AMERICAN IRON AND STEEL ASSOCIATION

1883.

STATISTICS

OF

THE AMERICAN AND FOREIGN IRON TRADES

FOR 1882.

ANNUAL REPORT OF THE SECRETARY

OF THE

AMERICAN

IRON AND STEEL ASSOCIATION,

CONTAINING

STATISTICS OF THE AMERICAN IRON TRADE TO JANUARY 1, 1883, AND A REVIEW OF THE PRESENT CONDITION OF THE IRON INDUSTRY IN FOREIGN COUNTRIES.

JAMES M. SWANK,

SECRETARY.

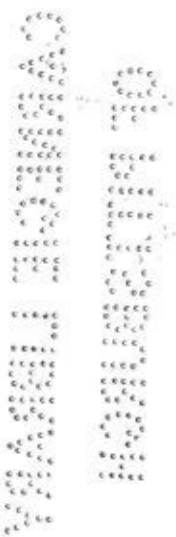
PRESENTED TO THE MEMBERS, MAY 1, 1883.

PHILADELPHIA:

THE AMERICAN IRON AND STEEL ASSOCIATION,

No. 261 South Fourth Street.

1883.



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PRELIMINARY STATEMENT.

HON. DANIEL J. MORRELL,

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 Eleventh Annual Report.

In the collection of statistical information for this report, and in the performance of all the other statistical and clerical work of this office, I have again had the assistance of Mr. George W. Cope, the Assistant Secretary, and of Mr. William M. Sweet, who has long been a clerk in the office. I am placed under renewed obligations to the Hon. Joseph Nimmo, Jr., Chief of the Bureau of Statistics at Washington, for statistical information concerning the foreign commerce of the United States, and particularly relating to iron and steel and iron ore. Acknowledgments are made in the body of the report to other gentlemen who have given me valuable assistance.

In my last report I referred to the passage by Congress in May, 1882, of an act authorizing the creation of a Tariff Commission. This Commission was appointed by the President in June, and on the 6th of July it was formally organized at Washington. On the 4th of December it submitted a report to Congress, accompanied by the draft of a proposed new tariff. Congress, however, preferred to set aside to a large extent the provisions of this proposed tariff and to substitute provisions of its own, which were embodied in a bill that was approved by the President on March 3, 1883, and is therefore now a law. This law is entitled "An act to reduce internal revenue taxation, and for other purposes," section 6 of which contains a complete substitute for all the duties on imports that are now in force. This substitute goes into effect on and after July 1, 1883. So much of this new tariff as relates to duties on iron and steel and related products will be found printed in this report in comparison with existing duties.

As the new tariff greatly reduces duties on iron and steel and some other commodities, and as there is good reason to believe that additional efforts will be made to further modify, if not to destroy, the protective features of our tariff system, it is obviously the duty of all imperiled industries and of the workmen who are dependent on them to inaugurate at once a new and active campaign in support of the policy of Protection to Home Industry. The duty of this Association to engage actively and zealously in this campaign is clear and imperative. It has heretofore done much to educate the people of this country to a correct appreciation of the benefits of Protection to all classes. In the year 1882 there were distributed directly from our office, principally in the Western States, 181,710 tariff tracts and 31,500 broadsides. A much larger quantity of tracts and broadsides was distributed in like manner

in each of the two preceding years. The tracts have generally been substantial and valuable additions to the industrial and economic literature of the times. I propose to renew this work immediately, and to prosecute it as extensively and thoroughly as the facilities of this office will permit, relying confidently upon the active and sympathetic co-operation of all iron and steel manufacturers.

In this connection the following extract from a recent article in *The Bulletin* will not be out of place, and will serve to indicate to new members of the Association and to others the leading objects that it now has in view. "To those of our readers who are familiar with our Annual Report, the Directory, *The Bulletin*, and our tariff tracts, and who know something of the endless correspondence we are required to maintain or supervise, the fact is doubtless apparent that our office is now a literary bureau, or literary headquarters, for the American iron and steel industries. It is something else, to be sure, and very much else when work of a very unliterary character is required to be done, but that is what it has mainly come to be. Whether or not this development is in accordance with the original intentions of the founders of this Association we need not stop to inquire; it is enough to know that it was a necessary development which grew out of the changes and progress of years. Other things could be attended to by other agencies—science by the scientific, and tilts before the Secretary of the Treasury by those who were especially interested or by their attorneys; but the Annual Report, the Directory, *The Bulletin*, and the tariff tracts could only properly emanate from one responsible management. There they should remain."

Since my last Annual Report was written three of the most eminent representatives of the iron and steel industries of this country have died—David Thomas, the father of our anthracite iron industry, and the oldest American ironmaster in length of service, on June 20, 1882, in his 88th year; Peter Cooper, the philanthropist, and the oldest American ironmaster in length of days, on April 4, 1883, in his 93d year; and James Park, Jr., the leading American crucible-steel manufacturer, and a prominent advocate of our American Protective policy, on April 21, 1883, in his 64th year. Mr. Thomas and Mr. Cooper passed away after having rounded and finished their life's work, but Mr. Park was cut down suddenly while still engaged in active business pursuits and in promoting many cherished social reforms and schemes of benevolence. For ten years prior to his death he was a Vice-President of this Association, and he was zealous, constant, self-denying, and sagacious in the performance of all the duties of the position. It has been frequently and rashly said that no man is indispensable in the affairs of this world, but the saying is not true. The loss to this Association of our dead friend, James Park, Jr., is a loss that is irreparable. There is no one to take his place. Very Respectfully,

JAMES M. SWANK, *Secretary.*

No. 261 SOUTH FOURTH STREET, PHILADELPHIA, May 1, 1883.

STATISTICS OF THE AMERICAN IRON TRADE FOR 1882.

REVIEW OF THE DOMESTIC IRON TRADE IN 1882 AND DURING THE FIRST QUARTER OF 1883.

In our last annual report, issued in June, 1882, the fact was noted that the extraordinary activity in our iron and steel industries which had commenced in 1879 had culminated early in 1882, when the wants of consumers became less urgent and prices generally began to decline. This reaction was not sudden nor violent, but was indeed so gradual and tranquil that it not only for some time excited no apprehension of impending stringency, but was actually imperceptible to many manufacturers whose books still continued to receive liberal orders at satisfactory prices. In May, however, its existence was generally recognized, except by the workingmen in the rolling mills of Pittsburgh and the West, who were harassed by the high prices of breadstuffs and provisions, consequent upon the extraordinary drought and the partial failure of the crops in 1881, and who unwisely insisted upon an advance in their wages. This demand was refused, and at the beginning of June nearly all the mills referred to were closed by a general strike, which continued until the last of September, when work was resumed upon the scale of wages which had previously prevailed. During the strike of four months the prices of rolled iron did not advance, notwithstanding the stoppage of so many mills,—a fact which clearly demonstrated that the capacity to produce this form of iron had again, as in the panic years, exceeded the demand. As a result of the stoppage of these mills the demand for pig iron declined, and its price, which in the spring months had sympathized with the general tendency, still further declined. After the resumption of activity in the rolling mills the prices of rolled iron and pig iron declined until the close of the year, and in November and December the market for these products was greatly depressed. Steel rails, which were the first of all iron and steel products to weaken in price, quotations having slightly receded as early as December, 1881, steadily declined in price throughout the whole year, the sharpest decline occurring in November and December, when

the demand for future delivery almost came to an end from causes which will presently be referred to. This decline in the prices of steel rails had its influence in depressing the prices of rolled iron and pig iron already alluded to. At the beginning of December, 1881, the average price of steel rails at the mills was $60 a ton, but in December, 1882, the average price was only $39. In all the fluctuations of prices of iron and steel that have taken place in this country we know of none so sweeping as this decline in the prices of steel rails, if we except the fluctuations of 1879 and 1880, and many of these were entirely speculative.

The causes which contributed to the serious but in no sense disastrous reaction in our iron and steel industries in 1882 were many and various. These we shall enumerate as they occur to us, but possibly not in the order of their importance. First, it could not be expected that the extraordinary activity of all the industries of the country in the immediately preceding years would be continued indefinitely. Business currents have their ebbs and flows, and in 1882 these currents tended seaward. We had particularly reached the limit of speculative ventures upon which legitimate business largely depends. Our iron and steel manufacturers could not resist these influences. Their best customers, the builders of new railroads, did not, it is true, build fewer miles of railroad in 1882 than in 1881, but it had become certain that much less money could be obtained for new railroads in 1883 than in 1882, and the consequent shrinkage in railroad mileage in the new year had therefore to be preceded by a largely decreased demand for railroad materials and by lower prices. Then, again, in the prosperous years referred to we had increased our capacity for the production of most forms of iron and steel much faster than the consumptive wants of the country had increased. We made this discovery in 1882, particularly in regard to steel rails. Again, the harvest of 1881, as already stated, was not generally favorable, and the farmers as a class were consequently unable in 1882 to make their usual purchases of farming implements and other articles which are composed wholly or in part of iron or steel. The poor harvest of 1881 had another effect which unfavorably influenced our iron and steel industries. It caused high prices for most farm products, and these high prices prevented Europe from making in 1882 as large purchases of our surplus as in 1881 and in other recent years. But, while we shipped abroad in 1882 a decreased quantity of the products of our farms, we continued in that year to increase our imports

of foreign products; thus seriously curtailing our favorable trade balance with foreign countries and consequently making money difficult to obtain for all home enterprises. In 1881 our exports of merchandise exceeded our imports $163,339,679, but in 1882 the excess was only $15,138,439; showing a change in our foreign trade of $148,201,240 in one year. So important a change could have no other effect than to interfere seriously with the prosperity of our iron and steel and many other industries. Further, among the imports of 1882 were large quantities of pig iron and steel rails, and these exercised a depressing influence upon our domestic production of these articles. Finally, in October, November, and December came political complications which unfavorably affected all business. The success of the Democratic party in the Congressional elections was regarded by many as unfriendly to the continuance of our Protective policy, and the report of the Tariff Commission recommending large reductions in the existing tariff served to deepen the public concern in reference to the immediate future of this policy. We regret to say that the action of Congress during the past winter, in reducing duties, has fully justified this anxiety, and historical accuracy requires us to add that this reduction was recommended by a Tariff Commission which was mainly composed of Republicans, and that it was accomplished by a Republican Congress. The reduction effected in the duties on iron and steel was much larger than in the duties on any other leading manufactured articles.

