wyoming Territory	700,000	1,000,000

The other States credited with the production of coal are Arkansas, California, Georgia, Michigan, Oregon, Texas, Virginia, and Dakota, Idaho, Indian, Montana, New Mexico, Utah, and Washington Territories. The total coal production of the country is placed at 99,851,807 gross tons, which is an increase of 2,976,423 tons over 1883, when 96,875,384 tons were produced.

The quantity of fuel consumed in the iron and steel works of the United States in 1884 was as follows: Anthracite coal, 1,973,305 gross tons; bituminous coal, 4,226,986 tons; coke, 3,833,170 tons; charcoal, 62,110,660 bushels. The consumption of a few non-re-

porting works has been estimated at the same rate as that returned by neighboring establishments.

IMMIGRATION INTO THE UNITED STATES FROM 1861 TO 1884.

The number of persons of foreign birth who emigrated to the United States in 1884 was 461,346. This is the smallest number of immigrants in any year since 1879. The following table shows the annual immigration into the United States in the past twenty-four years.

Calendar years.	Immigrants.	Calendar years.	Immigrants.	Calendar years.	Immigrants.
1861	89,724	1870	356,303	1879	250,565
1862	89,007	1871	346,938	1880	593,703
1863	174,524	1872	437,750	1881	720,045
1864	193,195	1873	422,545	1882	730,349
1865	247,453	1874	260,814	1883	570,316
1866	314,917	1875	191,231	1884	461,346
1867	310,965	1876	157,440		
1868	289,145	1877	130,502	Total	7,877,271
1869	385,287	1878	153,207		

The immigrants who arrived in 1884 came chiefly from the following countries: Germany, 155,529; Great Britain and Ireland, 121,756; British North American Provinces, 47,888; Sweden, 24,017; Austria, 20,688; Russia, 15,122; Italy, 14,493; Norway, 13,906; Hungary, 10,708. No other country sent 10,000 immigrants. China is credited with only 84.

An undesirable form of immigration will hereafter be checked by a law enacted by Congress in March last. By this act it is made unlawful for any person or corporation to import foreign laborers under contract except skilled workmen to perform labor in a new industry.

IRON AND STEEL SHIPBUILDING IN 1884.

We have received from Hon. Jarvis Patten, Commissioner of Navigation, the statistics of shipbuilding in the United States. In the fiscal year ended June 30, 1884, 3 iron sailing vessels and 31 iron steamships were built, having a total tonnage of 35,632 tons, which is a decrease of 4,014 tons as compared with 1883, when 39,646 tons were constructed in our iron shipyards. The following table gives the number and tonnage of the iron vessels built in the United States in each fiscal year since 1868, when their construction in this country was commenced, a few steel vessels being included in recent years.

Fiscal Years.	Sailing.		Steam.		Total.	
	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.
1868	.....	.....	.....	2,801	.....	2,801
1869	.....	1,039	.....	3,545	.....	4,584
1870	.....	679	.....	7,602	.....	8,281
1871	.....	2,067	20	13,412	.....	15,479
1872	.....	.....	20	12,766	20	12,766
1873	.....	.....	26	26,548	26	26,548
1874	.....	.....	23	33,097	23	33,097
1875	.....	.....	20	21,632	20	21,632
1876	.....	.....	25	21,346	25	21,346
1877	.....	.....	7	5,927	7	5,927
1878	.....	.....	32	26,960	32	26,960
1879	.....	.....	24	22,008	24	22,008
1880	1	44	30	25,538	31	25,582
1881	1	36	41	28,320	42	28,356
1882	.....	.....	43	40,097	43	40,097
1883	1	2,033	34	37,613	35	39,646
1884	3	4,432	31	31,200	34	35,632

In the first six months of the fiscal year 1885, ended December 31, 1884, the number and tonnage of the iron and steel vessels built were as follows, the districts in which the shipyards are located being designated.

Ports.	Iron.				Steel.		Total.	
	Sailing.		Steam.		Steam.			
	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.	No.	Gross Tonnage.
New York, N. Y.	.....	.....	4	1,849	.....	.....	4	1,849
Philadelphia, Pa.	1	731	12	16,331	.....	.....	13	17,062
Wilmington, Del.	.....	.....	3	1,042	1	745	4	1,787
Detroit, Mich.	.....	.....	.....	.....	2	3,836	2	3,836
Cleveland, O.	.....	.....	.....	.....	1	1,581	1	1,581
Portland, Oregon	.....	.....	.....	.....	1	1,362	1	1,362
Total	1	731	19	19,222	5	7,524	25	27,477

The iron shipbuilding industry has not grown so vigorously in the United States as an interest of so much importance to the country should have done. During the past year, however, two events have occurred which are expected to exert a beneficial influence on the shipping interest, which will directly affect our shipbuilders. One of these events was the passage on June 26, 1884, of the Dingley bill, which relieves American shipping from onerous taxation and other burdens, and the other was the insertion in the

Post-office appropriation bill at the late session of Congress of a clause authorizing the payment of 50 cents per mile to American vessels carrying foreign mails. The following is the exact language of the clause referred to.

For transportation of foreign mails, including railway transit across the Isthmus of Panama, $800,000. And the Postmaster-General is hereby authorized to enter into contracts for the transportation of any part of said foreign mails, after legal advertisement, with the lowest responsible bidder, at a rate not exceeding 50 cents a nautical mile on the trip each way actually traveled between the terminal points; *provided*, that the mails so contracted shall be carried on American steamships, and that the aggregate of such contracts shall not exceed one-half of the sum hereby appropriated.

RAILROAD STATISTICS FOR 1884.

In referring to the railroad mileage of the United States the length of railroad lines is meant, without regard to the number of tracks or miles of sidings constructed. The following is Mr. H. V. Poor's table of the railroad mileage of the United States from 1830 to 1884, a period of fifty-five years.

Years.	Miles in Operat'n.	Annual Incr'se of Mileage.	Years.	Miles in Operat'n.	Annual Incr'se of Mileage.	Years.	Miles in Operat'n.	Annual Incr'se of Mileage.
1830.....	23	.....	1849.....	7,365	1,369	1868.....	42,229	2,979
1831.....	95	72	1850.....	9,021	1,656	1869.....	46,844	4,615
1832.....	229	134	1851.....	10,982	1,961	1870.....	52,914	6,070
1833.....	380	151	1852.....	12,908	1,926	1871.....	60,293	7,379
1834.....	633	253	1853.....	15,360	2,452	1872.....	66,171	5,878
1835.....	1,098	465	1854.....	16,720	1,360	1873.....	70,278	4,107
1836.....	1,273	175	1855.....	18,374	1,654	1874.....	72,383	2,105
1837.....	1,497	224	1856.....	22,016	3,642	1875.....	74,096	1,713
1838.....	1,913	416	1857.....	24,503	2,487	1876.....	76,808	2,712
1839.....	2,302	389	1858.....	26,968	2,465	1877.....	79,089	2,281
1840.....	2,818	516	1859.....	28,789	1,821	1878.....	81,776	2,687
1841.....	3,535	717	1860.....	30,635	1,846	1879.....	86,497	4,721
1842.....	4,026	491	1861.....	31,286	651	1880.....	93,454	6,957
1843.....	4,185	159	1862.....	32,120	834	1881.....	103,242	9,788
1844.....	4,377	192	1863.....	33,170	1,050	1882.....	114,838	11,596
1845.....	4,633	256	1864.....	33,908	738	1883.....	121,592	6,754
1846.....	4,930	297	1865.....	35,085	1,177	1884.....	125,542	3,950
1847.....	5,598	668	1866.....	36,801	1,716			
1848.....	5,996	398	1867.....	39,250	2,449			

FOREIGN COMMERCE OF THE UNITED STATES SINCE 1861.

The following table, compiled from the reports of the Bureau of Statistics, shows the imports and exports of the United States in each fiscal year, ended June 30th, from 1861 to 1884, and during

the first eight months of the fiscal year 1885. The phrases "net imports" and "domestic exports" indicate that all merchandise and specie imported and re-exported are excluded from the table. The column headed "Balance of Trade" shows the difference between the net imports and domestic exports of merchandise without reference to the movement of specie. A + mark before the amount indicates that the balance of trade was in favor of the United States; when no mark occurs the balance of trade is against this country. The figures in this table have been very carefully revised for these pages by direction of Mr. Nimmo, the Chief of the Bureau of Statistics.

Fiscal Years.	Net Imports. *Gold Value.*		Domestic Exports. *Gold Value*		Balance of Trade.
	Merchandise.	Specie.	Merchandise.	Specie.	
1861	$274,656,325	$40,348,401	$204,899,616	$23,799,870	$69,756,709
1862	178,330,200	10,572,063	179,644,024	31,044,651	+ 1,313,824
1863	225,375,280	1,421,056	186,003,912	55,993,562	39,371,368
1864	301,113,322	8,192,633	143,504,027	100,473,562	157,609,295
1865	209,656,525	6,784,970	136,940,248	64,618,124	72,716,277
1866	423,470,646	7,299,395	337,518,102	82,643,374	85,952,544
1867	381,041,764	16,178,299	279,786,809	54,976,196	101,254,955
1868	344,873,441	4,150,241	269,389,900	83,745,975	75,483,541
1869	406,555,379	5,585,462	275,166,697	42,915,966	131,388,682
1870	419,803,113	12,147,315	376,616,473	43,883,802	43,186,640
1871	505,802,414	7,231,395	428,398,908	84,403,359	77,403,506
1872	610,904,622	6,664,395	428,487,131	72,798,240	182,417,491
1873	624,689,727	10,777,909	505,033,439	73,905,546	119,656,288
1874	550,556,723	21,524,187	569,433,421	59,699,686	+ 18,876,698
1875	518,846,825	12,625,704	499,284,100	83,857,129	19,562,725
1876	445,938,766	9,469,070	525,582,247	50,038,691	+ 79,643,481
1877	438,518,130	27,746,915	589,670,224	43,134,738	+151,152,094
1878	422,895,034	23,143,074	680,709,268	27,061,885	+257,814,234
1879	433,679,124	12,853,594	698,340,790	17,555,035	+264,661,666
1880	656,262,441	85,239,284	823,946,353	9,347,893	+167,683,912
1881	624,213,229	105,395,594	883,925,947	14,226,944	+259,712,718
1882	707,337,049	36,535,182	733,239,732	43,480,271	+ 25,902,683
1883	703,565,144	18,292,239	804,223,632	21,623,181	+100,658,488
1884	652,148,936	20,518,514	724,964,852	50,225,635	+ 72,815,916
1885 (8 mos.)	370,786,925	23,844,182	530,379,284	15,323,365	+159,592,359

Note.—The Canadian reports of imports into Canada from the United States indicate that in addition to the above "Domestic Exports" there were exported in the fiscal year 1874 merchandise of the value of $10,200,059; in 1875 merchandise of the value of $15,596,524; in 1876 merchandise of the value of $10,507,563; in 1877 merchandise of the value of $13,051,798; in 1878 merchandise of the value of $10,721,920; in 1879 merchandise of the value of $12,797,478; in 1880 merchandise of the value of $9,802,665; in 1881 merchandise of the value of $9,913,483; in 1882 merchandise of the value of $14,733,107; in 1883 merchandise of the value of $15,636,298; and in 1884 merchandise of the value of $11,442,890.

PRODUCTION OF ALL KINDS OF PIG IRON IN 1881, 1882, 1883, AND 1884, BY STATES.

Statistics collected from the manufacturers by The American Iron and Steel Association.

STATES.	Net tons of 2,000 pounds.			
	1881.	1882.	1883.	1884.
Maine	4,400	4,100	4,400	.....
Vermont	2,796	1,210	.....	.....
Massachusetts	18,318	10,335	10,760	4,902
Connecticut	28,483	24,342	19,976	14,174
New York	359,519	416,156	331,964	239,486
New Jersey	171,672	176,805	138,773	82,935
Pennsylvania	2,190,786	2,449,256	2,638,891	2,385,402
Maryland	48,756	54,524	49,153	27,342
Virginia	83,711	87,731	152,907	157,483
North Carolina	800	1,150	.....	435
Georgia	37,404	42,440	45,364	42,655
Alabama	98,081	112,765	172,465	189,664
Texas	3,000	1,321	2,381	5,140
West Virginia	66,409	73,220	88,398	55,231
Kentucky	45,973	66,522	54,629	45,052
Tennessee	87,406	137,602	133,963	134,597
Ohio	710,546	698,900	679,643	567,113
Indiana	7,300	10,000	9,950	2,568
Illinois	251,781	360,407	237,657	327,568
Michigan	187,043	210,195	173,185	172,834
Wisconsin	102,029	85,859	51,893	52,815
Missouri	109,799	113,644	103,296	60,043
Minnesota	7,442	8,126	8,000	.....
Utah Territory	.....	57	.....	.....
Colorado	6,396	23,718	24,680	15,837
Oregon	6,100	6,750	7,000	3,640
California	4,414	987	5,327	2,157
Washington Ty	1,200	.....	2,317	540
Total	4,641,564	5,178,122	5,146,972	4,589,613

ANTHRACITE PIG IRON.