Since the beginning of the present year the condition of our iron and steel industries has not improved. January and February were dull months, a specially depressing influence being the uncertainty of tariff legislation at Washington. Consumption is now, however, more active since the adjournment of Congress and the opening of spring than during the winter months, but prices are very low, competition is sharp, and the market for most products is in favor of buyers rather than sellers. Some leading influences which unfavorably affected our iron and steel industries in 1882 still remain, particularly the interruption to new railroad projects and the tendency to over-production in certain leading branches, to which must now be added the late reduction of duties, which goes into effect on the 1st of July. It seems to be absolutely certain that prices must for some time to come rule extremely low. This condition of affairs in the great industries under consideration may have its advantages in stimulating consumption at a time when the country is blessed with an abundance of good money, and in checking the erection of new roll-

ing mills, blast furnaces, and steel works which experience has shown are not needed; but it is greatly to be regretted that it brings also low wages, with no compensating benefits to those who receive them. It is not true, as a certain class of political economists persistently teach, that when wages are reduced other things are correspondingly reduced in price; but, even if this were so, low wages and low prices always suggest hard times. We do not, therefore, regard it as a propitious sign that prices of iron and steel are now so low as they are. Good prices and good wages were far better. But the fact can not be altered that low prices for iron and steel now prevail, and we can only hope that wages will be adjusted upon a scale that will be mutually satisfactory to manufacturers and their workmen.

PRICES OF IRON AND STEEL IN 1882 AND 1883.

The following table will show the range of prices for all leading iron and steel products in 1882 and in the first quarter of 1883. 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. Where the asterisk occurs there were no quotations to give, because no sales were reported.

MONTHS.	Old T rails at Philadelphia.	New iron rails, at mills in Pennsylvania.	Steel rails, at mills in Pennsylvania.	Foreign Bessemer pig iron, at Philadelphia.	No. 1 anthracite foundry pig iron, at Philadelphia.	Gray forge pig iron, at Philadelphia.	Common bar iron, at Pittsburgh. Per pound.	Nails, (gross price,) at Pittsburgh. Per keg.	Gray forge pig iron, all Lake ore, at Pittsburgh.	Gray forge pig iron, Lake ore mixed, at Pittsburgh.
January, 1882...	$30.00	$48.50	$58.00	$27.50	$26.00	$24.00	2.5c.	$3.35	$28.00	$25.00
February.....	30.50	48.50	55.00	25.75	26.00	24.00	2.5c.	3.40	27.50	26.00
March.....	29.25	47.50	54.00	23.75	25.75	23.75	2.5c.	3.40	27.50	25.50
April.....	28.50	47.00	52.75	24.50	25.50	23.50	2.45c.	3.30	26.50	25.00
May.....	26.75	44.75	48.75	23.50	25.50	22.75	2.35c.	3.15	26.50	24.00
June.....	26.25	44.75	48.25	24.00	25.50	22.00	2.5c.	3.50	*	*
July.....	26.50	45.00	48.00	24.75	25.50	22.50	2.5c.	3.55	*	24.00
August.....	26.50	45.00	47.00	24.50	25.50	21.50	2.5c.	3.60	*	24.00
September.....	27.00	*	45.00	24.25	26.00	22.00	2.5c.	3.40	*	23.00
October.....	27.50	*	44.25	23.75	26.25	22.25	2.5c.	3.40	*	22.50
November.....	27.25	*	42.00	23.25	26.00	21.75	2.2c.	3.40	24.00	21.75
December.....	27.00	*	39.00	22.25	25.75	21.25	2.2c.	3.40	23.00	21.50
January, 1883...	26.50	*	40.00	22.25	25.00	21.00	2.2c.	3.40	23.00	21.00
February.....	26.00	*	39.50	22.25	24.50	20.50	2c.	3.40	22.50	20.50
March.....	25.00	*	39.00	*	24.00	20.00	2c.	3.40	21.00	20.00

This table shows a material decline in all prices, except for nails, which have not been produced in excess of the demand.

THE PRODUCTION OF IRON AND STEEL IN 1881 AND 1882.

The production of iron and steel in the United States in 1882 is given in the following table in comparison with that of 1881.

PRODUCTS.	Net tons.	
	1881.	1882.
Pig iron	4,641,564	5,178,122
All rolled iron, including nails and excluding rails	2,155,346	2,265,957
Bessemer steel rails	1,330,302	1,438,155
Open-hearth steel rails	25,217	22,765
Iron rails	488,581	227,874
Kegs of cut nails and spikes, included in all rolled iron	5,794,206	6,147,097
Crucible steel ingots	89,762	85,089
Open-hearth steel ingots	146,946	160,542
Bessemer steel ingots	1,539,157	1,696,450
Blooms from ore and pig iron	84,606	91,293

There was a large decrease in the production of iron rails in 1882 over that of 1881, and a small decrease in the production of open-hearth steel rails and crucible steel ingots, but in all the other articles enumerated there was an increase in 1882 over 1881. With the single exception of pig iron, however, this increase was in no instance large, and even in pig iron it was only 11 per cent.

OUR IMPORTS OF IRON AND STEEL FROM 1871 TO 1882.

The foreign value of the imports into the United States from all countries of iron and steel and manufactures thereof, including tin-plates, has been as follows in the twelve years from 1871 to 1882. An increase in 1882 over 1881 will be noted in contrast with the marked decline in 1881 over 1880.

Years.	Values.	Years.	Values.
1871	$57,866,299	1877	$19,874,399
1872	75,617,677	1878	18,013,010
1873	60,005,538	1879	33,331,569
1874	37,652,192	1880	80,443,362
1875	27,363,101	1881	61,555,077
1876	20,016,603	1882	67,075,125

In the following table we give the quantities of all the *leading* iron and steel products imported into the United States from all countries in the twelve years from 1871 to 1882, except steel in all forms other than rails, for which statistics of values only are obtainable, and which are included in the table given above. To be more specific, the figures below embrace only our importations

of pig, bar, boiler, band, hoop, scroll, and sheet iron, iron and steel rails, castings, old and scrap iron, anchors, cables and chains, and tin-plates.

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

The figures given in this table show a nominal increase in the tonnage of 1882 over that of 1881, but if the quantities as well as the values of all kinds of steel could be obtained it would doubtless appear that the total tonnage of 1882 was greatly in excess of that of 1881. This will appear the more probable if we reflect that foreign values were lower in 1882 than in 1881. We know definitely that the importation of steel wire rods was much larger in 1882 than in 1881, aggregating in the former year probably 100,000 tons, the duty (30 per cent.) being so low that our own steel wire rod mills were practically idle.

The following table shows, in net tons, the details of our imports in the last five years of the articles included in the table just given.

Commodities Imported.	Net tons of 2,000 pounds.				
	1878.	1879.	1880.	1881.	1882.
Pig iron	74,484	340,672	784,968	520,835	604,978
Castings	69	61	114	632	2,079
Bar iron	33,346	48,840	126,987	47,820	79,220
Boiler iron	1	91	168	290	175
Band, hoop, and scroll iron	7	1,031	25,322	827	6,021
Railroad bars of iron	.....	19,090	132,459	137,013	41,992
Railroad bars of steel	10	25,057	158,230	249,308	182,135
Sheet iron	838	5,459	11,412	8,121	12,985
Old and scrap iron	6,225	248,429	694,273	151,107	164,591
Anchors, cables, chains, etc	646	892	1,393	1,520	1,530
Tin-plates	120,808	172,760	177,015	204,966	239,665
Total	236,434	862,382	2,112,341	1,322,439	1,335,371

An increase in 1882 over 1881 is observable in all the articles named except boiler iron and iron and steel rails. The decrease in rails was large—due mainly to the fact that our rail-producing capacity was more than equal in 1882 to the demand, whereas in the three preceding years it had been unequal to it. But, while the im-

portation of rails in 1882 declined at a gratifying rate, the fact that the importation of almost all the other articles mentioned sensibly increased in a year of low prices and closed works at home is not one that is overflowing with comfort. The attention of Congress was called last winter to these large importations, but that body chose to *reduce* the duties on pig iron and other articles the importation of which had increased, as if to still further encourage their importation. Nor did it stop here. While several of our steel rail mills were standing idle for want of orders, and while others were selling rails at prices which prevailed in recent panic years, it greatly reduced the duties on foreign rails, and thus surrendered to foreign manufacturers a large part of the present market for domestic rails. All this may have been patriotic and wise, but we insist that it was neither.

OUR IMPORTS OF IRON ORE IN 1880, 1881, AND 1882.

The following statement shows the quantities and values of iron ore imported into the United States during the calendar years 1880, 1881, and 1882, by customs districts.

DISTRICTS.	1880.		1881.		1882.	
	Gross tons.	Values.	Gross tons.	Values.	Gross tons.	Values.
Baltimore	170,308	$506,560	375,798	$1,005,496	243,182	$654,629
Boston	2,155	13,359	716	2,867	1,664	3,322
Buffalo Creek	13,554	36,426	2,492	7,320	273	755
Champlain	.....	.....	.....	.....	2	7
Cuyahoga	13,858	48,463	10,500	37,675	9,420	33,181
Detroit	456	1,169	617	1,646	48	98
Genesee	5,390	16,274	8,716	25,961	6,851	21,651
Huron	72	258	264	770	264	677
Newark, N. J.	269	798	.....	.....	.....	.....
New York	148,987	432,678	196,419	641,344	145,909	421,776
Oswegatchie	7,553	21,052	3,418	10,650	905	2,783
Oswego	4,185	7,860	13,612	44,026	37,635	120,008
Perth Amboy, N. J.	5,444	15,968	13,671	48,323	31,558	101,859
Philadelphia	120,619	335,119	155,564	394,952	111,944	279,818
Puget's Sound	400	412	1,100	1,622	.....	.....
Cape Vincent	158	413	.....	.....	.....	.....
Total	493,408	$1,436,809	782,887	$2,222,652	589,655	$1,640,564

Previous to 1879 the importations of iron ore into this country did not exceed 100,000 tons annually. In that year they amounted to 284,141 tons, valued at $681,467. In 1880 there was a large increase, and in 1881 a still larger increase, but in 1882 there was a decrease of nearly 200,000 tons. We anticipate in 1883 a continued decrease, owing partly to an increase in the duty after July 1st from

20 per cent. to 75 cents a ton, and partly to the lowering of the prices for domestic ores and to the opening of new sources of domestic supply. It will doubtless happen, however, that we will hereafter annually import from Spain and other countries a considerable quantity of foreign ore, for use in connection with our Bessemer steel works, not specially because of its cheapness, but because of its richness and purity, in these respects surpassing the product of many American mines. A peculiarity of the trade in foreign ores is that it would probably not have attained its recent proportions if it had not been profitable for European vessels which come to this country for grain to bring with them cargoes of iron ore in default of other freight.

A company of capitalists in this country has recently acquired possession of extensive deposits of iron ore of great richness and purity in the province of Santiago, in the southeastern part of Cuba, within four miles of the coast, and fifteen miles distant from the port of Santiago, where there is a good harbor. The company is known as the Juragua Iron Company Limited, and its chairman is Dr. G. B. Linderman, of the Bethlehem Iron Company. Its acquisitions embrace several low mountains of slightly polarized hematite iron ore, which will average about 66 per cent. of metallic iron and about .025 of phosphorus. The ore is exposed in every direction, and can be mined, or rather moved, at slight cost. A railroad will be built from the mountains to the nearest point on the coast, or possibly to Santiago, and docks for the accommodation of vessels will also be constructed. The development of this important enterprise has already been actively commenced, but shipments of ore will probably not take place during the present year. The company will invest about a million dollars.

OUR DOMESTIC EXPORTS OF IRON AND STEEL FROM 1871 TO 1882.

The value of the exports from the United States to all countries of domestic iron and steel and manufactures thereof in the twelve years from 1871 to 1882 was as follows:

Years.	Values.	Years.	Values.	Years.	Values.
1871	$11,836,137	1875	$16,092,906	1879	$12,470,448
1872	10,030,125	1876	11,798,459	1880	12,960,995
1873	12,129,939	1877	16,659,675	1881	15,782,202
1874	15,389,807	1878	13,260,369	1882	19,029,759

The increase in our exports in 1882 was mainly composed of locomotives and machinery. We exported 174 locomotives in 1882, against 104 in 1881. Our exports of iron rails in 1882 reached 2,518 tons, and our exports of steel rails reached 1,088 tons. The extension of our railroad systems into Mexico and the British Possessions ought to increase our exports of rails to these countries.

THE PRODUCTION OF PIG IRON IN 1882.

The total production of pig iron in the United States in 1882 was 5,178,122 net tons, or 4,623,323 gross tons. In 1881 the production was 4,641,564 net tons, or 4,144,254 gross tons. The increase in 1882 over 1881 was 536,558 net tons, or 479,069 gross tons, which is over 11 per cent. (A net ton is 2,000 pounds, and a gross ton is 2,240 pounds.) The production in 1882 was the largest in our history. The production of pig iron in the last four years, which includes the "boom" year 1879, was as follows, in net and gross tons.

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

In these four years we increased our production of pig iron 1,881,470 gross tons, or 68 per cent. This increase has been obtained mainly through improved furnace management, and only slightly through an increase in the number of furnaces in blast, as will appear from the following statement of furnaces in blast at the close of 1879 and 1882—the only figures we have for comparison, but sufficient to enable us to reach approximately accurate conclusions.

Furnaces in blast, 1879.		Furnaces in blast, 1882.	
Anthracite	162	Anthracite	161
Bituminous	123	Bituminous	127
Charcoal	103	Charcoal	129
Total	388	Total	417

Only 29 more furnaces were in blast in 1882 than in 1879, of which 26 were charcoal furnaces, the capacity of which is well known to average very much less than that of either anthracite or bituminous furnaces. This exhibit is most creditable to the skill in furnace management displayed since 1879 by our blast-furnace

managers, and to the appreciation of scientific methods by the owners of a large proportion of our furnaces.

The following table gives in net tons the production of pig iron in the last four years, classified according to the fuel used.

Fuel Used.	1879.	1880.	1881.	1882.
Bituminous	1,438,978	1,950,205	2,268,264	2,438,078
Anthracite	1,273,024	1,807,651	1,734,462	2,042,138
Charcoal	358,873	537,558	638,838	697,906
Total	3,070,875	4,295,414	4,641,564	5,178,122

There was an increase in 1882 in each of the above branches of production, but this increase was much the largest proportionately in the anthracite branch. In the four years the percentage of increase in each branch was as follows: Bituminous, 69.43 per cent.; anthracite, 60.42 per cent.; charcoal, 94.47 per cent. The rapid expansion of our charcoal pig-iron industry in these four years is a most remarkable fact. This expansion has taken place in nearly every State which produces pig iron of this quality, but it has been largest in Michigan, which made 101,539 net tons in 1879 and 210,195 tons in 1882. This State produced nearly one-third of all the charcoal pig iron made in this country in the latter year.

Of the increased production of 536,558 net tons of pig iron in 1882 over 1881 Pennsylvania's share was 258,470 tons, or nearly one-half. This State in 1882 produced 2,449,256 tons of pig iron, or 48 per cent. of the total product of the country. Next to Pennsylvania the State which most increased its production in 1882 was Illinois, which made 251,781 net tons in 1881 and 360,407 tons in 1882. New York comes next, with an increase from 359,519 tons to 416,156 tons. Tennessee increased from 87,406 tons to 137,602 tons; Michigan from 187,043 tons to 210,195 tons; Alabama from 98,081 tons to 112,765 tons. No other State made a notably large increase. The four New England States which make pig iron, namely, Maine, Vermont, Massachusetts, and Connecticut, reduced their production from 53,997 net tons in 1881 to 39,987 tons in 1882. The production of Ohio, the second pig-iron producing State in the country, fell from 710,546 net tons in 1881 to 698,900 tons in 1882.

Our production of pig iron in 1882 was obtained in twenty-six States and one Territory (Utah). The following table shows the production of pig iron in the pig-iron producing States in 1882, in the order of their prominence.

States.	Net tons.	States.	Net tons.
Pennsylvania	2,449,256	Connecticut	24,342
Ohio	698,900	Colorado	23,718
New York	416,156	Massachusetts	10,335
Illinois	360,407	Indiana	10,000
Michigan	210,195	Minnesota	8,126
New Jersey	176,805	Oregon	6,750
Tennessee	137,602	Maine	4,100
Missouri	113,644	Texas	1,321
Alabama	112,765	Vermont	1,210
Virginia	87,731	North Carolina	1,150
Wisconsin	85,859	California	987
West Virginia	73,220	Utah Territory	57
Kentucky	66,522		
Maryland	54,524	Total	5,178,122
Georgia	42,440		

The following table shows in detail the production of charcoal pig iron in 1882. This is the most widely-extended branch of our pig-iron industry, twenty-one States and one Territory having made pig iron with this fuel in the year named.

States.	Net tons.	States.	Net tons.
Michigan	210,195	Georgia	15,565
Ohio	58,654	Massachusetts	10,335
Alabama	55,541	Minnesota	8,126
Wisconsin	55,369	Oregon	6,750
Missouri	54,327	Maine	4,100
Pennsylvania	49,975	Texas	1,321
Tennessee	37,611	Vermont	1,210
New York	30,716	North Carolina	1,150
Maryland	28,277	California	987
Virginia	26,133	Utah Territory	57
Connecticut	24,342		
Kentucky	17,165	Total	697,906

The following table shows in detail the production of bituminous pig iron in 1882. Thirteen States made this quality of pig iron in that year.

States.	Net tons.	States.	Net tons.
Pennsylvania	945,635	Kentucky	49,357
Ohio	640,246	Wisconsin	30,490
Illinois	360,407	Georgia	26,875
Tennessee	99,991	Colorado	23,718
West Virginia	73,220	Indiana	10,000
Virginia	61,598		
Missouri	59,317	Total	2,438,078
Alabama	57,224		

The following table shows in detail the production of anthracite pig iron in 1882, four States only using this fuel in that year.

States.	Net tons.	States.	Net tons.
Pennsylvania	1,453,646	Maryland	26,247
New York	385,440		
New Jersey	176,805	Total	2,042,138

The following table shows the production of pig iron in Pennsylvania and Ohio, by districts, in the last three years.