STATES.	1881.	1882.	1883.	1884.
Massachusetts	5,958	.....	.....	.....
New York	322,349	385,440	306,284	215,998
New Jersey	171,672	176,805	138,773	82,935
Pennsylvania	1,213,353	1,453,646	1,416,468	1,278,236
Maryland	21,130	26,247	24,071	9,284
Total	1,734,462	2,042,138	1,885,596	1,586,453

PRODUCTION OF PIG IRON.—*Continued.*

CHARCOAL PIG IRON.

States.	Net tons of 2,000 pounds.			
	1881.	1882.	1883.	1884.
Maine	4,400	4,100	4,400	.....
Vermont	2,796	1,210	.....	.....
Massachusetts	12,360	10,335	10,760	4,902
Connecticut	28,483	24,342	19,976	14,174
New York	30,467	30,716	25,680	23,488
Pennsylvania	51,908	49,975	38,315	23,155
Maryland	27,626	28,277	23,807	15,123
Virginia	19,038	26,133	16,879	14,829
North Carolina	800	1,150	.....	435
Georgia	13,404	15,565	13,045	9,615
Alabama	44,221	55,541	57,385	59,448
Texas	3,000	1,321	2,381	5,140
West Virginia	1,200	.....	.....	.....
Kentucky	16,778	17,165	13,981	7,882
Tennessee	19,046	37,611	35,299	18,806
Ohio	66,169	58,654	40,528	24,880
Michigan	187,043	210,195	173,185	172,834
Wisconsin	47,702	55,369	39,349	25,812
Missouri	43,241	54,327	34,112	31,558
Minnesota	7,442	8,126	8,000	.....
Utah Territory	.....	57	.....	.....
Oregon	6,100	6,750	7,000	3,640
California	4,414	987	5,327	2,157
Washington Ty	1,200	.....	2,317	540
Total	638,838	697,906	571,726	458,418

BITUMINOUS COAL AND COKE PIG IRON.

New York	6,703	.....	.....	.....
Pennsylvania	925,525	945,635	1,184,108	1,084,011
Maryland	.....	.....	1,275	2,935
Virginia	64,673	61,598	136,028	142,654
Georgia	24,000	26,875	32,319	33,040
Alabama	53,860	57,224	115,080	130,216
West Virginia	65,209	73,220	88,398	55,231
Kentucky	29,195	49,357	40,648	37,170
Tennessee	68,360	99,991	98,664	115,791
Ohio	644,377	640,246	639,115	542,233
Indiana	7,300	10,000	9,950	2,568
Illinois	251,781	360,407	237,657	327,568
Wisconsin	54,327	30,490	12,544	27,003
Missouri	66,558	59,317	69,184	28,485
Colorado	6,396	23,718	24,680	15,837
Total	2,268,264	2,438,078	2,689,650	2,544,742

STOCKS OF ALL KINDS OF PIG IRON UNSOLD AT THE CLOSE OF 1881, 1882, 1883, AND 1884.

These statistics, collected directly from the manufacturers by The American Iron and Steel Association, represent only stocks in the hands of makers or their agents. They do not include stocks in the hands of consumers or speculators, nor foreign iron.

States and Districts.	Net tons of 2,000 pounds.			
	1881.	1882.	1883.	1884.
New England	4,894	9,866	12,437	11,433
New York	29,381	37,788	65,901	69,347
New Jersey	7,931	12,178	25,615	11,809
Pennsylvania. Lehigh Valley	22,704	24,969	50,600	61,365
Pennsylvania. Schuylkill Valley	23,563	24,029	25,448	29,696
Pennsylvania. Upper Susquehanna	2,123	11,173	8,839	12,216
Pennsylvania. Lower Susquehanna	10,491	7,935	14,324	10,643
Pennsylvania. Shenango Valley	7,108	22,045	27,195	34,246
Pennsylvania. Allegheny County	500	17,272	27,240	15,780
Pennsylvania. Miscellaneous bituminous	1,321	33,194	30,822	43,606
Pennsylvania. Charcoal	5,614	10,241	11,336	14,297
Total for Pennsylvania.	73,424	150,858	195,804	221,849
Maryland	2,867	7,280	10,899	7,637
Virginia	9,938	16,116	21,172	28,644
Georgia, Texas, and N. C.	2,915	8,948	9,429	12,582
Alabama	3,271	20,068	9,531	21,436
West Virginia	40	4,268	1,900	1,168
Kentucky	4,506	11,186	8,216	9,724
Tennessee	4,350	13,392	30,047	29,240
Ohio. Hanging Rock	23,791	40,094	35,364	24,461
Ohio. Mahoning Valley	.....	24,672	19,307	16,977
Ohio. Miscellaneous	8,846	22,487	18,465	11,600
Total for Ohio	32,637	87,253	73,136	53,038
Michigan and Indiana	16,175	29,573	36,405	60,715
Illinois	.....	896	.....	4,200
Wisconsin and Minnesota	1,130	5,801	6,340	7,366
Missouri	11,695	14,223	21,641	37,588
Pacific States	5,742	.....	5,327	5,224
Grand total	210,896	429,694	533,800	593,000
STOCKS ACCORDING TO FUEL USED.				
Bituminous	36,495	157,196	171,802	191,845
Anthracite	90,351	107,259	178,020	178,993
Charcoal	84,050	165,239	183,978	222,162
Total	210,896	429,694	533,800	593,000

AVERAGE PRICES OF No. 1 ANTHRACITE FOUNDRY PIG IRON IN PHILADELPHIA, FROM 1842 TO 1885.—PER TON OF 2,240 LBS.

Compiled by The American Iron and Steel Association.

YEARS.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Average.*	YEARS.
	$	$	$	$	$	$	$	$	$	$	$	$	$	
1842..	.....	.....	.....	.....	27	27	26¾	24½	25½	25	25	25	.....	..1842
1844..	24	24	24	24	24	26⅛	26½	26½	27⅞	28	27½	26¾	25⅞	..1844
1845..	26¾	26½	27⅜	33⅛	34½	33	31	28⅞	27	26⅞	28⅛	28	29¼	..1845
1846..	28	28	28¼	28	28½	28	29	26⅞	27¼	27	28½	28⅛	27⅞	..1846
1847..	28½	28⅛	28⅝	29	29	28⅝	28	28½	30¼	33¾	35¼	33⅜	30¼	..1847
1848..	31	28½	27½	26⅜	26⅛	26½	25⅜	25½	25½	25	25	24⅞	26½	..1848
1849..	25	24½	24⅝	24	†23½	23	†22¾	22½	‡21½	21½	20	21	†22⅝	..1849
1850..	21	21	20⅜	20⅞	20⅞	20⅛	20	20⅜	21	21	21	21¾	20⅝	..1850
1851..	21⅓	22	22	22	21⅓	21½	21	21	21	21	21	21	21⅜	..1851
1852..	21⅛	21¼	20⅜	20⅜	20¼	20½	20¼	21¼	23¼	26½	27¾	28¼	22⅝	..1852
1853..	32¾	36⅞	35⅝	35⅞	35⅞	36	36	36¼	37⅛	37⅝	37⅝	36¾	36¼	..1853
1854..	37	36¼	37	38	38	38	38	38	37¾	36½	35½	32⅝	36⅞	..1854
1855..	31¼	29½	27¼	26¾	26¼	26⅛	26⅛	26½	28	28⅝	28½	27¾	27¾	..1855
1856..	27½	27½	27⅝	28	28	27⅝	27	27	27	26⅞	26	26	27⅛	..1856
1857..	26½	26½	26⅝	27⅜	27⅞	27¾	27¼	26¾	26¾	25¼	23¼	23⅜	26⅝	..1857
1858..	23⅛	22½	22⅛	22½	22½	22½	21⅜	21½	22	21½	21⅜	22½	22⅝	..1858
1859..	22¾	23⅝	24½	23⅞	23½	23½	23	23⅛	22⅞	23¼	23¼	23⅛	23⅝	..1859
1860..	23	23	23⅝	22⅝	22¾	22¾	22¾	22½	22¼	22¾	22¾	22½	22¾	..1860
1861..	22⅛	21¾	21¼	21⅞	21⅞	20½	19⅞	18⅜	18¾	18⅝	18⅞	19⅝	20¼	..1861
1862..	20	20¾	20¾	21½	21½	22¾	24	24⅜	24½	25½	30½	31½	23⅞	..1862
1863..	32	33½	35¼	36	34⅜	33½	32¾	31½	33	35¾	41½	43½	35½	..1863
1864..	43¼	48⅝	50½	54¼	57½	57⅝	69½	‡73⅝	72¼	63¼	61½	59⅞	¶59¼	..1864
1865..	58½	53⅝	50⅝	45½	39½	35	35⅞	40½	44⅛	49⅞	51	50⅝	46⅝	..1865
1866..	50⅝	49	46⅛	41¾	41⅜	43⅞	46½	47¼	48⅛	48¾	49½	49½	46⅞	..1866
1867..	48¾	46½	44¾	41	42¾	43	43½	44	44½	44½	43¾	42¼	44⅛	..1867
1868..	38⅜	36⅜	37⅜	38⅛	37	37	38½	39¼	40⅛	41⅜	42⅞	43¼	39¼	..1868
1869..	42	40¼	41½	40	39¼	40¾	41⅝	41½	40¾	40½	39¾	39½	40⅝	..1869
1870..	36¼	34½	34½	33¼	33½	32½	32¾	33½	33¼	32½	31½	31½	33¼	..1870
1871..	30½	30⅞	34¼	35⅜	35½	35	35⅓	36	36½	36⅜	37¼	37¼	35¼	..1871
1872..	37	40¾	47	49½	49½	53⅜	51½	52¾	53⅞	53½	51¼	47⅝	48⅞	..1872
1873..	45⅛	48	48⅜	47¾	46	45	43¾	43½	42½	38	33	32½	42⅜	..1873
1874..	32	32	32	32	31¾	31½	31½	31	29½	29	26¼	24·	30¼	..1874
1875..	25¾	26½	27	27	26	26	26	26	25	24	23¾	23¼	25½	..1875
1876..	23½	23	23	22¾	22	22	22	22	21¾	21¾	21½	21¼	22¼	..1876
1877..	20¾	20	20	19½	19	18¾	18¼	18	18¼	18½	18	18	18½	..1877
1878..	18½	18½	18¼	18½	18	17¼	17½	17½	17½	17	‖16½	17	‖17⅝	..1878
1879..	17¼	17½	17⅞	18	18½	18¾	19¼	20¾	24¼	30	28	30½	21½	..1879
1880..	40	41	37½	31	25	23	23½	25	23¼	23	24¼	25	28½	..1880
1881..	25	25½	26	25	25	24	24½	24½	25¼	25½	25¾	26	25¼	..1881
1882..	26	26	25¾	25½	25½	25½	25½	25½	26	26¼	26	25¾	25¾	..1882
1883..	25	24½	24	23½	22	21	21½	22	22	21¾	21	21	22⅞	..1883
1884..	20½	20½	20½	20	20	20	20	19½	19½	19½	19¼	18½	19⅞	..1884
1885..	18	18	18	18	.....	.....	.....	.....	.....	.....	.....	.....	.....	..1885

* Average for year to nearest *eighth*.

† Uncertain.

‡ Lowest average for month, $16½—November, 1878.

‡ Highest average for month, $73⅝—August, 1864.

‖ Lowest average for year, $17⅝—1878.

¶ Highest average for year, $59¼—1864.

☞ From 1842 to July, 1866, averaged monthly from weekly quotations in Philadelphia and New York prices current. From July, 1866, to 1885 averaged from weekly quotations in The Bulletin of The American Iron and Steel Association.

PRODUCTION OF ROLLED IRON (EXCLUDING RAILS AND PLATE AND SHEET IRON) IN 1881, 1882, 1883, AND 1884.

States.	Bars, hoops, shapes, rolled axles, skelp, etc.—Net tons.			
	1881.	1882.	1883.	1884.
Maine	5,433	10,537	8,947	9,638
New Hampshire	3,000	3,508	2,132	4,264
Massachusetts	58,524	46,086	47,915	36,909
Rhode Island	10,769	11,877	14,405	14,000
Connecticut	17,589	20,676	18,491	15,054
New York	106,372	131,226	104,229	84,963
New Jersey	56,793	76,408	56,839	43,781
Pennsylvania	714,113	685,049	675,226	565,725
Delaware	23,920	25,366	22,755	17,894
Maryland and D. C.	18,737	17,188	17,600	24,586
Virginia	33,984	31,554	22,687	17,807
Georgia	3,000	.....	.....	.....
Alabama	8,772	8,460	6,656	11,458
Texas	.....	.....	.....	800
West Virginia	4,106	5,494	4,964	3,673
Kentucky	15,425	35,247	36,531	17,885
Tennessee	5,158	10,589	9,786	8,709
Ohio	229,247	253,933	263,247	198,811
Indiana	20,485	23,177	18,921	15,022
Illinois	52,500	48,932	94,747	55,910
Michigan	14,685	8,004	8,080	7,208
Wisconsin	47,478	39,611	38,946	45,486
Minnesota	.....	.....	.....	200
Missouri	12,141	12,090	9,642	11,666
California	14,204	22,807	20,747	14,360
Kansas	10,528	10,800	.....	.....
Wyoming Territory	3,286	3,235	4,443	1,463
Colorado	2,306	3,934	3,486	2,822
Total	1,492,555	1,545,788	1,511,422	1,230,094

PRODUCTION OF CUT NAILS IN KEGS OF 100 POUNDS.