	Districts.	Net tons of 2,000 pounds.		
		1880.	1881.	1882.
Pennsylvania.	Lehigh Valley	544,987	560,190	609,338
	Schuylkill Valley	306,926	309,049	342,701
	Upper Susquehanna	168,128	125,785	201,367
	Lower Susquehanna	217,889	218,329	300,240
	Shenango Valley	215,313	198,968	264,078
	Allegheny County	300,497	383,453	338,840
	Miscellaneous coke	286,007	341,104	322,717
	Charcoal	43,374	51,908	49,975
Ohio.	Hanging Rock coke	60,316	77,500	77,364
	Mahoning Valley	226,877	245,737	258,478
	Hocking Valley	85,719	88,146	78,770
	Miscellaneous coke	232,105	232,994	225,634
	Hanging Rock charcoal	64,854	61,487	55,546
	Miscellaneous charcoal	4,336	4,682	3,108

The following table shows the production of spiegeleisen in the United States since 1875. The figures given are included in our statistics of pig-iron production.

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

It is noticeable that we are making no satisfactory progress in the manufacture of this essential raw material of our great steel industry. The product of 1882 was made by the New Jersey Zinc and Iron Company, the Cambria Iron Company, Carnegie Brothers & Co. Limited, the Brier Hill Iron and Coal Company, and the Lehigh Zinc and Iron Company.

The following table gives the production of anthracite, charcoal, and bituminous pig iron in the United States from 1854 to 1882.

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

The following table gives the number of completed furnaces in the United States at the close of each of the eleven years from 1872 to 1882, allowance being made in each year for furnaces abandoned or torn down to make room for more modern structures.

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

At the close of 1882 there were 27 furnaces in course of erection in the United States, as follows: Pennsylvania, 4 anthracite and 3 bituminous; Virginia, 5 bituminous; Alabama, 4 bituminous and 2 charcoal; Ohio, 3 bituminous; West Virginia, 1 bituminous; Texas, 1 charcoal; Colorado, 1 bituminous; Utah Territory, 1 charcoal; Oregon, 1 charcoal; Washington Territory, 1 charcoal.

The following table shows the furnaces in blast and out of blast at the close of 1881 and 1882 in all the States.

States and Territories.	December 31, 1881.			December 31, 1882.		
	In blast.	Out of blast.	Total.	In blast.	Out of blast.	Total.
Maine	1	.....	1	1	.....	1
Vermont	1	.....	1	.....	1	1
Massachusetts	4	1	5	2	3	5
Connecticut	8	2	10	7	2	9
New York	40	18	58	37	20	57
New Jersey	10	10	20	13	6	19
Pennsylvania	195	83	278	185	92	277
Maryland	12	11	23	11	12	23
Virginia	15	25	40	15	23	38
North Carolina	1	6	7	.....	5	5
Georgia	4	6	10	4	2	6
Alabama	13	2	15	12	3	15
West Virginia	5	6	11	5	6	11
Kentucky	8	16	24	9	9	18
Tennessee	11	15	26	14	5	19
Texas	1	.....	1	1	.....	1
Ohio	79	23	102	62	35	97
Indiana	1	3	4	2	1	3
Illinois	9	5	14	9	7	16
Missouri	7	10	17	3	14	17
Michigan	17	10	27	14	15	29
Wisconsin	9	6	15	8	7	15
Minnesota	1	.....	1	1	.....	1
Colorado	1	.....	1	1	.....	1
Utah Territory	.....	2	2	.....	1	1
Oregon	1	.....	1	1	.....	1
California	1	.....	1	.....	1	1
Washington Territory	.....	1	1	.....	.....	.....
Total	455	261	716	417	270	687

The following table shows the number of furnaces in blast and out of blast at the close of 1881 and 1882 in the pig iron districts of Pennsylvania and Ohio.

	Districts.	December 31, 1881.			December 31, 1882.		
		In blast.	Out of blast.	Total.	In blast.	Out of blast.	Total.
Pennsylvania.	Lehigh Valley	45	4	49	44	7	51
	Schuylkill Valley	32	16	48	29	18	47
	Upper Susquehanna	16	7	23	14	11	25
	Lower Susquehanna	26	11	37	26	10	36
	Shenango Valley	11	20	31	12	17	29
	Allegheny County	12	3	15	11	5	16
	Miscellaneous coke	28	10	38	24	12	36
	Charcoal	25	12	37	25	12	37
Ohio.	Hanging Rock coke	11	3	14	10	4	14
	Mahoning Valley	16	2	18	13	5	18
	Hocking Valley	12	2	14	6	8	14
	Miscellaneous coke	16	6	22	14	6	20
	Hanging Rock charcoal	23	8	31	18	10	28
	Miscellaneous charcoal	1	2	3	1	2	3

The following table shows the number of furnaces in the United States in and out of blast at the close of 1882, as compared with the close of 1881, separated according to the fuel used.

KIND OF FUEL.	December 31, 1881.			December 31, 1882.		
	In blast.	Out of blast.	Total.	In blast.	Out of blast.	Total.
Bituminous	144	75	219	127	83	210
Anthracite	160	63	223	161	64	225
Charcoal	151	123	274	129	123	252
Total	455	261	716	417	270	687

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 the last three years.

KIND OF FUEL.	Net tons.		
	Dec. 31, 1880.	Dec. 31, 1881.	Dec. 31, 1882.
Bituminous	184,626	36,495	157,196
Anthracite	175,862	90,351	107,259
Charcoal	96,170	84,050	165,239
Total	456,658	210,896	429,694

The aggregate increase in the stocks of pig iron at the close of 1882 over 1881 will be noted, as well as the proportionately large increase in the stocks of charcoal pig iron. The quantity of this kind of pig iron held in stock at the close of 1882 amounted to almost one-fourth of the year's production. The distribution of all the stocks at the close of 1882 is given in the following table.

DISTRICTS.	Net tons of 2,000 pounds.			
	Anthracite.	Charcoal.	Bituminous.	Total.
New England, New York, and New Jersey	37,416	22,416	.....	59,832
Pennsylvania	68,106	10,241	72,511	150,858
Ohio	.....	28,314	58,939	87,253
States south of Penna., Ohio, and Missouri	1,737	59,071	20,450	81,258
Western States	.....	45,197	5,296	50,493
Total	107,259	165,239	157,196	429,694

The consumption of pig iron in the United States in 1882 was approximately as follows, in gross tons: Production, 4,623,323 tons; importation, 540,159 tons; stocks of domestic pig iron on hand and unsold at the beginning of the year, 188,300 tons; stocks of foreign

pig iron in warehouse at the same time, 9,953 tons; total supply, 5,361,735 tons. From which we deduct 383,655 tons of domestic pig iron in stock at the close of the year, and 14,802 tons of foreign pig iron in warehouse at the same time, or a total of 398,457 tons, leaving 4,963,278 tons as the probable consumption of the year. In our last annual report we similarly estimated the consumption of 1881 at 4,982,565 gross tons. It would appear that our consumption in these years did not greatly vary.

PRODUCTION OF IRON AND STEEL RAILS IN 1882.

For the first time since 1877 our production of rails declined in 1882. The total rail production of 1882 was as follows, in net tons, compared with the production of 1879, 1880, and 1881.

KIND OF RAILS.	1879.	1880.	1881.	1882.
Iron rails	420,160	493,762	488,581	227,874
Bessemer steel rails	683,964	954,460	1,330,302	1,438,155
Open-hearth steel rails	9,149	13,615	25,217	22,765
Total	1,113,273	1,461,837	1,844,100	1,688,794

It will be seen that in 1882 we produced less than half as many tons of iron rails as in 1881, and that our production of open-hearth steel rails in 1882 was somewhat less than in 1881. Our production of Bessemer steel rails increased in 1882 only 107,853 net tons over 1881, whereas in 1881 it increased 375,842 tons over 1880. The production of rails of all kinds in 1882 was 155,306 tons less than in 1881—a decrease of 8 per cent.

There was a decrease in every State but five—Vermont, Massachusetts, Missouri, Colorado, and California, and in Wyoming Territory. No rails were made in 1882 in New Jersey, Virginia, and Georgia, in all of which States rails had been made in 1881. The number of railmaking States fell tc 18 in 1882, against 21 in 1881. The production of Pennsylvania fell from 891,179 tons in 1881 to 850,908 tons in 1882; that of Illinois from 433,420 tons to 362,250 tons; that of Ohio from 153,596 tons to 113,806 tons; and that of New York from 109,283 tons to 105,021 tons. The production of Missouri increased from 64,226 tons to 85,528 tons.

In the following table we give the total rail production of the country in the last five years, in both net and gross tons.

	1878.	1879.	1880.	1881.	1882.
Net tons	882,685	1,113,273	1,461,837	1,844,100	1,688,794
Gross tons	788,111	993,993	1,305,212	1,646,518	1,507,851

The following table shows the production of rails of all kinds in 1882 by States in the order of their prominence.

States.	Net tons.	States.	Net tons.
Pennsylvania	850,908	Massachusetts	15,707
Illinois	362,250	Wyoming Territory	13,253
Ohio	113,806	California	8,200
New York	105,021	Kansas	7,067
Missouri	85,528	Kentucky	2,000
Indiana	28,173	West Virginia	1,436
Vermont	26,100	Alabama	728
Tennessee	25,390	Maine	325
Wisconsin	24,685		
Colorado	18,217	Total	1,688,794

Pennsylvania's share of the total production of 1882 was 50 per cent.; Illinois made 21 per cent.; Ohio 7 per cent.; New York 6 per cent.

The production of iron rails in 1882 was distributed as follows:

States.	Net tons.	States.	Net tons.
Pennsylvania	82,764	New York	4,284
Indiana	28,173	California	3,036
Wisconsin	24,685	Kentucky	2,000
Illinois	21,863	West Virginia	1,436
Tennessee	19,610	Alabama	728
Ohio	18,650	Maine	325
Wyoming Territory	13,253		
Kansas	7,067	Total	227,874

Prior to 1881 a few tons of steel-headed rails were annually included in our statistics of iron rails. In that year and in 1882 no rails of this character were made. The manufacture of these rails may be regarded as having virtually ended.

The production of steel rails from 1874 to 1882 was distributed 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

Included in the production of Bessemer steel rails in 1882 were 103,806 net tons which were rolled in iron rolling mills chiefly from imported blooms. The remainder of the year's product (1,334,349 net tons) was rolled directly by the producers of Bessemer ingots. The importation of steel blooms to be rolled into rails may be regarded as now having virtually come to an end.

The production of street rails in 1882 was 22,286 net tons, being a slight increase over the production in 1881, which was 21,554 tons. The production in 1882 was divided into 11,167 tons of iron rails, 6,949 tons of Bessemer steel rails, and 4,170 tons of open-hearth steel rails.

The production of rails of all kinds in the United States from 1849 to 1882 has been as follows, in net tons.

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		
1857	161,918	1866	430,778	1875	792,512		

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, in net tons.

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

The following table will show approximately the consumption of all kinds of rails in this country from 1867 to 1882, 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

It may be objected to the figures of approximate consumption for 1882 that they are lower than similar figures for 1881, although the mileage of new railroad constructed in 1882 was larger than in 1881, and that, consequently, they can not be correct. The apparent discrepancy may be accounted for by reflecting that so urgent in 1881 were the wants of owners of established roads and the projectors of new roads that they bought many tons of rails which were not laid until 1882. In the latter part of 1882 a similar urgency did not exist. Our figures of approximate consumption do not necessarily imply that all the rails made at home or imported from year to year are actually laid down as promptly as they are provided, but they mean simply that the rails in the table have been manufactured and sold in the years specified, and hence have gone into consumption.

PRODUCTION OF BESSEMER STEEL IN 1882.

The production of Bessemer steel ingots in the United States in 1882 was 1,696,450 net tons, or 1,514,687 gross tons, an increase over 1881 of 157,293 net tons, or 140,440 gross tons. The increased production in 1881 over 1880 was 335,984 net tons, or 299,985 gross tons. A decided check to the progress of this great branch of our steel industry is discoverable in the figures of 1882. The production of Bessemer steel ingots in this country in the eleven years from 1872 to 1882 has been as follows, in net tons:

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

The works of the Colorado Coal and Iron Company, located at South Pueblo, Colorado, made their first blow on April 11, 1882. The new works at Chicago, owned by the North Chicago Rolling Mill Company, were first put in operation on June 14, 1882; they are located at some distance from the company's old works, and hence virtually form a separate establishment, although not classified as such. New Bessemer steel works at Scranton, Pennsylvania, are expected to go into operation this year; they made a trial heat on the 29th of March. A comprehensive exhibit of the fifteen Bessemer steel works of the country which were completed on the 1st of April last is as follows:

Names of Companies.	Converters.
Albany and Rensselaer Iron and Steel Company, Troy, New York	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, Pennsylvania	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, Homestead, Pennsylvania	two 4-ton
Pittsburgh Steel Casting Company, Pittsburgh, Pennsylvania	one 5-ton
Cleveland Rolling Mill Company, Cleveland, Ohio	two 10-ton
North Chicago Rolling Mill Company, Chicago, Illinois (2 plants)	two 6-ton three 10-ton
Union Iron and Steel Company, Chicago, Illinois	two 6-ton
Joliet Steel Company, Joliet, Illinois	two 5-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	38

The following table shows the production of Bessemer steel rails in the United States and Great Britain in the last three years.

Countries.	1880. Gross tons.	1881. Gross tons.	1882. Gross tons.
United States	852,196	1,187,770	1,284,067
Great Britain	739,910	1,023,740	1,235,785
Excess of United States	112,286	164,030	48,282

The following table shows the production of Bessemer steel ingots in the United States and Great Britain in the last three years.

COUNTRIES.	1880. Gross tons.	1881. Gross tons.	1882. Gross tons.
Great Britain	1,044,382	1,441,719	1,673,649
United States	1,074,262	1,374,247	1,514,687
Excess of United States	29,880	.....	.....
Excess of Great Britain	.....	67,472	158,962

The British production of Bessemer steel in 1882 was made by 23 works with 80 working converters, while that of the United States was made by only 14 works with 36 converters.

The production of Bessemer steel ingots in this country from 1874 to 1882 by States has been as follows, in net tons.

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

PRODUCTION OF CRUCIBLE, OPEN-HEARTH, BLISTER, AND MISCELLANEOUS STEEL IN 1882.

The production of crucible steel ingots in the United States in 1882 was 85,089 net tons, a decrease of 4,673 tons upon the production of 89,762 tons in 1881. Here, again, we discover a check in 1882 to the progress of our steel industry. Seven States made crucible steel in 1882, namely, Massachusetts, Connecticut, New York, New Jersey, Pennsylvania, Ohio, and Illinois.

The following table gives the production of crucible steel ingots in various sections of the country from 1874 to 1882, in net tons.

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

The production of open hearth steel ingots in the United States in 1882 was 160,542 net tons, an increase of 13,596 tons upon the production of 146,946 tons in 1881. This was a much less proportionate increase than had taken place in any year since we first began to make open-hearth steel. The product of 1882 was made in eight States, namely, New Hampshire, Vermont, Massachusetts, New Jersey, Pennsylvania, Ohio, Tennessee, and Illinois.

The following table gives the production of open-hearth steel ingots in the United States by districts from 1874 to 1882, in net tons.

STATES.	1874.	1875.	1876.	1877.	1878.	1879.	1880.	1881.	1882.
New England....	5,300	3,010	6,085	6,652	8,228	14,660	20,560	24,600	25,536
New Jersey and Pennsylvania.	1,700	4,240	7,547	7,771	12,231	19,575	50,736	68,363	73,222
Western and Southern.....	.....	1,800	7,858	10,608	15,667	22,055	41,657	53,983	61,784
Total.....	7,000	9,050	21,490	25,031	36,126	56,290	112,953	146,946	160,542

The following table gives the production of blister, puddled, and patented steel in the United States from 1874 to 1882, in net tons. It seems to be unnecessary to further continue from year to year the details of so unimportant a branch of our steel industry.

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

The small quantity of blister, puddled, and patented steel that was made in this country in 1882 was produced in Pennsylvania and Ohio.

The following table gives the production in the United States of crucible steel ingots, blister steel, and puddled and patented steel, from 1865 to 1882, in net tons.

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

PRODUCTION OF ALL KINDS OF STEEL FROM 1872 TO 1882.

The following table gives the production in the United States of all kinds of steel in the eleven years from 1872 to 1882, in net tons.

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	112,353	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

PRODUCTION OF BARS, SHAPES, PLATES, SHEETS, AND OTHER ROLLED IRON IN 1882.

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. Bessemer steel rails are not classed among rolled iron products.

The production of all kinds of rolled iron in the United States in 1882, including iron rails, was 2,493,831 net tons, against 2,643,927 tons in 1881, showing a decrease of 150,096 tons, all of which decrease is, however, accounted for by the great shrinkage in the production of iron rails in 1882. Omitting iron rails, the production of which decreased from 488,581 net tons in 1881 to 227,874 tons in 1882, our production of rolled iron in 1882 was 2,265,957 tons, against 2,155,346 tons in 1881, an increase of 110,611 tons. This was not a large increase, but if we consider the long strike of 1882 in the Pittsburgh and Western rolling mills the wonder is that there was any increase at all. At the same time it must frankly be admitted that our rolling mill capacity has for some time been in advance of the consumptive wants of the country, and that the check to the over-production of rolled iron which was afforded by the strike of 1882 was in no sense a calamity to the manufacturers.

In the following table we give detailed statistics of the production of the different forms of rolled iron in each of the States in 1882, in net tons.

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	10,537	.....	.....	.....	325	10,862
New Hampshire	3,508	.....	.....	.....	.....	3,508
Massachusetts	46,086	35,688	592,276	29,614	.....	111,388
Rhode Island	11,877	.....	.....	.....	.....	11,877
Connecticut	20,676	.....	.....	.....	.....	20,676
New York	131,226	3,023	166	8	4,284	138,541
New Jersey	76,408	2,016	360,340	18,017	.....	96,441
Pennsylvania	685,049	258,603	1,949,405	97,470	82,764	1,123,886
Delaware	25,366	12,895	.....	.....	.....	38,261
Maryland	17,067	16,590	.....	.....	.....	33,657
District of Columbia	121	29	.....	.....	.....	150
Virginia	31,554	.....	169,806	8,490	.....	40,044
Alabama	8,460	.....	.....	.....	728	9,188
West Virginia	5,494	7,991	1,023,711	51,186	1,436	66,107
Kentucky	35,247	16,380	149,382	7,469	2,000	61,096
Tennessee	10,589	.....	171,413	8,571	19,610	38,770
Indiana	23,177	542	394,682	19,734	28,173	71,626
Illinois	48,932	.....	462,956	23,148	21,863	93,943
Ohio	253,933	49,182	796,857	39,843	18,650	361,608
Missouri	12,090	6,055	.....	.....	.....	18,145
Michigan	8,004	3,820	.....	.....	.....	11,824
Wisconsin	39,611	.....	.....	.....	24,685	64,296
Kansas	10,800	.....	.....	.....	7,067	17,867
Nebraska	.....	.....	60,000	3,000	.....	3,000
Colorado	3,934	.....	16,103	805	.....	4,739
Wyoming Ty	3,235	.....	.....	.....	13,253	16,488
California	22,807	.....	.....	.....	3,036	25,843
Total	1,545,788	412,814	6,147,097	307,355	227,874	2,493,831

To better show the relative prominence of the different States in the production of rolled iron in 1882 we give below another table showing the aggregate production of all rolled iron in that year.