Maine	.....	.....	7,306	.....
Massachusetts	525,089	592,276	677,540	557,195
New York	2,256	166	14,768	14,500
New Jersey	248,521	360,340	338,107	305,307
Pennsylvania	1,914,706	1,949,405	2,430,552	2,281,676
Virginia	127,566	169,806	161,279	207,678
Alabama	.....	.....	20,000	100,000
West Virginia	1,241,102	1,023,711	1,327,484	1,098,611
Kentucky	69,000	149,382	144,686	41,522
Tennessee	94,495	171,413	212,358	120,164
Ohio	860,665	796,857	1,249,700	1,310,715
Indiana	326,496	394,682	413,380	443,234
Illinois	352,643	462,956	526,108	712,650
Wisconsin	.....	.....	.....	162,851
Nebraska	31,667	60,000	65,000	40,000
Colorado	.....	16,103	62,969	55,944
California	.....	.....	111,500	129,332
Total	5,794,206	6,147,097	7,762,737	7,581,379

PRODUCTION OF ALL KINDS OF ROLLED IRON (INCLUDING RAILS AND NAIL PLATE) IN THE UNITED STATES IN 1881, 1882, 1883, AND 1884, BY STATES.

Statistics collected from the manufacturers by The American Iron and Steel Association.

States.	Net tons.			
	1881.	1882.	1883.	1884.
Maine	7,616	10,862	10,662	9,638
New Hampshire	3,000	3,508	2,158	4,314
Massachusetts	116,846	111,388	100,418	77,560
Rhode Island	10,769	11,877	14,405	14,000
Connecticut	17,589	20,676	18,541	15,054
New York	123,366	138,541	105,644	86,955
New Jersey	71,286	96,441	76,109	61,046
Pennsylvania	1,254,866	1,123,886	1,081,163	913,046
Delaware	34,275	38,261	35,384	28,015
Maryland and D. C.	33,034	33,807	29,099	33,856
Virginia	41,002	40,044	30,751	28,286
Georgia	7,000	.....	.....	.....
Alabama	11,072	9,188	8,336	17,895
Texas	.....	.....	.....	1,000
West Virginia	75,547	66,107	79,894	64,632
Kentucky	29,915	61,096	58,263	29,212
Tennessee	33,793	38,770	22,454	15,217
Ohio	345,727	361,608	377,962	310,568
Indiana	82,430	71,626	55,887	39,028
Illinois	148,818	93,943	121,702	95,815
Michigan	20,605	11,824	11,900	9,571
Wisconsin	88,643	64,296	40,195	53,628
Minnesota	.....	.....	.....	200
Missouri	16,641	18,145	15,833	18,580
Wyoming Territory	15,172	16,488	11,288	1,745
Kansas	29,544	17,867	.....	.....
California	19,839	25,843	29,732	20,827
Colorado	3,949	4,739	7,844	5,619
Nebraska	1,583	3,000	3,250	2,000
Total	2,643,927	2,493,831	2,348,874	1,957,307

PRODUCTION OF IRON AND STEEL RAILS IN THE UNITED STATES IN 1881, 1882, 1883, AND 1884, BY STATES.

Statistics collected from the manufacturers by The American Iron and Steel Association.

States.	Net tons of 2,000 pounds.				Per cent. of total production in 1884.
	1881.	1882.	1883.	1884.	
Pennsylvania	891,179	850,908	857,818	775,872	67.8
Illinois	433,420	362,250	232,005	294,458	25.7
New York	109,283	105,021	76,020	31,625	2.7
Ohio	153,596	113,806	62,518	25,175	2.2
Massachusetts	2,622	15,707	12,465	5,862	
Colorado	1,643	18,217	19,688	4,030	
California	6,035	8,200	7,460	2,937	
Indiana	44,645	28,173	16,309	1,844	
West Virginia	3,152	1,436	775	899	
Alabama	2,300	728	680	500	
Tennessee	32,660	25,390	2,650	500	
Kentucky	5,005	2,000	.....	300	
Wyoming Ty	11,886	13,253	6,845	282	
Wisconsin	41,165	24,685	1,259	250	1.6
Texas	.....	.....	.....	200	
Virginia	640	.....	.....	95	
Missouri	64,226	85,528	64,142	22	
New Jersey	244	.....	60	.....	
Vermont	15,200	26,100	.....	.....	
Kansas	19,016	7,067	.....	.....	
Georgia	4,000	.....	.....	.....	
Maine	2,183	325	.....	.....	
Total	1,844,100	1,688,794	1,360,694	1,144,851	100.0

PRODUCTION OF PLATE AND SHEET IRON (EXCLUDING NAIL PLATE) IN THE UNITED STATES IN 1881, 1882, 1883, AND 1884.

States.	Net tons of 2,000 pounds.			
	1881.	1882.	1883.	1884.
Maine	.....	.....	1,350	.....
New Hampshire	.....	.....	26	50
Massachusetts	29,446	35,688	18,626	12,791
Connecticut	.....	.....	50	.....
New York, New Jersey	6,768	5,039	2,982	3,267
Pennsylvania	251,225	258,603	254,446	222,321
Delaware	10,355	12,895	12,629	10,121
Maryland, District of Columbia	14,297	16,619	11,499	9,270
Alabama	.....	.....	.....	937
West Virginia, Kentucky	12,269	24,371	22,279	14,342
Ohio	37,327	49,182	49,987	40,230
Indiana	975	542	.....	.....
Michigan	5,920	3,820	3,820	2,363
Missouri	4,500	6,055	6,168	6,892
California	.....	.....	500	.....
Total	373,082	412,814	384,362	322,584

AVERAGE PRICES IN DOLLARS OF STEEL RAILS, AT WORKS IN PENNSYLVANIA, SINCE 1868.—Per Ton of 2,240 lbs.

Compiled by The American Iron and Steel Association.

Years.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Yearly Average.
1868...	165	167½	174	172	165	162½	150	150	150	150	148	147½	158½
1869...	145	143¼	135	134	130¼	128	130	130	130	130¼	130¼	120	132¼
1870...	110	110	108½	107	106	109¼	110	110	108¾	101½	102½	98	106¾
1871...	95	96	106	95	103	104	103¾	104	106	105¾	105¼	106½	102½
1872...	104½	104	104¼	111½	110	113	114½	115¼	114	113½	118	120¼	112
1873...	121	120	122½	120¼	120	121¾	121¾	121¾	118	120	120	120	120½
1874...	117½	117½	115	98⅔	98½	96¼	91	89¼	78¼	78¼	75⅔	75⅔	94¼
1875...	71	71	71	69	69	69	69	69	69	67	66	65	68¾
1876...	67	65	62	62	62	60	59	59	56	54	53	52	59¼
1877...	49	49	49	49	47¼	46½	45¼	44¾	44	42¼	40½	40½	45½
1878...	41	41½	41½	42	43½	43	43½	42½	42½	42½	42	41	42½
1879...	41	42	43	42½	42	43	44	48	50	55	61	67	48¼
1880...	75	85	82	75	65	63¾	62½	63¾	61¼	60	59	58	67½
1881...	60	62	62½	63	63	60	61	60	60	60	61½	60	61⅛
1882...	58	55	54	52¾	48¾	48¼	48	47	45	44¼	42	39	48½
1883...	40	39½	39	38½	38	38	38	38	37½	37	35	34½	37¾
1884...	34	34	34	34	33	32	30	28	27	28	28	27	30¾
1885...	27	27	26½	26	.....	.....	.....	.....	.....	.....	.....	.....	.....

AVERAGE WHOLESALE STORE PRICES OF BEST REFINED ROLLED BAR IRON IN PHILADELPHIA, FROM 1844 TO 1885.

Compiled by The American Iron and Steel Association, from the sales books of several prominent Philadelphia iron merchants. Per ton of 2,240 pounds.

YEARS.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Average.
	$	$	$	$	$	$	$	$	$	$	$	$	$
1844...	90 00	90 00	90 00	90 00	90 00	82 50	82 50	82 50	82 50	82 50	82 50	82 50	85 62
1845...	82 50	87 50	92 50	100 00	100 00	100 00	95 00	92 50	92 50	92 50	95 00	95 00	93 75
1846...	95 00	95 00	90 00	92 50	92 50	92 50	90 00	92 50	90 00	90 00	90 00	85 00	91 66
1847...	85 00	85 00	85 00	85 00	85 00	90 00	90 00	85 00	87 50	85 00	85 00	85 00	86 04
1848...	85 00	85 00	85 00	85 00	85 00	80 00	80 00	80 00	75 00	75 00	67 50	70 00	79 33
1849...	70 00	70 00	70 00	70 00	70 00	70 00	65 00	65 00	65 00	65 00	65 00	65 00	67 50
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 66
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 50
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 33
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 38
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	90 00	87 50	87 50	85 00	82 50	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 66
1870...	80 00	77 50	77 50	77 50	75 00	77 50	80 00	85 00	82 50	80 00	77 50	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	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 64	52 64	52 64	52 64	52 64	52 64	52 64	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	42 56	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	60 38
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 30
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	.....	.....	.....	.....	.....	.....	.....	.....	.....

The highest price in any month in the above table was reached in August, 1864, $170; the lowest price in any month was in January, 1879, and the first four months of 1885, $40.32. The highest average price reached in any year was in 1864, $146.46; the lowest average price in any year was in 1884, $44.05.

AVERAGE WHOLESALE STORE PRICES OF CUT NAILS AT PHILADELPHIA, FROM 1860 TO 1885.

Compiled from original data for The American Iron and Steel Association by William E. S. Baker, Secretary of the Duncannon Iron Company, of Duncannon, Pa. Office at 122 Race Street, Philadelphia.

YEARS.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	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 87
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 50	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	.....	.....	.....	.....	.....	.....	.....	.....	.....

The above figures are the jobbers' store prices in car-load lots. The maximum price was in August and September, 1864, $10 per keg, but the manufacturers generally, having contracts, received but little if any benefit from that price. The minimum price, $2.10 per keg, was in March, 1879, and also at the close of 1884. At both these periods several makers closed out their stocks, with a view of suspending production, at 20 cents to 25 cents below our lowest figure of $2.10. The effect of civil war and political excitement is traceable in 1860; it stopped business. In 1861 sales were small; but later a demand set in, gold advanced, and all goods with it. The culmination came with the end of the war and decline in gold in 1865. In 1871-72 we see the result of the great activity in railroad and other building operations, until the financial depression inaugurated by Jay Cooke's failure set nails on the downward scale for several years. In 1878-79 stocks were greatly reduced and prices at bottom, rising sharply during the close of 1879 and beginning of 1880. After the unnatural "boom" spent itself the reaction again depressed prices. In 1883, with the East and the West running at full and increased capacity, several new factories started, which excited severe competition. In October, 1884, the minimum price was lower than was ever before known, except in March, 1879.

THE ANTHRACITE COAL PRODUCTION OF PENNSYLVANIA.

Prepared from original and authentic statistics by John H. Jones, Philadelphia.

YEARS.	THE WYOMING REGION.		THE LEHIGH REGION.		THE SCHUYLKILL REGION.		TOTAL.
	Gross tons.	Per cent.	Gross tons.	Per cent.	Gross tons.	Per cent.	Gross tons.
1820	.....	.....	365	.....	.....	.....	365
1821	.....	.....	1,073	.....	.....	.....	1,073
1822	.....	.....	2,240	60.21	1,480	39.79	3,720
1823	.....	.....	5,823	83.77	1,128	16.23	6,951
1824	.....	.....	9,541	85.90	1,567	14.10	11,108
1825	.....	.....	28,393	81.40	6,500	18.60	34,893
1826	.....	.....	31,280	65.10	16,767	34.90	48,047
1827	.....	.....	32,074	50.56	31,360	49.44	63,434
1828	.....	.....	30,232	39.00	47,284	61.00	77,516
1829	7,000	6.25	25,110	22.40	79,973	71.35	112,083
1830	43,000	24.60	41,750	23.90	89,984	51.50	174,734
1831	54,000	30.54	40,966	23.17	81,854	46.29	176,820
1832	84,000	23.12	70,000	19.27	209,271	57.61	363,271
1833	111,777	22.91	123,001	25.22	252,971	51.87	487,749
1834	43,700	11.60	106,244	28.21	226,692	60.19	376,636
1835	90,000	16.05	131,250	23.41	339,508	60.54	560,758
1836	103,861	15.18	148,211	21.66	432,045	63.16	684,117
1837	115,387	13.27	223,902	25.75	530,152	60.98	869,441
1838	78,207	10.59	213,615	28.92	446,875	60.49	738,697
1839	122,300	14.94	221,025	27.01	475,077	58.05	818,402
1840	148,470	17.18	225,313	26.07	490,596	56.75	864,379
1841	192,270	20.03	143,037	14.90	624,466	65.07	959,773
1842	252,599	22.79	272,540	24.59	583,273	52.62	1,108,412
1843	285,605	22.60	267,793	21.19	710,200	56.21	1,263,598
1844	365,911	22.43	377,002	23.12	887,937	54.45	1,630,850
1845	451,836	22.45	429,453	21.33	1,131,724	56.22	2,013,013
1846	518,389	22.11	517,116	22.07	1,308,500	55.82	2,344,005
1847	583,067	20.23	633,507	21.98	1,665,735	57.79	2,882,309
1848	685,196	22.18	670,321	21.70	1,733,721	56.12	3,089,238
1849	732,910	22.60	781,556	24.10	1,728,500	53.30	3,242,966
1850	827,823	24.64	690,456	20.56	1,840,620	54.80	3,358,899
1851	1,156,167	25.98	964,224	21.68	2,328,525	52.34	4,448,916
1852	1,284,500	25.72	1,072,136	21.47	2,636,835	52.81	4,993,471
1853	1,475,732	28.41	1,054,309	20.29	2,665,110	51.30	5,195,151
1854	1,603,478	26.73	1,207,186	20.13	3,191,670	53.14	6,002,334
1855	1,771,511	26.80	1,284,113	19.43	3,552,943	53.77	6,608,567
1856	1,972,581	28.47	1,351,970	19.52	3,602,999	52.91	6,927,550
1857	1,952,603	29.39	1,318,541	19.84	3,373,797	50.77	6,644,941
1858	2,186,094	31.96	1,380,030	20.18	3,273,245	47.86	6,839,369
1859	2,731,236	34.98	1,628,311	20.86	3,448,708	44.16	7,808,255
1860	2,941,817	34.56	1,821,674	21.40	3,749,632	44.04	8,513,123
1861	3,055,140	38.41	1,738,377	21.85	3,160,747	39.74	7,954,264
1862	3,145,770	39.97	1,351,054	17.17	3,372,583	42.86	7,869,407
1863	3,759,610	39.30	1,894,713	19.80	3,911,683	40.90	9,566,006
1864	3,960,836	38.92	2,054,669	20.19	4,161,970	40.89	10,177,475
1865	3,254,519	33.72	2,040,913	21.14	4,356,959	45.14	9,652,391
1866	4,736,616	37.29	2,179,364	17.15	5,787,902	45.56	12,703,882
1867	5,325,000	40.99	2,502,054	19.27	5,161,671	39.74	12,988,725
1868	5,968,146	43.25	2,502,582	18.13	5,330,737	38.62	13,801,465
1869	6,141,369	44.28	1,949,673	14.06	5,775,138	41.66	13,866,180
1870	7,974,660	49.28	3,239,374	20.02	4,968,157	30.70	16,182,191
1871	6,911,242	44.02	2,235,707	14.24	6,552,772	41.74	15,699,721
1872	9,101,549	46.27	3,873,339	19.70	6,694,890	34.03	19,669,778
1873	10,309,755	48.57	3,705,596	17.46	7,212,601	33.97	21,227,952
1874	9,504,408	47.18	3,773,836	18.73	6,866,877	34.09	20,145,121
1875	10,596,155	53.75	2,834,605	14.38	6,281,712	31.87	19,712,472
1876	8,424,158	45.53	3,854,919	20.84	6,221,934	33.63	18,501,011
1877	8,300,377	39.85	4,332,760	20.80	8,195,042	39.35	20,828,179
1878	8,085,587	45.92	3,237,449	18.40	6,282,226	35.68	17,605,262
1879	12,586,293	48.14	4,595,567	17.58	8,960,829	34.28	26,142,689
1880	11,419,279	48.72	4,463,221	19.05	7,554,742	32.23	23,437,242
1881	13,951,383	48.96	5,294,676	18.58	9,253,958	32.46	28,500,017
1882	13,971,371	47.98	5,689,437	19.54	9,459,288	32.48	29,120,096
1883	15,604,492	49.08	6,113,809	19.23	10,074,726	31.69	31,793,027
1884	15,677,753	51.04	5,562,226	18.11	9,478,314	30.85	30,718,293

PRICES IN DOLLARS OF ANTHRACITE COAL FROM 1826 TO 1885.

Prices of Schuylkill White Ash Lump Coal, by the Cargo, at Philadelphia. Averaged monthly from mean of weekly quotations. Per ton of 2,240 lbs.

YEARS.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Average.
1826..	.....	.....	.....	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.50	7.80	.....
1827..	7.00	7.00	7.00	7.00	.....	.....	.....	.....	.....	.....	.....	.....	.....
1829..	.....	.....	.....	.....	.....	.....	.....	.....	.....	7.50	7.50	7.25	.....
1830..	7.25	7.25	6.00	5.75	5.75	5.75	5.75	5.75	5.75	5.75	.....	.....	.....
1833..	.....	.....	6.00	5.50	5.25	5.25	5.25	5.25	5.17½	4.87½	4.87½	4.87½	.....
1834..	4.87	4.87	4.87	4.87	4.87	4.87	4.87	4.87	4.87	4.87	4.87	4.50	4.84
1835..	4.56	4.56	4.56	4.56	4.60	4.63	4.63	4.68	4.88	4.90	5.03	6.47	4.84
1836..	7.70	7.44	7.31	6.58	5.38	5.50	5.50	6.19	6.41	6.50	7.13	8.05	6.64
1837..	8.25	8.25	8.04	6.78	6.50	6.38	6.10	6.00	6.00	6.09	6.13	6.13	6.72
1838..	6.13	5.91	5.28	5.25	5.16	5.13	5.13	5.13	5.10	5.00	5.00	5.00	5.27
1839..	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
1840..	5.00	5.00	5.00	5.00	5.00	4.63	4.63	4.63	4.66	4.95	5.06	5.34	4.91
1841..	6.40	7.00	6.44	5.88	5.69	5.17	5.13	5.27	5.56	5.63	5.63	5.63	5.79
1842..	5.63	5.56	5.06	4.38	4.03	3.88	3.83	3.60	3.56	3.51	3.56	3.56	4.18
1843..	3.50	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.27
1844..	3.50	3.33	3.10	3.02	3.00	3.03	3.13	3.21	3.26	3.26	3.27	3.26	3.20
1845..	3.25	3.26	3.27	3.31	3.31	3.31	3.44	3.44	3.59	3.74	3.76	3.81	3.46
1846..	3.81	3.75	3.72	3.84	3.87	3.97	4.00	3.94	3.96	3.88	4.00	4.00	3.90
1847..	3.88	3.81	3.81	3.81	3.60	3.63	3.69	3.83	3.95	3.88	3.88	3.88	3.80
1848..	3.90	3.90	3.58	3.44	3.37	3.29	3.33	3.56	3.46	3.41	3.39	3.36	3.50
1849..	3.36	3.36	3.45	3.62	3.62	3.86	3.88	3.81	3.75	3.69	3.57	3.50	3.62
1850..	3.50	3.50	3.40	3.31	3.25	3.25	3.25	3.25	4.25	4.25	4.25	4.25	3.64
1851..	4.28	4.13	3.56	3.31	3.10	3.00	3.00	3.05	3.17	3.20	3.25	3.00	3.34
1852..	3.18	3.47	3.40	3.44	3.44	3.45	3.45	3.50	3.56	3.56	3.56	3.50	3.46
1853..	3.42	3.44	3.45	3.47	3.47	3.47	3.47	3.64	4.03	4.19	4.19	4.10	3.70
1854..	4.50	4.50	4.25	4.39	4.81	5.16	5.55	6.00	6.00	5.81	5.68	5.60	5.19
1855..	5.60	5.28	4.53	4.50	4.50	4.45	4.28	4.19	4.19	4.19	4.15	4.06	4.49
1856..	4.06	4.25	4.25	4.25	4.05	4.00	4.00	4.00	4.12	4.13	4.10	4.08	4.11
1857..	3.92	3.92	3.92	3.89	3.85	3.85	3.88	3.87	3.85	3.82	3.82	3.82	3.87
1858..	3.83	3.83	3.77	3.47	3.22	3.23	3.35	3.25	3.32	3.32	3.32	3.30	3.43
1859..	3.28	3.38	3.34	3.20	3.20	3.20	3.20	3.20	3.19	3.20	3.34	3.29	3.25
1860..	3.28	3.29	3.30	3.30	3.23	3.31	3.36	3.39	3.50	3.53	3.62	3.63	3.40
1861..	3.63	3.63	3.50	3.24	3.23	3.29	3.37	3.40	3.35	3.33	3.33	3.33	3.39
1862..	3.33	3.33	3.11	2.78	2.78	3.64	4.58	4.85	4.98	5.22	5.50	5.63	4.14
1863..	5.38	5.25	4.63	4.75	5.50	5.80	6.25	6.50	6.75	7.25	7.50	7.13	6.06
1864..	7.10	6.75	6.59	7.20	7.88	8.34	9.78	10.75	10.13	8.90	8.88	8.38	8.39
1865..	8.38	8.38	8.63	8.10	6.75	6.25	6.03	6.50	8.32	9.93	8.81	8.25	7.86
1866..	7.94	7.75	5.40	5.25	5.13	5.53	5.88	5.68	5.47	5.34	5.25	5.05	5.80
1867..	5.06	5.06	4.47	4.50	4.44	4.38	4.28	4.07	4.09	4.01	4.00	4.00	4.37
1868..	4.00	3.13	3.13	3.22	3.25	3.25	3.25	3.25	4.10	4.50	5.22	6.00	3.86
1869..	5.15	5.01	4.15	3.81	3.90	5.00	6.59	7.17	6.15	6.00	5.87	5.12	5.31
1870..	5.07	4.79	4.79	4.50	4.50	4.44	4.31	4.44	4.33	4.19	3.69	3.55	4.39
1871..	4.05	.....	.....	.....	.....	4.52	4.45	4.25	4.35	4.68	4.72	4.63	4.46
1872..	4.63	3.78	3.50	3.50	3.50	3.50	3.50	3.59	3.71	3.90	3.90	3.90	3.74
1873..	3.90	3.90	4.00	4.00	4.10	4.20	4.40	4.40	4.50	4.60	4.60	4.60	4.27
1874..	.....	.....	4.05	4.10	4.20	4.30	4.45	4.60	4.75	4.90	5.05	5.05	4.55
1875..	.....	.....	4.10	4.10	4.10	4.40	4.50	4.50	4.55	4.55	4.55	4.55	4.39
1876..	4.55	4.15	4.25	4.25	4.30	4.15	4.20	4.35	3.20	3.00	3.00	3.00	3.87
1877..	3.00	3.00	2.75	2.75	2.75	2.40	2.47	2.40	2.40	2.35	2.35	2.40	2.59
1878..	3.25	3.50	3.25	3.25	3.25	3.30	3.30	3.30	3.30	3.30	3.05	2.50	3.22
1879..	2.50	2.50	2.25	2.25	2.50	2.50	2.50	2.75	2.75	3.00	3.25	3.65	2.70
1880..	3.90	4.25	4.35	4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.65	4.53
1881..	4.65	4.65	4.58	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.53
1882..	4.50	4.50	4.50	4.50	4.50	4.50	4.65	4.75	4.75	4.75	4.75	4.75	4.61
1883..	4.75	4.75	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.54
1884..	4.50	4.50	4.40	4.40	4.40	4.40	4.40	4.40	4.40	4.40	4.40	4.40	4.42
1885..	4.40	4.40	4.40	4.00	.....	.....	.....	.....	.....	.....	.....	.....	.....

PRICES OF LEHIGH COAL IN PHILADELPHIA. (From Grotjan's *Public Sale Report.*) 1822, May to December, $8.40. 1823, January to August, $10; September, $9.50; October to December, $8.40. 1824, January to April, $8.40.

THE MANUFACTURE OF ROLLED IRON IN PENNSYLVANIA IN 1880, 1881, 1882, 1883, AND 1884, BY DISTRICTS.

IN the following table the Philadelphia district covers Philadelphia county and the Pencoyd Iron Works; Eastern Pennsylvania comprises the eastern counties outside of the Philadelphia district as far west as the limits of Chester, Berks, Schuylkill, and Carbon counties; Central Pennsylvania comprises the counties west of those just named, extending to the western limits of Bedford, Blair, Centre, and Clinton counties; Western Pennsylvania comprises all counties west of those just named, except Allegheny county, which is a separate district.

BAR, ROD, BOLT, SKELP, HOOP, AND SHAPED IRON, AND ROLLED AXLES.

DISTRICTS.	Net tons of 2,000 pounds.				
	1880.	1881.	1882.	1883.	1884.
Philadelphia	52,134	67,695	75,180	70,819	62,404
Eastern Pennsylvania	96,507	107,968	128,221	113,539	85,847
Central Pennsylvania	59,274	78,610	100,800	89,496	72,383
Allegheny County	283,600	400,801	332,309	366,507	316,091
Western Pennsylvania	59,787	59,039	48,539	34,865	29,000
Total	551,302	714,113	685,049	675,226	565,725

PLATE AND SHEET IRON, EXCEPT NAIL PLATE.

Philadelphia	7,570	12,221	9,428	9,139	8,173
Eastern Pennsylvania	105,746	122,997	132,906	116,067	93,991
Central Pennsylvania	17,516	22,021	27,536	33,070	31,343
Allegheny County	80,899	75,767	71,038	73,850	68,669
Western Pennsylvania	12,209	18,219	17,695	22,320	20,145
Total	223,940	251,225	258,603	254,446	222,321

CUT NAILS AND SPIKES. (One net ton equals 20 kegs.)

Philadelphia, Eastern Pennsylvania	23,248	22,533	26,368	25,596	25,367
Central Pennsylvania	30,604	34,044	37,072	50,606	54,200
Allegheny County	20,955	24,296	22,961	31,395	22,975
Western Pennsylvania	12,071	14,862	11,069	13,931	11,542
Total	86,878	95,735	97,470	121,528	114,084

IRON RAILS.