States.	Net tons.	States.	Net tons.
Pennsylvania	1,123,886	Connecticut	20,676
Ohio	361,608	Missouri	18,145
New York	138,541	Kansas	17,867
Massachusetts	111,388	Wyoming Ty	16,488
New Jersey	96,441	Rhode Island	11,877
Illinois	93,943	Michigan	11,824
Indiana	71,626	Maine	10,862
West Virginia	66,107	Alabama	9,188
Wisconsin	64,296	Colorado	4,739
Kentucky	61,096	New Hampshire	3,508
Virginia	40,044	Nebraska	3,000
Tennessee	38,770	District of Columbia	150
Delaware	38,261		
Maryland	33,657	Total	2,493,831
California	25,843		

The production of bar, rod, bolt, skelp, hoop, and shaped iron, and rolled axles in the United States in 1882 was as follows:

States.	Net tons.	States.	Net tons.
Pennsylvania	685,049	Missouri	12,090
Ohio	253,933	Rhode Island	11,877
New York	131,226	Kansas	10,800
New Jersey	76,408	Tennessee	10,589
Illinois	48,932	Maine	10,537
Massachusetts	46,086	Alabama	8,460
Wisconsin	39,611	Michigan	8,004
Kentucky	35,247	West Virginia	5,494
Virginia	31,554	Colorado	3,934
Delaware	25,366	New Hampshire	3,508
Indiana	23,177	Wyoming Ty	3,235
California	22,807	District of Columbia	121
Connecticut	20,676		
Maryland	17,067	Total	1,545,788

The production of plate and sheet iron, except nail plate, in the United States in 1882 was as follows:

States.	Net tons.	States.	Net tons.
Pennsylvania	258,603	Michigan	3,820
Ohio	49,182	New York	3,023
Massachusetts	35,688	New Jersey	2,016
Maryland	16,590	Indiana	542
Kentucky	16,380	District of Columoia	29
Delaware	12,895		
West Virginia	7,991	Total	412,814
Missouri	6,055		

The production of cut nails and spikes from nail plate in the United States in 1882 was as follows in kegs of 100 pounds.

States.	Kegs of 100 pounds.	States.	Kegs of 100 pounds.
Pennsylvania	1,949,405	Virginia	169,806
West Virginia	1,023,711	Kentucky	149,382
Ohio	796,857	Nebraska	60,000
Massachusetts	592,276	Colorado	16,103
Illinois	462,956	New York	166
Indiana	394,682		
New Jersey	360,340	Total	6,147,097
Tennessee	171,413		

Our production of cut nails and spikes in 1880 was 5,370,512 kegs, which was larger than in any previous year; in 1881 it was 5,794,206 kegs; in 1882 it was, as above stated, 6,147,097 kegs. A steady increase is shown in these three years, but it would have been much greater in 1882 if the producers had not in that year adopted

and strictly adhered to a policy of restricting production to the actual wants of the country.

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 three years, as compared with the production of the United States.

Districts.	Kegs of 100 pounds.		
	1880.	1881.	1882.
West Virginia	1,025,155	1,241,102	1,023,711
Part of Ohio	445,248	461,020	474,435
Total Wheeling district	1,470,403	1,702,122	1,498,146
Total United States	5,370,512	5,794,206	6,147,097

The following table gives the production of all kinds of rolled iron in the United States from 1864 to 1882, in net tons.

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

PRODUCTS OF FORGES AND BLOOMARIES IN 1882.

As we have heretofore 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 make of each of these products in the last ten years is given below,

in net tons. There has been a steady increase in their production in the last four years.

PRODUCTS.	Net tons of 2,000 pounds.									
	1873.	1874.	1875.	1876.	1877.	1878.	1879.	1880.	1881.	1882.
Blooms and billets from ore	32,863	36,450	24,416	20,784	24,227	24,139	30,282	40,652	45,369	48,354
Blooms from pig and scrap iron	29,701	25,220	24,827	23,844	23,073	25,906	32,071	33,937	39,237	42,939
Total	62,564	61,670	49,243	44,628	47,300	50,045	62,353	74,589	84,606	91,293

The following table shows the proportion of ore blooms and billets made in New York in the past eight 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

The production of both products from 1865 to 1882 has been as follows, in net tons.

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

THE GROWTH OF OUR PIG IRON INDUSTRY BY DECADES.

The following table shows the growth of the pig iron industry of the United States from 1810, in gross tons.

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	1882	4,623,323

TOTAL PRODUCTION OF IRON AND STEEL FROM 1872 TO 1882.

The annexed table shows the total production of iron and steel in the United States in the eleven years from 1872 to 1882, in net tons.

PRODUCTS.	Net tons of 2,000 pounds.										
	1872.	1873.	1874.	1875.	1876.	1877.	1878.	1879.	1880.	1881.	1882.
Pig iron	2,854,558	2,868,278	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
Spiegeleisen, included above	.....	.....	.....	7,852	6,616	8,845	10,674	13,931	19,003	21,086	21,963
Rolled iron, including nails and iron rails	1,847,922	1,857,430	1,694,616	1,599,516	1,509,269	1,476,759	1,555,576	2,047,484	2,332,668	2,648,927	2,493,831
Rolled iron, including nails and excluding rails	941,992	1,076,368	1,110,147	1,097,867	1,042,101	1,144,219	1,252,686	1,627,324	1,838,906	2,155,946	2,265,957
Kegs of cut nails and spikes, included in rolled iron	4,065,322	4,024,704	4,912,180	4,726,881	4,157,814	4,828,918	4,996,130	5,011,021	5,570,512	5,794,206	6,147,067
Bessemer steel rails	94,070	129,015	144,944	290,863	412,461	432,169	550,398	683,964	964,460	1,330,302	1,438,155
Open-hearth steel rails	.....	.....	.....	.....	.....	.....	9,397	9,149	18,615	26,217	22,765
Iron rails	905,890	761,062	584,469	501,649	467,168	332,540	322,890	420,160	493,762	488,581	227,874
Rails of all kinds	1,000,000	890,077	729,413	792,512	879,629	764,709	882,685	1,113,273	1,461,887	1,844,100	1,688,794
Crucible steel ingots	29,260	34,786	36,328	39,401	39,282	40,430	42,906	56,780	72,424	89,762	85,089
Open-hearth steel ingots	3,000	3,500	7,000	9,050	21,400	25,031	36,126	56,260	112,953	146,946	160,542
Bessemer steel ingots	120,108	170,052	191,933	375,517	525,996	560,587	732 236	928,972	1,203,173	1 539,157	1,696,450
Miscellaneous steel	7,740	13,714	6,353	12,007	10,306	11,924	8,556	5,464	8,465	3,047	3,014
Steel of all kinds	160,108	222,052	241,614	436,575	597,174	637,972	819,814	1,047,506	1,397,015	1,778,012	1,945,095
Blooms from ore and pig iron	58,000	62,564	61,670	49,243	44,628	47,300	50,045	62,353	74,580	84,606	91,293

THE IRON AND STEEL PRODUCTION OF ALLEGHENY COUNTY, PENNSYLVANIA.

The following table gives the production of iron and steel in Pittsburgh and the remainder of Allegheny county, Pennsylvania, in 1882 and the eight preceding years, in net tons. Allegheny county is well known to be the leading iron and steel producing county in the United States.

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

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

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

THE PRODUCTION OF IRON ORE IN 1882.

From A. P. Swineford, Esq., the editor of the Marquette *Mining Journal*, we learn that the production of iron ore by the Lake Superior mines in 1882 was 2,943,314 gross tons, or a little more than double the production of 1879 and more than 600,000 tons larger than the production of 1881. The production of the last six years has been as follows, in gross tons:

Years.	Gross tons.	Years.	Gross tons.
1877	1,025,129	1880	1,987,598
1878	1,125,093	1881	2,321,315
1879	1,414,182	1882	2,943,314

The aggregate production of all the Lake Superior iron ore mines since the commencement of their development is 20,585,757 tons, more than the half of which is credited to the six years above mentioned.

Of the product of 1882 the Marquette Range contributed 1,817,595 gross tons, and the Menominee Range 1,125,719 tons. Of this latter amount 276,017 tons came from the two mines in Florence county, Wisconsin, and 93,331 tons from mines located in Marquette county. Apportioning the product among the several counties, Marquette county is credited with a product of 1,886,907 tons; Menominee county with 756,371 tons; Florence (Wis.) county with 276,017 tons, and Baraga (Mich.) county with 24,019 tons.

The total production of iron ore in the Lake Superior district since the beginning of its development is given by Mr. Swineford in the following table, in gross tons.

Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.
1856 and previous...	86,319	1866.....	296,713	1876.....	993,311
1857	25,646	1867.....	465,504	1877.....	1,025,129
1858	22,876	1868.....	510,522	1878.....	1,125,093
1859	68,832	1869.....	639,097	1879.....	1,414,182
1860	114,401	1870.....	859,507	1880.....	1,987,598
1861	114,258	1871.....	813,984	1881.....	2,321,315
1862	124,169	1872.....	948,553	1882.....	2,943,314
1863	203,055	1873.....	1,195,234	Total.....	20,585,757
1864	247,059	1874.....	935,488		
1865	193,758	1875.....	910,840		

Professor George H. Cook, the State Geologist of New Jersey, in his annual report for 1882 places the production of iron ore in that State in the year mentioned at 900,000 gross tons. The production of 1880 was 737,052 tons. Professor Cook has compiled the following table, giving the statistics of the production of iron ore in New Jersey during the past decade, and the estimated production at various intervals in preceding years, in gross tons.

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

The production in 1882 of the Lake Champlain district of New York is estimated by a very well-informed correspondent at 675,000 gross tons, against 637,000 tons in 1881. Included in this district are the Chateaugay mines, from which 224,158 tons were shipped in 1882, according to information received from Mr. A. L. Inman, general manager of the Chateaugay Ore and Iron Company.

Mr. J. Taylor Boyd, general superintendent of the mines of the Cornwall Ore Bank Company, in Lebanon county, Pennsylvania, writes us that the shipments of iron ore from these mines in 1882 amounted to 309,680 gross tons, against 249,050 tons in 1881.

We regret that we have found it to be impossible to procure further information concerning the production of iron ore in the United States in 1882.

COAL STATISTICS FOR 1882 AND PRECEDING YEARS.

The progress of anthracite coal production in Pennsylvania in the past twelve years is shown in the following table, in gross tons.

Years.	Gross tons.	Years.	Gross tons.
1871	15,699,721	1877	20,828,179
1872	19,669,778	1878	17,605,262
1873	21,227,952	1879	26,142,689
1874	20,145,121	1880	23,437,242
1875	19,712,472	1881	28,500,016
1876	18,501,011	1882	29,120,096

In the following table we give, from official sources in the office of the Cumberland and Pennsylvania Railroad Company at Mount Savage, Maryland, the shipments of Cumberland coal from the commencement of the trade in 1842, in gross tons. The shipments aggregated 2,261,918 tons in 1881, but only 1,540,466 tons in 1882.

Years.	Tons.	Years.	Tons.	Years.	Tons.	Years.	Tons.
1842	1,708	1853	533,979	1864	657,996	1875	2,342,773
1843	10,082	1854	659,681	1865	903,495	1876	1,835,081
1844	14,890	1855	662,272	1866	1,079,331	1877	1,574,339
1845	24,653	1856	706,450	1867	1,193,822	1878	1,679,322
1846	29,795	1857	582,486	1868	1,330,443	1879	1,730,709
1847	52,940	1858	649,656	1869	1,882,669	1880	2,136,160
1848	79,571	1859	724,354	1870	1,717,075	1881	2,261,918
1849	142,449	1860	788,909	1871	2,345,153	1882	1,540,466
1850	196,848	1861	269,674	1872	2,355,471		
1851	257,679	1862	317,634	1873	2,674,101	Total,	41,439,452
1852	334,178	1863	748,345	1874	2,410,895		

In the following table we give the statistics of the total shipments of coal and coke by the Monongahela Navigation Company, in

Western Pennsylvania, from 1844, when the first shipments were made, to 1882. The shipments are given in bushels, each thousand bushels being the equivalent of 38 gross tons, which makes the weight of a bushel 85.12 pounds. The company carries but little coke; in 1882 it carried only 4,733,600 bushels.

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

Mr. Frederick E. Saward, in his last annual publication, *The Coal Trade*, gives the total production of coal in the United States in 1882 as 86,862,614 gross tons, against 76,221,934 tons in 1881. Mr. Saward says that his figures "are based upon careful reports."

IRON SHIPBUILDING IN THE UNITED STATES IN 1882.

The following table, compiled from the reports of the Hon. W. P. Titcomb, Assistant Register of the United States Treasury, gives the number and tonnage of iron vessels built in the United States in each fiscal year since 1868, when their construction in this country was commenced. (The fiscal year ends on the 30th of June.) The tonnage of 1882 was much the largest in our history.

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

From the 30th of June, 1882, to the 31st of December of the same year there were built fourteen iron vessels, having a tonnage of 13,792.48 tons. These vessels were built within the jurisdiction of the following ports.

PORTS.	Steam vessels.	Tonnage.
New York	1	891.89
Philadelphia, Pa	9	9,931.92
Wilmington, Del	4	2,968.67
Total	14	13,792.48

The figures given for the first six months of the present fiscal year indicate a decreased tonnage for the whole year as compared with the preceding year.

IMMIGRATION INTO THE UNITED STATES FROM 1861 TO 1882.

During the year 1882 the number of persons of foreign birth who emigrated to the United States was 730,349. The following table shows the annual immigration into the United States in the last twenty-two years.

Calendar years.	Immigrants.	Calendar years.	Immigrants.	Calendar years.	Immigrants
1861	89,724	1869	385,287	1877	130,502
1862	89,007	1870	356,303	1878	153,207
1863	174,524	1871	346,938	1879	250,565
1864	193,195	1872	437,750	1880	593,703
1865	247,453	1873	422,545	1881	720,045
1866	314,917	1874	260,814	1882	730,349
1867	310,965	1875	191,231		
1868	289,145	1876	157,440	Total	6,845,609

The 730,349 immigrants who arrived in the United States in 1882 came from the following countries: Germany, 232,269; Great Britain, 161,428; Dominion of Canada, 86,909; Sweden, 60,413; China, 35,614; Italy, 29,349; Norway, 27,197; Russia, 17,497; Denmark, 12,769; Austria, 12,646; Switzerland, 11,839; Hungary, 11,602; Netherlands, 7,880; Bohemia, 5,669; France, 5,560; Poland, 4,246; Azores, 1,457; West Indies, 1,394; Belgium, 1,129; Australia, 947; Finland, 708; Mexico, 532; Spain, 328; other European countries, 557; other Asiatic countries, 43; Africa, 70; Central America, 5; South America, 88; other islands than those above named, 122; born at sea, 82.

Indications point to a greatly reduced immigration in 1883 as compared with 1882. It has been too large in the last three years.

RAILROAD STATISTICS FOR 1882.

We are usually indebted to Mr. H. V. Poor, the compiler of *Poor's Manual of the Railroads of the United States*, for statistics of the annual growth of our railroads, but this year our annual report goes to press before Mr. Poor has obtained full information concerning the railroad mileage of 1882. We are not, however, without reliable information in relation to the wonderful and unprecedented mileage of that year, and for this we are indebted to *The Railway Age*, of Chicago. This authority, upon the strength of full details received from all sections of the country, states that in 1882 we constructed 11,343 miles of new railroad track, which was about 2,000 miles more than were built in 1881, Mr. Poor having placed the new railroad mileage of that year at 9,358 miles.

The following is Mr. Poor's table of the railroad mileage of the United States from 1830 to 1882, a period of fifty-three years, except for 1882, for which year we give the figures of *The Railway Age*.

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	.....	1848.....	5,996	398	1866.....	36,801	1,716
1831.....	95	72	1849.....	7,365	1,369	1867.....	39,250	2,449
1832.....	229	134	1850.....	9,021	1,656	1868.....	42,229	2,979
1833.....	380	151	1851.....	10,982	1,961	1869.....	46,844	4,615
1834.....	633	253	1852.....	12,908	1,926	1870.....	52,914	6,070
1835.....	1,098	465	1853.....	15,360	2,452	1871.....	60,293	7,379
1836.....	1,273	175	1854.....	16,720	1,360	1872.....	66,171	5,878
1837.....	1,497	224	1855.....	18,374	1,654	1873.....	70,278	4,107
1838.....	1,913	416	1856.....	22,016	3,642	1874.....	72,383	2,105
1839.....	2,302	389	1857.....	24,503	2,487	1875.....	74,096	1,713
1840.....	2,818	516	1858.....	26,968	2,465	1876.....	76,808	2,712
1841.....	3,535	717	1859.....	28,789	1,821	1877.....	79,089	2,281
1842.....	4,026	491	1860.....	30,635	1,846	1878.....	81,776	2,687
1843.....	4,185	159	1861.....	31,286	651	1879.....	86,497	4,721
1844.....	4,377	192	1862.....	32,120	834	1880.....	93,671	7,174
1845.....	4,633	256	1863.....	33,170	1,050	1881.....	103,029	9,358
1846.....	4,930	297	1864.....	33,908	738	1882.....	114,372	11,343
1847.....	5,598	668	1865.....	35,085	1,177			

The figures given in this table denote the length of the railroad lines in the country, without regard to the number of tracks or miles of sidings constructed. At the close of 1881 there were 103,029 miles of railroad in the country, but the total length of single track at that time was 129,240 miles, according to Mr. Poor, who then placed the second and third tracks and sidings at 26,211 miles.

The mileage of new railroad in 1883 may not exceed 6,000 miles.

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 from 1861 to 1882, and during the first eight months of the fiscal year 1883. The phrases "net imports" and "domestic exports" indicate that all merchandise and specie imported and re-exported are excluded from the table. The figures in this table have been very carefully revised for these pages by direction of Mr. Nimmo, the Chief of the Bureau.

Fiscal Years Ended June 30.	Net Imports. *Gold Value.*		Domestic Exports. *Gold Value.*	
	Merchandise.	Specie.	Merchandise.	Specie.
1861	$274,656,325	$40,348,401	$204,899,616	$23,799,870
1862	178,330,200	10,572,063	179,644,024	31,044,651
1863	225,375,280	1,421,056	186,003,912	55,993,562
1864	301,113,322	8,192,633	143,504,027	100,473,562
1865	209,656,525	6,784,970	136,940,248	64,618,124
1866	423,470,646	7,299,395	337,518,102	82,643,374
1867	381,041,764	16,178,299	279,786,809	54,976,196
1868	344,873,441	4,150,241	269,389,900	83,745,975
1869	406,555,379	5,585,462	275,166,697	42,915,966
1870	419,803,113	12,147,315	376,616,473	43,883,802
1871	505,802,414	7,231,395	428,398,908	84,403,359
1872	610,904,622	6,664,395	428,487,131	72,798,240
1873	624,689,727	10,777,909	505,033,439	73,905,546
1874	550,556,723	21,524,187	569,433,421	59,699,686
1875	518,846,825	12,625,704	499,284,100	83,857,129
1876	445,938,766	9,469,070	525,582,247	50,038,691
1877	438,518,130	27,746,915	589,670,224	43,134,738
1878	422,895,034	23,143,074	680,709,268	27,061,885
1879	433,679,124	12,853,594	698,340,790	17,555,035
1880	656,262,441	85,239,284	823,946,353	9,347,893
1881	624,213,229	105,395,594	883,925,947	14,226,944
1882	707,337,049	36,535,182	733,239,732	43,480,271
1883 (Eight months)	472,239,153	13,971,578	560,804,286	15,287,186

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.