Philadelphia	.....	.....	.....	.....	.....
Eastern Pennsylvania	66,632	67,929	26,756	13,964	3,597
Central Pennsylvania	64,270	81,961	44,269	14,475	4,302
Allegheny County	3,653	4,318	4,319	599	2,722
Western Pennsylvania	35,927	39,585	7,420	925	295
Total	170,482	193,793	82,764	29,963	10,916

TOTAL ROLLED IRON.

Philadelphia (except nails)	59,704	79,916	84,608	79,958	70,577
Eastern Pennsylvania	292,133	321,427	314,251	269,166	208,802
Central Pennsylvania	171,664	216,636	209,677	187,647	162,228
Allegheny County	389,107	505,182	430,627	472,351	410,457
Western Pennsylvania	119,994	131,705	84,723	72,041	60,982
Total	1,032,602	1,254,866	1,123,886	1,081,163	913,046

THE MANUFACTURE OF ROLLED IRON IN OHIO IN 1880, 1881, 1882, 1883, AND 1884, BY DISTRICTS.

In the following table the Lake Counties are those bordering on Lake Erie; the Mahoning Valley comprises the counties in the northeastern part of Ohio; the Interior Counties cover the counties south and west of the two first-named districts, except the counties along the Ohio river, which are classed in a district by themselves.

BAR, ROD, BOLT, SKELP, HOOP, AND SHAPED IRON, AND ROLLED AXLES.

Districts.	Net tons of 2,000 pounds.				
	1880.	1881.	1882.	1883.	1884.
Lake Counties	19,787	31,744	40,359	47,912	31,435
Mahoning Valley	111,271	132,986	128,466	140,875	113,188
Interior Counties	23,328	30,733	37,182	28,905	26,891
Ohio River Counties	28,291	33,784	47,926	45,555	27,297
Total	182,677	229,247	253,933	263,247	198,811

PLATE AND SHEET IRON, EXCEPT NAIL PLATE.

Lake Counties	12,014	16,123	15,021	15,956	14,421
Mahoning Valley	10,321	10,689	10,813	7,238	7,140
Interior Counties	.....	.....	.....	140	800
Ohio River Counties	11,491	10,515	23,348	26,653	17,869
Total	33,826	37,327	49,182	49,987	40,230

CUT NAILS AND SPIKES. (One net ton equals 20 kegs.)

Lake Counties	.....	.....	.....	.....	.....
Mahoning Valley	9,219	10,082	8,130	8,977	3,738
Interior Counties	.....	.....	.....	.....	.....
Ohio River Counties	32,015	32,951	31,713	53,508	61,798
Total	41,234	43,033	39,843	62,485	65,536

IRON RAILS.

Lake Counties	31,001	17,500	6,368	850	.....
Mahoning Valley	.....	.....	.....	.....	.....
Interior Counties	19,066	18,376	11,431	494	5,125
Ohio River Counties	762	244	851	899	866
Total	50,829	36,120	18,650	2,243	5,991

TOTAL ROLLED IRON.

Lake Counties	62,802	65,367	61,748	64,718	45,856
Mahoning Valley	130,811	153,757	147,409	157,090	124,066
Interior Counties	42,394	49,109	48,613	29,539	32,816
Ohio River Counties	72,559	77,494	103,838	126,615	107,830
Total	308,566	345,727	361,608	377,962	310,568

IMPORTS OF IRON AND STEEL AND MANUFACTURES THEREOF INTO THE UNITED STATES FROM ALL COUNTRIES DURING THE CALENDAR YEARS 1881, 1882, 1883, AND 1884.—GOLD VALUES.

NEW CLASSIFICATION UNDER ACT OF MARCH 3, 1883.

Prepared from statistics furnished by the United States Bureau of Statistics.

COMMODITIES.	1881.		1882.		1883.		1884.	
	Net tons.	Values.	Net tons.	Values.	Net tons.	Values.	Net tons.	Values.
Iron ore	876,833	$2,222,652	660,414	$1,640,564	549,780	$1,207,991	546,358	$1,133,678
Pig iron	520,835	8,923,465	604,978	9,896,669	361,366	5,745,999	206,381	3,200,451
Scrap iron	151,107	2,705,072	164,591	2,736,483	72,000	1,014,863	30,192	340,420
Scrap steel	.....	*	.....	*	.....	*	8,388	144,177
Bar iron	47,820	2,075,161	79,220	3,304,967	47,409	1,914,474	40,998	1,588,464
Iron rails	137,013	3,464,989	41,992	1,077,059	757	21,231	94	2,110
Steel rails	249,308	7,649,498	182,135	5,403,980	38,220	1,047,609	3,074	67,669
Cotton-ties	.....	*	.....	*	.....	*	17,518	516,262
Hoop, band, and scroll iron	827	28,296	6,021	208,825	1,003	39,436	332	22,552
Steel bands, sheets, and plates	.....	*	.....	*	.....	*	1,500	120,171
Steel ingots, bars, etc	.....	*	.....	*	.....	*	24,610	1,310,362
Sheet, plate, and taggers' iron	8,411	623,534	13,100	806,648	9,114	684,315	7,863	651,052
Tinplates	204,966	14,886,907	239,695	17,975,161	247,781	18,156,773	242,123	16,858,650
Wire rods	.....	*	.....	*	.....	*	145,525	4,555,699
Wire and wire rope	.....	*	.....	*	.....	*	2,732	426,373
Anvils, axles, and forgings	.....	*	.....	*	.....	*	967	105,231
Chains	.....	*	.....	*	.....	*	963	86,690
Cutlery	.....	1,954,317	.....	2,027,496	.....	2,061,603	.....	1,704,169
Files, file-blanks, rasps, and floats	.....	168,506	.....	169,885	.....	*	.....	46,472
Fire-arms	.....	1,334,004	.....	1,656,349	.....	1,258,940	.....	1,429,612
Machinery	.....	1,739,486	.....	2,275,753	.....	1,685,370	.....	1,185,026
Needles	.....	*	.....	*	.....	*	.....	364,908
Other manufactures of iron and steel	.....	16,001,842	.....	19,535,850	.....	13,875,693	.....	2,351,602
Total	.....	$63,777,729	.....	$68,715,689	.....	$48,714,297	.....	$38,211,800

* Included in "other manufactures of iron and steel."

DOMESTIC EXPORTS OF IRON AND STEEL AND MANUFACTURES THEREOF FROM THE UNITED STATES TO ALL COUNTRIES DURING THE CALENDAR YEARS 1881, 1882, 1883, AND 1884.—GOLD VALUES.

Prepared from statistics furnished by the United States Bureau of Statistics.

COMMODITIES.	1881.		1882.		1883.		1884.	
	Quantities.	Values.	Quantities.	Values.	Quantities.	Values.	Quantities.	Values.
Iron ore.....Net tons.	.....	$.....	.....	$.....	.....	$.....	4,182	$ 12,255
Pig iron..... "	6,897	184,364	6,245	186,221	4,221	111,414	4,301	92,336
Bar iron..... "	448	32,325	847	60,628	1,201	72,054	932	52,872
Band, hoop, and scroll iron..... "	.....	*.....	.....	*.....	.....	*.....	93	8,780
Car-wheels.....No.	13,643	139,222	14,370	149,320	18,217	181,236	11,889	109,255
Castings, not elsewhere specified.....	.....	288,005	.....	378,884	.....	385,262	.....	293,494
Cutlery.....	.....	96,552	.....	91,994	.....	103,732	.....	94,671
Fire-arms.....	.....	1,018,471	.....	927,180	.....	1,357,686	.....	1,427,600
Steel ingots, bars, and rods.....Net tons.	.....	*.....	.....	*.....	.....	*.....	94	18,330
Builders' hardware.....	.....	*.....	.....	*.....	.....	*.....	.....	1,043,668
Machinery.....	.....	4,817,698	.....	6,129,244	.....	5,935,543	.....	4,131,810
Nails and spikes.....Net tons.	4,577	312,059	4,053	320,753	5,724	388,070	3,948	247,497
Iron plates and sheets..... "	.....	*.....	.....	*.....	.....	*.....	424	37,127
Steel plates and sheets..... "	.....	*.....	.....	*.....	.....	*.....	35	3,469
Printing presses, and parts of.....	.....	195,261	.....	215,619	.....	250,407	.....	196,953
Iron rails.....Net tons.	597	34,262	2,518	126,878	579	31,806	1,254	46,644
Steel rails..... "	87	7,123	1,088	81,350	2,006	102,864	5,504	176,891
Saws and tools.....	.....	1,157,511	.....	1,065,242	.....	1,388,562	.....	1,234,473
Scales and balances.....	.....	234,777	.....	315,898	.....	319,041	.....	297,563
Sewing machines, and parts of.....	.....	2,179,770	.....	2,975,616	.....	3,362,971	.....	3,264,935
Fire engines.....No.	.....	19,372	.....	27,561	.....	8,310	9	28,273
Locomotives..... "	104	913,952	174	1,878,528	275	2,650,944	189	2,057,271
Stationary engines..... "	94	88,158	104	183,211	147	165,866	115	157,883
Boilers and parts of engines.....	.....	161,121	.....	189,413	.....	294,415	.....	299,047
Stoves, and parts of.....	.....	142,097	.....	213,158	.....	232,713	.....	198,883
Wire.....Net tons.	.....	*.....	.....	*.....	.....	*.....	2,509	274,273
Other manufactures of iron and steel.....	.....	6,194,021	.....	6,832,136	.....	5,373,144	.....	3,396,897
Total.....	.....	$18,216,121	.....	$22,348,834	.....	$22,716,040	.....	$19,303,150
Agricultural implements, additional.....	.....	$2,421,896	.....	$3,427,239	.....	$3,689,909	.....	$3,382,556

* Included in "other manufactures of iron and steel."

GRAND SUMMARY OF UNITED STATES STATISTICS FOR 1884.

Production of Pig Iron in 1884, net tons	4,589,613
Production of Spiegeleisen in 1884, included in Pig Iron, net tons	33,893
Production of all Rolled Iron, including Nails and excluding Rails, in 1884, net tons	1,931,747
Production of Cut Nails and Spikes in 1884, included in all Rolled Iron, kegs of 100 pounds	7,581,379
Production of Bessemer Steel Rails in 1884, net tons	1,116,621
Production of Open-hearth Steel Rails in 1884, net tons	2,670
Production of Iron Rails in 1884, net tons	25,560
Total production of Rails in 1884, net tons	1,144,851
Production of Iron and Steel Street Rails in 1884, included above, net tons	31,357
Production of Crucible Steel Ingots in 1884, net tons	59,662
Production of Open-hearth Steel Ingots in 1884, net tons	131,617
Production of Bessemer Steel Ingots in 1884, net tons	1,540,595
Production of Blister and "Patented" Steel in 1884, net tons	5,111
Production of all kinds of Steel in 1884, net tons	1,736,985
Production of Iron Blooms in 1884, net tons	57,005
Value of Imports of Iron and Steel in 1884	$38,211,800
Value of Exports of Iron and Steel in 1884	$19,303,150
Imports of Iron Ore in 1884, gross tons	487,820
Production of Iron Ore in the Marquette and Menominee districts of the Lake Superior region in 1884, gross tons.	2,455,924
Production of Iron Ore in New Jersey in 1884, gross tons	393,710
Domestic Iron Ore consumed in 1884, gross tons	7,639,581
Production of Anthracite Coal in 1884, gross tons	30,718,293
Total Production of Coal in 1884, gross tons	99,851,807
Anthracite Coal consumed in iron works in 1884, gross tons.	1,973,305
Bituminous Coal consumed in iron works in 1884, gross tons.	4,226,986
Coke consumed in iron works in 1884, gross tons	3,833,170
Charcoal consumed in iron works in 1884, bushels	62,110,660
Miles of Railway completed in 1884	3,950
Total number of Miles of Railway December 31, 1884	125,542
Iron and Steel Ships built in the fiscal year 1884	34
Iron Ships built in first half of the fiscal year 1885	20
Steel Ships built in first half of the fiscal year 1885	5
Immigrants in the calendar year 1884	461,346
Domestic Exports (merchandise) in the fiscal year 1884	$724,964,852
Net Imports (merchandise) in the fiscal year 1884	$652,148,936
Balance of Trade in favor of the United States in the fiscal year 1884	$72,815,916
Domestic Exports (mdse.) first 8 months of fiscal year 1885.	$530,379,284
Net Imports (mdse.) first 8 months of the fiscal year 1885	$370,786,925
Balance of Trade in favor of the United States in first 8 months of the fiscal year 1885	$159,592,359

STATISTICS OF THE FOREIGN IRON TRADE FOR 1884.

GENERAL SUMMARY FOR 1884 AND FOR PART OF 1885.

THE condition of the European iron trade was much more unsatisfactory in 1884 than it had been in 1883. In almost every country the production of iron and steel decreased largely in consequence of the shrinking demand. Germany was the sole exception, the iron and steel manufacturers of that country having been able to slightly increase their production in 1884, although prices gave way to some extent during the year. We take the following gloomy description of the course of the British iron trade in 1884 from *Iron*, one of the leading London technical journals:

To say that the condition of this great industry during 1884 was bad is but inadequately to describe the state of matters that prevailed. It would, indeed, be possible to imagine a worse concourse of adverse circumstances, but it is to be hoped that such may never be experienced by this country. From every point of view the position of the iron trade during the year just closed upon us must be regarded as eminently unsatisfactory. The most despondent estimate of the future formed at the beginning of 1884 was more than justified by the progress of events as month after month passed over our heads, and from bad the iron trade went to worse. Looked at broadly, and as a whole, the only movements by which it was characterized were a continuous and persistent fall in prices, most pronounced, perhaps, in the earlier months of the year, and a constantly diminishing demand, which was most marked towards the autumn and winter. There were, doubtless, exceptions here and there to the otherwise monotonous decline in values, but such were due entirely to local or extraneous circumstances, and only helped to prove the general rule of an uninterrupted decline. Since the opening days of 1884 the fall in prices may not have been so severe as might have been expected, looking merely at the excessive depression prevailing, but this is wholly owing to the fact that values were then already at a very low level, and that there was not much margin for further reduction, since makers in many instances preferred to stop work rather than accept utterly unremunerative prices. In fact, prices in most cases dropped much more in 1883 than they did last year, but the former was an incomparably better year. Then manufacturers were able to obtain plenty of work for their mills, whilst in 1884 the most harassing circumstance was the utter collapse which took place in consumption. No re-

duction in price which makers would yield within reason seemed of avail to stimulate demand or to impart the slightest activity to business. It appeared at times almost as if the world had ceased to require iron or steel.

With reference to Germany the same authority says: "The German iron trade, considered broadly, and compared with 1883, has done very well during 1884, at least so far as prices which manufacturers have obtained for their products are in question. Although there was a steady decline in the value of nearly all classes of iron, yet the difference between the rates secured at the beginning of the year and those paid at its close is not very great. With regard to the production of iron, there has been no falling off, but, on the contrary, a slight advance on 1883." The condition of the French iron trade is described as follows: "The past year may be considered a mere continuation of that which preceded it as regards the movement in the French iron market. If 1883 witnessed a steady reduction in the values of all descriptions of iron, 1884 has seen that depreciation accentuated. Only the decline in prices last year was not so great, proportionately, as in 1883, which in this respect stands singular. The total output of France of metallurgical products, at the same time, experienced a considerable contraction." Concerning the Belgian iron trade the following remarks are made: "If 1884 can not be called disastrous to the Belgian iron trade it has, at any rate, been one of the worst of recent years. There has not been that decline of activity which would follow a contraction of exports, for the latter have kept up pretty well, the principal cause of concern to manufacturers being the low rates at which, owing to great competition, they were compelled to sell their products." The course of the Austrian iron trade is thus referred to: "There were signs at the opening of 1884 that the good times which the Austrian iron trade had enjoyed during the preceding years was coming to an end. The construction of railways has almost ceased, and rail mills, locomotive and engineering works, carriage-building and machine-tool shops, have worked off their orders. The ample harvests of large districts of country remain unsold, and agriculturists are consequently unable to buy in the machinery market. At the same time the crisis in the sugar trade withdraws work from engineers supplying the special machinery used in the industry. In the shipyards, too, the vessels ordered have been completed, and new orders are not obtainable."

The critical condition of the foreign iron and steel trades in the winter of 1883–4 led to the adoption of two important measures of a somewhat extraordinary character. One was the restriction of the production of pig iron in the Cleveland district of England and the other was the formation of an international steel-rail association. The Cleveland pig-iron producers restricted their operations systematically, and the Scotch furnace owners co-operated with them in a limited degree. The decreased production of pig iron which ensued probably prevented its price from going to a still lower point than was touched. The international steel-rail association was a combination of British, German, and Belgian manufacturers, which was organized for the purpose of regulating the terms upon which they entered into competition with one another on neutral ground. The direct result of the formation of the combination was to raise the price of steel rails in the spring of 1884 from £4 5s. to £4 15s. at works. About the beginning of that year it was rumored that a contract had been taken by an English company at £4 2s. 6d. This combination is still in existence, and the success with which it is attended, operating in countries of limited consumption, shows how it would have been possible, in the absence of a steel-rail industry in the United States, for such a combination to be formed for the purpose of compelling our numerous railroad companies to pay much higher prices for their rails than our own manufacturers have charged them.

Among the influences which operated to depress the European iron trade in 1884 should be mentioned the breaking out of the cholera in portions of France and other countries bordering on the Mediterranean sea. Appearing late in the season it nevertheless created a panicky feeling on the Continent, which only subsided with the approach of winter. Some apprehension exists that it will resume its ravages this summer and that it may cross the Atlantic to this country.

Although Europe was not disturbed by the visible presence of war in 1884 it was interested through the operations of the French in Tonquin and the British in Soudan. At present the relations between Great Britain and Russia are in a state of extreme tension, and, although indications strongly favor the maintenance of peace, it is not improbable that an open rupture may occur during the year, in which event the scene of war would be laid in Europe as well as in Asia. Some interference with the even course of the European iron trade would then be inevitable.

Concerning the condition of the British iron trade on the 1st of April the London *Economist* for the 11th of that month remarked: "The first quarter of the year has passed without any signs of revival in the iron trade. Notwithstanding that the depression has been so long continued there is no evidence that the contraction of trade has reached its extreme limits. . . . The activity shown by the government in warlike preparations has given a stir to some smaller branches of the iron trade, but it has scarcely counterbalanced the evil effects produced by the political uncertainty as to the future."

In the succeeding pages we give such details as we have been able to collect concerning the mining of coal and iron ore and the manufacture of iron and steel in foreign countries in 1884.

GREAT BRITAIN.

Coal.—A report issued by the Home Office states that the production of coal in the United Kingdom in 1884 was 160,757,815 gross tons, against 163,737,327 tons in 1883, which was a decrease of 2,979,512 tons. The annual production from 1854 to the present time has been as follows.

Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.
1854.....	64,661,401	1862...	81,638,338	1870...	110,431,192	1878...	132,607,866
1855.....	64,453,079	1863...	86,292,215	1871...	117,352,028	1879...	134,008,228
1856.....	66,645,450	1864...	92,787,873	1872...	123,497,316	1880...	146,818,622
1857.....	65,394,707	1865...	98,150,587	1873...	127,016,747	1881...	154,184,300
1858.....	65,008,649	1866...	101,630,544	1874...	125,043,257	1882...	156,499,977
1859.	71,979,765	1867...	104,500,480	1875...	131,867,105	1883...	163,737,327
1860.....	80,042,698	1868...	103,141,157	1876...	133,344,766	1884...	160,757,815
1861.....	84,013,941	1869...	107,427,557	1877...	134,610,763		

The exports of coal from Great Britain to other countries were greater in 1884 than in any preceding year. They aggregated 23,343,755 gross tons, against 22,775,634 tons in 1883, in which year all previous annual exports had been exceeded. In addition to these shipments 6,614,937 tons of coal were sent in 1884 to various parts of the world for the use of British steamships, against 6,400,594 tons in 1883.

Iron Ore.—The production of iron ore in Great Britain in 1884 is estimated by Mr. J. S. Jeans, the Secretary of the British Iron Trade Association, at 16,500,000 tons, as compared with 17,383,046

tons in 1883. The imports of iron ore into Great Britain in 1884 aggregated 2,728,672 tons, against 3,178,310 tons in 1883. Of the imports of iron ore in 1884 the greater part, 1,981,864 tons, was received from Bilbao, Spain.

Pig Iron.—According to Mr. Jeans's report on the iron and steel trades of Great Britain for 1884 the production of pig iron in the United Kingdom in that year was 7,528,966 gross tons, against 8,490,224 tons in 1883, which was a decrease of 961,258 tons, or 11 per cent. This is the largest decrease that ever occurred in any year in the British pig-iron trade.

In the following table we give the production by districts of Great Britain in 1884 as compared with 1883, in gross tons.

DISTRICTS.	1883.	1884.	Decrease.
Cleveland	2,760,740	2,484,340	276,400
Scotland	1,129,000	988,000	141,000
South Wales	887,259	817,932	69,327
West Cumberland	876,410	814,956	61,454
Lancashire	820,633	706,607	114,026
Derbyshire	371,664	337,936	33,728
South Staffordshire and Worcestershire	394,000	317,661	76,339
North Staffordshire	285,357	256,053	29,304
West and South Yorkshire	284,810	245,614	39,196
Lincolnshire	236,578	224,762	11,816
Northamptonshire	200,996	196,212	4,784
North Wales, Shropshire, etc	242,777	138,893	103,884
Total	8,490,224	7,528,966	961,258

The following table shows the number of furnaces in and out of blast in the whole country at the close of each year since 1875.

YEARS.	Furnaces built.	In blast.	Out of blast.
1875	959	629	330
1876	927	585	342
1877	940	541	399
1878	948	498	450
1879	951	458	493
1880	959	590	369
1881	949	552	397
1882	926	565	361
1883	909	506	403
1884	894	456	438

At the close of 1884 the stocks of pig iron held by makers and in warrant stores in the United Kingdom amounted to 1,809,467

gross tons, against 1,663,976 tons held at the close of 1883, showing an increase of 145,491 tons. As compared with the production of the year the stocks at the close of 1884 reached 24 per cent., against 20 per cent. at the close of 1883, and 20 per cent. at the close of 1882.

Mr. Jeans states that as far as returns have been received the pig-iron production of 1884 embraced 2,530,461 gross tons of Bessemer pig iron and 166,822 tons of spiegeleisen. In 1883 the production of spiegeleisen was 208,445 tons.

The gradual development of the pig-iron industry of Great Britain is shown in the following table.

Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.
1740.....	17,000	1839...	1,347,790	1860...	3,826,752	1873...	6,566,451
1788.....	68,000	1840...	1,396,400	1861...	3,712,390	1874...	5,991,408
1796.....	125,000	1842...	1,099,138	1862...	3,943,469	1875...	6,365,462
1806.....	259,000	1844...	1,999,608	1863...	4,510,040	1876...	6,555,997
1818.....	325,000	1845...	1,512,500	1864...	4,767,901	1877...	6,608,664
1820.....	400,000	1847...	1,999,508	1865...	4,819,254	1878...	6,381,051
1823.....	454,866	1852...	2,700,000	1866...	4,523,897	1879...	5,995,337
1825.....	581,367	1854...	3,069,838	1867...	4,761,023	1880...	7,749,233
1827.....	690,000	1855...	3,218,151	1868...	4,970,206	1881...	8,377,364
1828.....	703,184	1856...	3,586,377	1869...	5,445,757	1882...	8,493,287
1830.....	678,417	1857...	3,659,477	1870...	5,963,515	1883...	8,490,224
1833.....	700,000	1858...	3,456,064	1871...	6,627,179	1884...	7,528,966
1835.....	1,000,000	1859...	3,712,904	1872...	6,741,929		

Manufactured Iron.—The production of puddled bar in Great Britain in 1884 amounted to 2,237,535 gross tons, against 2,730,504 tons in 1883, which was a decrease of 492,969 tons, or 18 per cent. In 1882 the production was 2,841,534 tons, and in 1881 it was 2,681,150 tons. The total number of puddling furnaces in 1884 was 5,241, against 6,035 in 1883. Of the total number 3,593 were in use in 1884, against 4,651 in 1883. Cleveland and South Staffordshire are the principal districts making puddled bar.

Bessemer Steel.—The total production of Bessemer steel ingots in 1884 was 1,299,676 gross tons, as compared with 1,553,380 tons in 1883, which was a decrease of 253,704 tons, or 16 per cent. The production of Bessemer steel rails in 1884 was 784,968 tons, against 1,097,174 tons in 1883, which was a decrease of 312,206 tons, or 28 per cent. The centres of Bessemer steel manufacture in Great Britain are South Wales, Sheffield, Cleveland, Lancashire, and West Cumberland. Staffordshire also contains two small works.

The quantity of Bessemer steel reported as worked up into other forms than rails in 1884 was 302,290 tons. The total number of converters at work in 1884 was 83, in 27 establishments; the number of converters idle was 26; and the number in course of construction was 8, in 3 establishments.

The production of both Bessemer steel ingots and rails in Great Britain in 1884 was less than in the United States. The following table presents a comparison of their production in the two countries for the past eight years.

Years.	Great Britain.—Gross tons.		United States.—Gross tons.	
	Ingots.	Rails.	Ingots.	Rails.
1877	750,000	508,400	500,524	385,865
1878	807,527	633,733	653,773	491,427
1879	834,511	519,718	829,439	610,682
1880	1,044,382	739,910	1,074,262	852,196
1881	1,441,719	1,023,740	1,374,247	1,187,770
1882	1,673,649	1,235,785	1,514,687	1,284,067
1883	1,553,380	1,097,174	1,477,345	1,148,709
1884	1,299,676	784,968	1,375,531	996,983

Open-hearth Steel.—The production of open-hearth steel ingots in Great Britain in 1884 was 461,965 gross tons, as compared with 455,500 tons in 1883, which was an increase of 6,465 tons, or about 1 per cent. Except in tinplates this is the only increase in production that occurred in any branch of the British iron and steel trades in 1884. In 1882 the production was 436,000 tons; in 1881 it was 338,000 tons; in 1880 it was 251,000 tons; and in 1879 it was 175,000 tons. Scotland and South Wales produce by far the largest part of the open-hearth steel made in Great Britain. In Scotland the seat of the manufacture is in the vicinity of Glasgow. Out of 180 open-hearth furnaces in the United Kingdom at the end of 1884 there were 133 at work. At the same time 23 furnaces were in course of construction. The number of establishments engaged in the manufacture of open-hearth steel in 1884 was 44; most of the new furnaces in course of erection will be added to existing plants, only one new establishment being engaged in erecting furnaces.

Crucible Steel.—Mr. Jeans states that "nearly 100,000 tons of finished steel" are annually made by this process.

Tinplates.—The production of the tinplate works in 1883 was

6,115,200 boxes, or 315,997 gross tons, divided as follows: Tinplates, 4,789,115 boxes; terne plates, 964,180 boxes; black plates, 361,905 boxes. The number of tinplate works is 96, containing 386 mills. As the exports of tinplates for 1884 show an increase over those of 1883, and as the home consumption is calculated to have been well sustained, it is believed that the production of 1884 exceeded that of 1883, but the figures are not yet available, being collected by the Mining Record Office. In reference to the tinplate trade Mr. Jeans says: "No branch of the iron trade has increased more rapidly than that of the tinplate manufacture. In 1870 the total production was only 3,459,782 boxes, and this figure was not reached in either of the six following years, during which production remained more or less stationary. In 1877, however, there was a great development, due mainly to the increased demand from the United States, and the output rose by a million and a quarter boxes in a single year. Between 1876 and 1883 the production increased from 2,815,000 to 6,115,000 boxes, or nearly 120 per cent." The exports in 1883 to all countries were 4,815,009 boxes, and in 1884 they amounted to 5,121,001 boxes. The United States took 3,755,707 boxes in 1883 and 3,572,782 boxes in 1884, which was equal to 78 per cent. of the total exports in 1883 and 70 per cent. in 1884.

Prices in 1884.—The prices of iron and steel in Great Britain at the beginning and end of 1884 were as follows.

PRODUCTS.	January, 1884.	December, 1884.
	£ s. d.	£ s. d.
Scotch G. M. B. pig-iron warrants	2 3 5	2 2 6
No. 3 Middlesbrough pig iron	1 16 0	1 16 3
No. 1, 2, and 3 hematite pig iron	2 6 0	2 3 6
Ship-plates (east coast)	5 7 6	4 17 6
Steel rails, f. o. b. shipping port	4 5 0	4 15 0
Welsh bars, f. o. b. Cardiff	5 2 6	4 12 6

The prices of tinplates in 1884 are said to have been the lowest recorded in the history of the trade, ranging between 19s. and 16s. per box.

Iron and Steel Shipbuilding.—Mr. Jeans does not give the complete statistics of shipbuilding in 1884, but prints figures for only seven of the principal districts. These partial statistics, however, serve to show the magnitude of the collapse which took place in

shipbuilding in Great Britain in 1884. In 1883 these districts had turned out 1,036,408 tons of shipping, but in 1884 they turned out only 599,525 tons, which was a decrease of 42 per cent. This decline in the shipbuilding trade has been most seriously felt by manufacturers of plates, angles, and bulbs, of which Mr. Jeans says one ton is required to every 1.9 tons of the gross tonnage. It should be observed that this sudden decrease has occurred under Free Trade, with the whole world for a market, which therefore seems not to be a preventive of fluctuations in business. A more striking practical refutation of a stock argument of American Free Traders we have never seen. The decline in the demand for ships has not been checked, for at the beginning of 1885 there were only 373,898 tons of shipping under contract in the United Kingdom, against 729,446 tons at the beginning of 1884 and 1,075,259 tons at the beginning of 1883. The use of steel in shipbuilding continues to make progress, 45 per cent. of the total tonnage launched on the Clyde in 1884 having been built of steel against only 30 per cent. in 1883.

Exports of Iron and Steel.—The total exports of iron and steel from Great Britain to all countries in 1884 were 3,496,352 gross tons, as compared with 4,043,308 tons in 1883, which was a decrease of 546,956 tons. The exports in the first quarter of 1885 were also smaller than those in the first quarter of 1884. The following table shows the details of the exports in 1882, 1883, and 1884.

Articles.	Gross tons.		
	1882.	1883.	1884.
Pig iron	1,758,072	1,564,048	1,269,677
Bar, angle, bolt, and rod iron	313,155	288,271	296,325
Railroad iron and steel (including fish-plates, etc.)	936,949	971,165	729,236
Wire, except telegraphic wire	86,653	62,620	53,230
Hoops, sheets, and boiler and armor plates	342,599	347,782	348,378
Tinplates	265,039	269,375	288,708
Cast and wrought iron, etc	328,262	355,842	375,277
Old iron for remanufacture	132,033	97,475	67,836
Unwrought steel	172,329	73,131	56,614
Manufactures of steel, or steel and iron combined	18,461	13,599	11,071
Total	4,353,552	4,043,308	3,496,352

The value of the iron and steel exported in 1884 declined seriously as compared with 1883. Their total value in the former year

was £24,487,669, against £28,590,216 in the latter year. The exports to the United States from 1880 to 1884 were as follows.

ARTICLES.	Gross tons.				
	1880.	1881.	1882.	1883.	1884.
Pig iron	614,005	394,934	488,970	289,498	157,012
Bar, angle, etc	51,413	18,858	22,445	8,735	4,277
Rails	221,131	292,617	198,275	74,801	17,829
Sheets, plates, etc	45,237	36,162	37,220	28,897	21,543
Tinplates	164,167	179,843	214,568	215,442	211,860
Old iron	197,653	99,859	95,583	46,013	25,529
Cast iron, etc	20,464	6,163	6,774	5,152	2,523
Steel unwrought	44,066	135,268	131,281	28,411	14,231
Total	1,358,136	1,163,704	1,195,116	696,949	454,804

The imports of iron and steel into Great Britain steadily increased for five years, advancing from 212,992 tons in 1879 to 321,551 tons in 1883, but in 1884 they fell to 307,653 tons. They consist of a small quantity of unwrought steel, and of a considerable quantity of bar, angle, bolt, and rod iron, but principally of manufactured articles.

GERMANY.

Coal.—The production of stone coal in 1883 was 55,943,004 metric tons, against 52,118,595 tons in 1882. In addition 14,499,644 tons of brown coal and lignite were mined in 1883 and 13,259,616 tons in 1882. The total production of coal in 1883 was therefore 70,442,648 tons, against 65,378,211 tons in 1882.

Iron Ore.—The production of iron ore in Germany, including Luxemburg, was 8,756,617 metric tons in 1883, as compared with 8,263,254 tons in 1882. The imports of ore in 1883 amounted to 800,373 tons, against 785,360 tons in 1882. The exports of ore in 1883, according to Mr. Jeans, were 1,898,471 tons, against 1,621,182 tons in 1882.

Pig Iron.—The production of pig iron in Germany and Luxemburg in 1884 is estimated at 3,572,155 metric tons, the official figures not yet having been obtained. As the production in 1883 was 3,469,719 tons, there was an apparent increase in 1884 of 102,436 tons. In increasing its production of pig iron in 1884 Germany stands alone among the iron-producing countries of the world. The remarkable progress of Germany in the production of pig iron is shown in the following table.

Years.	Metric tons.	Years.	Metric tons.	Years.	Metric tons.
1834.....	110,000	1874.....	1,906,262	1881.....	2,914,009
1844.....	171,000	1878.....	2,147,641	1882.....	3,380,806
1854.....	369,000	1879.....	2,226,587	1883.....	3,469,719
1864.....	905,000	1880.....	2,729,037	1884.....	3,572,155

Of the production of 1884 it is estimated that 488,746 tons were Thomas or basic pig iron, 486,083 tons were Bessemer pig iron, and 128,555 tons were spiegeleisen.

Manufactured Iron.—The production of manufactured iron in Germany in 1883 was 1,571,409 metric tons, against 1,586,153 tons in 1882, and 1,421,792 tons in 1881.

Steel.—Mr. Jeans estimates the production of Bessemer steel ingots in Germany in 1884 to have been 1,255,000 metric tons. Statistics of Bessemer steel for previous years are wanting, but Dr. Hermann Wedding states that the total production of all kinds of steel in 1883 was 1,060,591 tons, against 1,074,802 tons in 1882.

Germany is pre-eminent in the manufacture of Thomas or basic steel. According to Dr. Wedding there were 31 basic steel works in the world in December, 1884, containing 88 converters, with a total vessel capacity of 795 tons. These were distributed among the different countries as follows.

Countries.	No. of works.	Converters.	Capacity in tons.
Germany.....	13	41	367
Great Britain.....	6	19	188
France.....	5	13	124
Austria.....	3	7	44
Belgium.....	2	4	32
Russia.....	1	2	20
United States.....	1	2	20
Total.....	31	88	795

Imports and Exports.—The imports of iron and steel of all kinds, excluding ore, into Germany in 1884 are stated to have been 320,584 metric tons, against 327,065 tons in 1883, pig iron being the chief item. The exports in 1884 were 1,061,077 tons, against 1,143,171 tons in 1883. The leading articles of export are pig iron, wire and wire-rods, unwrought steel, rails, and manufactured iron.

FRANCE.

Coal.—The total production of coal in France in 1884 was 20,127,209 metric tons, against 21,333,884 tons in 1883. The quantity of lignite included in these figures is 502,491 tons in 1884 and 574,455 tons in 1883, the remainder being principally bituminous with a little anthracite.

Pig Iron.—The production of pig iron in 1884, according to statistics furnished by Mr. H. Pinget, Secretary of the Comité des Forges de France, was 1,855,247 metric tons, against 2,069,430 tons in 1883, which was a decrease of 214,183 tons. A small part of this pig iron was smelted with charcoal, but the greater part with coke.

Manufactured Iron.—The production of manufactured iron in 1884 was 877,826 metric tons, against 978,917 tons in 1883, which was a decrease of 101,091 tons. The production of iron rails in 1884 was only 15,655 tons, against 19,214 tons in 1883.

Steel.—The production of all kinds of steel in 1884 was 509,516 metric tons, against 521,820 tons in 1883, which was a decrease of 12,304 tons. The details of the finished steel production of France in 1882, 1883, and 1884 are as follows.

Description.	Metric tons.		
	1882.	1883.	1884.
Bessemer steel	273,410	336,400	364,058
Open-hearth steel	159,561	162,207	121,932
Puddled steel	14,258	12,897	12,984
Cemented steel	2,703	2,379	2,479
Crucible steel	7,921	7,540	7,158
Reheated steel	385	397	905
Total	458,238	521,820	509,516

The production of steel rails in 1884 was 371,432 metric tons, against 391,277 tons in 1883. The quantity of Bessemer steel rails rolled in 1884 was 335,276 tons and in 1883 it was 316,985 tons. The remainder in each case was made of open-hearth steel—36,156 tons in 1884 and 74,292 tons in 1883. The production of basic steel rails, which are made only in the Meurthe-et-Moselle district, increased from 32,532 tons in 1883 to 52,564 tons in 1884. These figures are included in the production of steel rails above given.

Imports and Exports.—The following table shows the imports of iron and steel into France in the past three years and the exports

from that country in the same time, imports for re-exportation being included.

DESCRIPTION.	Imports.—Metric tons.			Exports.—Metric tons.		
	1882.	1883.	1884.	1882.	1883.	1884.
Pig iron	286,062	305,122	222,942	70,936	67,846	66,840
Finished iron	82,756	69,037	76,847	25,241	28,051	40,002
Steel	46,016	43,002	17,864	6,069	6,717	11,109
Total	414,834	417,161	317,653	102,246	102,614	117,951

In 1884 France imported 1,412,710 metric tons of iron ore, against 1,601,217 tons in 1883, which was a decrease of 188,507 tons.

BELGIUM.

Coal.—According to statistics supplied by Mr. Paul Trasenster, of Liége, the production of coal in Belgium in 1884 is estimated at 18,041,000 metric tons, against 18,177,754 tons in 1883, which shows a probable decrease of 136,754 tons.

Pig Iron.—The production of pig iron in 1884 was 738,105 metric tons, against 783,433 tons in 1883, which was a decrease of 45,328 tons. The price of forge pig iron, which had been quoted at 55 francs in December, 1883, gradually fell to 47 francs in December, 1884.

Manufactured Iron.—The production of manufactured iron in 1884 was 468,185 metric tons, against 487,226 tons in 1883. Belgian beams and other structural material are sold at very low prices, and compete successfully with British structural iron in the heart of England, yet the production of manufactured iron in Belgium has been decreasing for several years.

Steel.—The production of steel ingots of all kinds in 1884 was 179,803 metric tons, against 179,489 tons in 1883. This demonstrates the strength of the Belgian steel trade, in being able to hold its own so well in a year of great depression. Of finished steel the quantity turned out in 1884 was 153,062 metric tons, against 156,301 tons in 1883. There are now six Bessemer steel works in Belgium, containing 18 converters. Of these works one is operated by the basic process exclusively, and in another that process is used in part. There are twelve Siemens-Martin open-hearth steel furnaces in use.

Imports and Exports.—The coal, iron-ore, iron, and steel imports and exports have been as follows in the past two years.

ARTICLES.	Imports.—Metric tons.		Exports.—Metric tons.	
	1883.	1884.	1883.	1884.
Coal and coke	1,302,000	1,254,000	5,437,000	5,457,000
Iron ore	1,612,469	1,487,748	367,104	190,787
Iron and steel	216,000	169,000	436,000	421,000

The Belgian imports under the third class in this table consist very largely of pig iron, but the exports are composed of finished iron and steel almost entirely.

SWEDEN.

We have received the statistics of the production of iron and steel in Sweden from Professor Richard Åkerman, of Stockholm. They have been brought down only to the close of 1883. In the following table the details of Swedish production are given for four years ending with 1883.

ARTICLES.	Metric tons.			
	1880.	1881.	1882.	1883.
Iron ore	775,344	826,137	892,863	885,124
Pig iron	405,713	435,428	398,945	422,627
Bar iron and rods	219,234	247,707	259,462	255,853
Bessemer steel	30,013	39,328	47,358	50,878
Martin steel	7,718	11,158	13,405	16,800
Other kinds of steel	1,550	1,741	1,430	1,827
Plates	11,909	13,134	15,805	17,439
Nails	7,445	7,132	8,143	8,197

In 1883 there were 191 furnaces in blast, against 185 furnaces in 1882. The average length of blast of each furnace in 1883 was 216 days and in 1882 it was 217 days. The average daily production of each furnace in 1883 was 10.25 metric tons, as compared with a daily average of 9.93 tons in 1882, indicating an improvement in furnace practice.

Exports.—The exports of iron ore, iron, and steel from Sweden in 1884 compare very favorably with previous years. In the following table the exports are given for the past five years.

ARTICLES.	Metric tons.				
	1880.	1881.	1882.	1883.	1884.
Pig iron	61,594	55,489	55,500	52,126	55,000
Bar iron	131,264	136,556	154,000	133,161	124,000
Rods, hoops, etc	48,714	52,000	54,000	61,678	72,000
Blooms	8,842	8,802	8,000	6,258	8,500
Plates of all kinds	2,210	2,382	2,200	2,373	2,400
Nails	1,258	1,052	900	827	1,800
Iron ore	29,670	24,282	20,200	32,319	40,000
Steel	8,161	7,165	9,800	11,214	10,500

The exports of implements and machinery in 1884 amounted to $621,621, against $689,459 in 1883.

AUSTRIA AND HUNGARY.

Coal.—According to the *Statistical Year-book* the production of coal in the Austro-Hungarian Empire in 1883 was 17,047,961 metric tons, against 15,555,292 tons in 1882. The quantity of lignite included in the production of 1883 is 9,853,865 tons.

Pig Iron.—The latest statistics of pig iron that are available have been recently printed by Mr. V. Wolff in an Austrian technical journal. The production of pig iron in the five years ending with 1883 was as follows.

YEARS.	Metric tons.		
	Austria.	Hungary.	Total.
1879	285,839	118,321	404,160
1880	320,302	143,932	464,234
1881	379,646	160,000	539,646
1882	435,478	175,975	611,453
1883	522,400	178,637	701,037

The prosperity enjoyed by the Austro-Hungarian iron trade during recent years received a check in 1884, and it is believed that the production of that year has been slightly below that of 1883.

Miscellaneous Iron and Steel.—The production of all kinds of steel in the Empire in 1883 is stated to have been 271,733 metric tons; steel rails, 146,972 tons; bar iron, 233,393 tons; sheet iron, 55,256 tons.

Imports and Exports.—The imports and exports of pig iron in the five years ending with 1883 were as follows.

YEARS.	Metric tons.	
	Imports.	Exports.
1879	45,800	5,109
1880	55,536	26,347
1881	80,340	13,516
1882	100,649	2,775
1883	132,493	5,556

SPAIN.

Iron Ore.—The total production of iron ore in 1883 was 4,526,279 metric tons. The figures for 1884 have not yet been ascertained, but the exports from the Bilbao district furnish an excellent basis on which to form an opinion of the probable condition of the trade of the whole country in that year. The shipments from Bilbao in 1884 amounted to 3,197,422 tons, against 3,428,187 tons in 1883, and 3,737,176 tons in 1882. The greater part of the Bilbao ore goes to Great Britain and a very little to the United States. We receive our Spanish ore from Southern Spain.

Iron and Steel.—The production of pig iron in 1883 was 139,920 metric tons, and of manufactured iron 2,304 tons. An effort is being made to develop the manufacture of iron and steel in Spain, and the Bilbao Iron Manufacturing Company has erected a blast-furnace and Bessemer steel plant for the purpose of converting Bilbao ore into steel near the mines. Pig iron is being made at these works and it is possible that by this time the steel works are also in operation.

Prices.—The price of iron ore per ton, free on board at Bilbao, ranged from 7s. to 5s. 9d. in 1884, against 7s. 6d. to 6s. 6d. in 1883.

ITALY.

Iron Ore.—No more recent statistics have been published than those contained in the last Annual Report of this Association. It was then stated that in 1880 the island of Elba produced 403,215 metric tons of iron ore, against 274,322 tons in 1879; the production on the mainland, principally in Lombardy, in 1880 was 289,058 tons, against 186,857 tons in 1879; and in addition 20,471 tons of manganiferous ore were produced in 1880, against 1,388 tons in 1879. According to these figures the total production of iron ore in Italy in 1880 was 712,744 metric tons, against 462,567 tons in 1879.

Iron and Steel.—The production of pig iron annually amounts to about 50,000 tons, the greater part of the iron ore mined being exported to other countries instead of being smelted at home, which is due to the lack of good furnace fuel. In the prosecution of other branches of the iron and steel trades the Italians are more successful, using lignite for fuel in some important works. The government encourages native enterprise also by preferring articles of home production if not more than 5 per cent. dearer than competing foreign articles, duty paid.

To build up an armor-plate works in Italy the government has contracted with a firm of capitalists, including Sir William Armstrong, of England, for 12,000 tons of armor plate at £80 per ton, and has advanced a considerable portion of the cost to facilitate the construction of the plant, which is to be located at Terni. It is also stated that a running contract for 15,000 tons of Siemens steel ship-plates and angles has been granted to an establishment near Genoa, the price to be regulated by the rate prevailing in foreign markets with the freight and duties added. Bar iron, beams, nails, etc., are manufactured in other works. No steel rails are made in Italy.

RUSSIA.

Coal.—The production of coal in Russia in 1882, which is the latest year for which we have statistics, was 3,742,380 tons, against 3,437,840 tons in 1881, which was an increase of 304,540 tons, or 9 per cent.

Pig Iron.—The production of pig iron in 1882 was 498,400 tons, against 462,027 tons in 1881 and 441,285 tons in 1880. These figures show a progressive though small increase in production from year to year.

Manufactured Iron.—In 1882 the quantity of manufactured iron turned out by Russian works was 291,800 tons, against 321,678 tons in 1881 and 288,512 tons in 1880. In this branch a retrograde movement set in during 1882.

Steel.—The statistics of steel production are vague. Mr. Jeans states in his report to the British Iron Trade Association that "the total quantity of steel" produced in Russia in 1882 was 225,140 tons. We presume this expression means finished steel. The quantity of steel produced in 1881 was 285,082 tons and in 1880 it was 295,568 tons. Taking these three years together the exhibit is not a favorable one for the Russian steel industry, but 1883 may have shown better results.

AUSTRALASIA AND ASIA.

Australia.—In New South Wales the production of all kinds of iron in 1883 was 3,434 gross tons, as compared with 7,476 tons in 1882, and the production of coal in 1883 was 2,521,457 gross tons, against 2,109,282 tons in 1882. Notwithstanding the possession of an abundance of coal of good quality the development of the manufacture of iron makes very slow progress in this colony. The colonial government has not met with success in its efforts to induce capitalists to establish a steel-rail mill within its territory. Immense coal fields are known to exist in Queensland, but they have been very slightly developed.

New Zealand.—The recent departure from Pittsburgh, Pennsylvania, of a number of puddlers under contract to work in a new rolling mill in New Zealand indicates the beginning of an iron industry in that colony. Particulars of the enterprise are wanting.

India.—The discovery of an extensive bed of lignite in Madras is announced, but its value as a fuel for special use has not yet been determined. This addition to the previously-developed coal fields of India will, however, assist to make that country largely independent of other countries for its fuel supply. No progress is being made in the manufacture of iron though iron ore is abundant.

China.—No fresh knowledge has been made public during the past year concerning the manufacture of iron in China, and the information available concerning its coal mines is also very meagre. The Kaiping mines, which are situated about 71 miles northeast of Tientsin and 105 miles east of Pekin, receive most attention from Chinese correspondents. The mining of coal is actively prosecuted here in accordance with approved modern practice. The galleries are 20 miles in length and there are also 7 miles of railroad. The cost of the coal at the mouth of the mines is 9s. per ton, and factories are being established in the vicinity to secure the advantage of cheap fuel. The French propose to investigate the mineral resources of their newly-acquired possessions in Tonquin and to develop them if practicable. Coal deposits are known to exist on the coast as well as the adjacent islands.

AMERICA.

Our neighbors on the Western Continent have hitherto not distinguished themselves in the manufacture of iron. In the following paragraphs we give the latest information we have been able to

obtain relative to such efforts as they are now making to develop their resources in this direction.

Canada.—Mr. Frederic Nicholls, the Secretary of the Ontario Manufacturers' Association, informs us that the probable production of pig iron in the Dominion in the year ended June 30, 1884, was 44,081 gross tons, and in the nine months ended March 31, 1885, it was 20,249 tons. Under an act of the Canadian Parliament a bounty of $1.50 per ton is paid on all pig iron manufactured in the Dominion, and as this bounty has been paid on the quantities above named it is not likely that the total production was any larger. The nature of the bounty is as follows: From July 1, 1883, for three years, $1.50 per ton will be paid on all pig iron produced in Canada, and $1 per ton during the next three years. As a duty of $2 per ton is charged on imported pig iron, the discrimination in favor of home-made pig iron is at present $3.50 per ton. Three establishments are engaged in the manufacture of pig iron, namely, John McDougall & Co., Drummondsville, Quebec; Hall Bros. & Co., Radnor Forges, Quebec; and the Steel Company of Canada, Londonderry, Nova Scotia. Statistics of rolled iron and steel have not been collected, as there is no bureau of the government charged with this duty and the manufacturers are few and widely separated. Steel is made at two points in Canada, namely, at Londonderry, in the province of Nova Scotia, and at London, in the province of Ontario. The quantity of iron ore mined in Nova Scotia in 1884 was 54,885 gross tons, against 52,410 tons in 1883. The same province produced 1,389,295 tons of coal in 1884, against 1,422,553 tons in 1883, and made 40,085 tons of coke in 1884, against 44,189 tons in 1883. The iron-ore interests of Ontario are very important, though the production is perhaps entirely exported to the United States. Exact statistics are wanting, but it is probable that shipments from this province are now being made at the rate of over 50,000 tons yearly.

Mexico.—The iron works in course of erection at Durango, which were mentioned in last year's Annual Report, have not yet been completed.

South America.—Discoveries of coal have been made in the Andean region of the Argentine Republic, and the richness and high quality of the iron ore of Brazil continue to be themes for the pens of writers for technical journals, but the development of the iron and coal resources of South America has apparently made no progress in the past year.

AFRICA.

Mr. J. H. Smith, our Consul-General at Monrovia, Liberia, states that he has found very fine specimens of iron ore on the surface of Cape Mount, on the seaboard, and at Carysburg, about forty miles by waterway and land from Monrovia. The specimens were shipped to the Whitney Arms Company, at New Haven, Connecticut. Mr. Smith also states that there are deposits of very rich iron ore near the banks of the river St. Paul, above the rapids, twenty miles east of Monrovia. These deposits continue to be found all the way to Musardu, the extent of the furthest exploration, a distance of 200 miles from the coast.

THE WORLD'S PRODUCTION OF PIG IRON, STEEL, AND COAL.

The following table gives the production of pig iron, steel, and coal in the iron and steel producing countries of the world in the most recent years for which statistics are available. English tons of 2,240 pounds are used in giving the statistics of Great Britain, the United States, Russia, and "other countries," and metric tons of 2,204 pounds for all the Continental countries of Europe except Russia. As the difference between the gross ton and the metric ton is so trifling it is not necessary to change official figures.

COUNTRY.	Pig iron.		Steel.		Coal.	
	Year.	Tons.	Year.	Tons.	Year.	Tons.
Great Britain	1884	7,528,966	1884	1,861,641	1884	160,757,815
United States	1884	4,097,868	1884	1,550,879	1884	99,851,807
Germany and Luxemburg	1884	3,572,155	1883	1,060,591	1883	70,442,648
France	1884	1,855,247	1884	509,516	1884	20,127,209
Belgium	1884	738,105	1884	179,803	1884	18,041,000
Austria and Hungary	1883	701,037	1883	271,733	1883	17,047,961
Russia	1882	498,400	1882	225,140	1882	3,742,380
Sweden	1883	422,627	1883	69,505	1882	250,000
Spain	1883	139,920	1873	216	1880	847,128
Italy	1883	53,000	1881	3,630	1882	220,000
Other countries	1883	150,000	1883	20,000	1883	8,000,000
Total		19,757,325		5,752,654		399,327,948
Percentage of the United States		21		27		25