The amounts just stated for the years 1874, 1879, 1880, 1881, and 1882 are gold values. Those for 1875, 1876, 1877, and 1878, however, are mixed or currency values. The average gold value of currency for each of those years was as follows: 1875, 88.8; 1876, 87.8; 1877, 92.7; 1878, 97.5.

In the fiscal year 1882 there was a very great increase in our imports of merchandise and a very great decrease in our exports of merchandise as compared with 1881. In 1882 there was a large

decrease in our imports of specie and a large increase in our exports of specie as compared with 1881. The fiscal year 1882 was, indeed, a most unsatisfactory one for our foreign trade. But in the fiscal year 1883, which ends on the 30th of June next, the trade of the United States with foreign countries promises to be much more satisfactory. The figures given in the table for the first eight months of this fiscal year show a large increase in our exports of merchandise but no increase in our imports of merchandise, with no notable variation in the movements of specie either way in that time.

GRAND SUMMARY OF UNITED STATES STATISTICS FOR 1882.

Production of Pig Iron in 1882, net tons	5,178,122
Production of Spiegeleisen in 1882, (included in Pig Iron,) net tons	21,963
Production of all Rolled Iron, including Nails and excluding Rails, in 1882, net tons	2,265,957
Production of Cut Nails and Spikes in 1882, included in all Rolled Iron, kegs of 100 pounds	6,147,097
Production of Bessemer Steel Rails in 1882, net tons	1,438,155
Production of Open-hearth Steel Rails in 1882, net tons	22,765
Production of Iron Rails in 1882, net tons	227,874
Total production of Rails in 1882, net tons	1,688,794
Production of Iron and Steel Street Rails in 1882, (included above,) net tons	22,286
Production of Crucible Steel Ingots in 1882, net tons	85,089
Production of Open-hearth Steel Ingots in 1882, net tons	160,542
Production of Bessemer Steel Ingots in 1882, net tons	1,696,450
Production of Blister and "Patented" Steel in 1882, net tons	3,014
Production of all kinds of Steel in 1882, net tons	1,945,095
Production of Blooms from Ore and Pig Iron in 1882, net tons	91,293
Value of Imports of Iron and Steel in 1882	$67,075,125
Value of Exports of Iron and Steel in 1882	$19,029,759
Imports of Iron Ore in 1882, gross tons	589,655
Production of Lake Superior Iron Ore in 1882, gross tons	2,943,314
Production of Iron Ore in New Jersey in 1882, gross tons	900,000
Production of Anthracite Coal in 1882, gross tons	29,120,096
Total Production of Coal in 1882, gross tons	86,862,614
Miles of Railway Completed in 1882	11,343
Total number of Miles of Railway December 31, 1882	114,372
Iron Ships Built in the fiscal year ended June 30, 1882	43
Immigrants in the calendar year 1882	730,349
Net Imports (merchandise) in the fiscal year 1882	$707,337,049
Domestic Exports (merchandise) in the fiscal year 1882	$733,239,732
Net Imports (mdse.) first 8 months of fiscal year 1883	$472,239,153
Domestic Exports (mdse.) first 8 months of fiscal year 1883	$560,804,286

STOCKS OF ALL KINDS OF PIG IRON UNSOLD AT THE CLOSE OF 1880, 1881, AND 1882.

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.		
		1880.	1881.	1882.
New England and New York		63,549	34,275	47,654
New Jersey		20,780	7,931	12,178
Lehigh Valley	Pennsylvania.	48,306	22,704	24,969
Schuylkill Valley	Pennsylvania.	32,849	23,563	24,029
Upper Susquehanna	Pennsylvania.	4,375	2,123	11,173
Lower Susquehanna	Pennsylvania.	14,053	10,491	7,935
Shenango Valley	Pennsylvania.	26,582	7,108	22,045
Allegheny County	Pennsylvania.	3,553	500	17,272
Miscellaneous bituminous	Pennsylvania.	25,247	1,321	33,194
Charcoal	Pennsylvania.	9,273	5,614	10,241
Total for Pennsylvania.		164,238	73,424	150,858
Maryland		9,028	2,867	7,280
Va., N. C., Ga., Ala., and Tex		16,428	16,124	45,132
West Virginia		5,271	40	4,268
Kentucky		16,215	4,506	11,186
Tennessee		11,643	4,350	13,392
Hanging Rock	Ohio.	33,607	23,791	40,094
Mahoning Valley	Ohio.	12,826	.....	24,672
Miscellaneous	Ohio.	43,804	8,846	22,487
Total for Ohio		90,237	32,637	87,253
Michigan and Indiana		18,643	16,175	29,573
Illinois		25,134	.....	896
Wisconsin and Minnesota		3,340	1,130	5,801
Missouri		12,152	11,695	14,223
Colorado and Pacific States		.....	5,742	.....
Grand total		456,658	210,896	429,694

STOCKS ACCORDING TO FUEL USED.

Bituminous	184,626	36,495	157,196
Anthracite	175,862	90,351	107,259
Charcoal	96,170	84,050	165,239
Total	456,658	210,896	429,694

PRODUCTION OF ALL KINDS OF PIG IRON IN 1880, 1881, AND 1882, BY STATES.

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

STATES.	Net tons of 2,000 pounds.		
	1880.	1881.	1882.
Maine	3,578	4,400	4,100
Vermont	1,800	2,796	1,210
Massachusetts	19,017	18,318	10,335
Connecticut	22,583	28,483	24,342
New York	395,361	359,519	416,156
New Jersey	170,049	171,672	176,805
Pennsylvania	2,083,121	2,190,786	2,449,256
Maryland	61,437	48,756	54,524
Virginia	29,934	83,711	87,731
North Carolina	.....	800	1,150
Georgia	27,321	37,404	42,440
Alabama	77,190	98,081	112,765
Texas	2,500	3,000	1,321
West Virginia	70,338	66,409	73,220
Kentucky	57,708	45,973	66,522
Tennessee	70,873	87,406	137,602
Ohio	674,207	710,546	698,900
Indiana	12,500	7,300	10,000
Illinois	150,556	251,781	360,407
Michigan	154,424	187,043	210,195
Wisconsin	96,842	102,029	85,859
Missouri	105,555	109,799	113,644
Minnesota	3,520	7,442	8,126
Utah Territory	.....	.....	57
Colorado	.....	6,396	23,718
Oregon	5,000	6,100	6,750
California	.....	4,414	987
Washington Territory	.....	1,200	.....
Total	4,295,414	4,641,564	5,178,122

ANTHRACITE PIG IRON.

STATES.	1880.	1881.	1882.
Massachusetts	9,155	5,958	.....
New York	367,517	322,349	385,440
New Jersey	170,049	171,672	176,805
Pennsylvania	1,237,930	1,213,353	1,453,646
Maryland	23,000	21,130	26,247
Total	1,807,651	1,734,462	2,042,138

PRODUCTION OF PIG IRON.—*Continued.*

CHARCOAL PIG IRON.

States.	Net tons of 2,000 pounds.		
	1880.	1881.	1882.
Maine	3,578	4,400	4,100
Vermont	1,800	2,796	1,210
Massachusetts	9,862	12,360	10,335
Connecticut	22,583	28,483	24,342
New York	27,844	30,467	30,716
Pennsylvania	43,374	51,908	49,975
Maryland	33,050	27,626	28,277
Virginia	14,043	19,038	26,133
North Carolina	.....	800	1,150
Georgia	7,277	13,404	15,565
Alabama	37,737	44,221	55,541
Texas	2,500	3,000	1,321
West Virginia	3,245	1,200	.....
Kentucky	21,174	16,778	17,165
Tennessee	16,675	19,046	37,611
Ohio	69,190	66,169	58,654
Indiana	2,000	.....	.....
Michigan	154,424	187,043	210,195
Wisconsin	42,913	47,702	55,369
Missouri	15,769	43,241	54,327
Minnesota	3,520	7,442	8,126
Utah Territory	.....	.....	57
Oregon	5,000	6,100	6,750
California	.....	4,414	987
Washington Territory	.....	1,200	.....
Total	537,558	638,838	697,906

BITUMINOUS COAL AND COKE PIG IRON.

New York	.....	6,703	.....
Pennsylvania	801,817	925,525	945,635
Maryland	5,387	.....	.....
Virginia	15,891	64,673	61,598
Georgia	20,044	24,000	26,875
Alabama	39,453	53,860	57,224
West Virginia	67,093	65,209	73,220
Kentucky	36,534	29,195	49,357
Tennessee	54,198	68,360	99,991
Ohio	605,017	644,377	640,246
Indiana	10,500	7,300	10,000
Illinois	150,556	251,781	360,407
Wisconsin	53,929	54,327	30,490
Missouri	89,786	66,558	59,317
Colorado	.....	6,396	23,718
Total	1,950,205	2,268,264	2,438,078

PRODUCTION OF PIG IRON.—*Continued.*

PRODUCTION ACCORDING TO FUEL USED.

KINDS OF FUEL.	Net tons of 2,000 pounds.		
	1880.	1881.	1882.
Anthracite	1,807,651	1,734,462	2,042,138
Charcoal	537,558	638,838	697,906
Bituminous	1,950,205	2,268,264	2,438,078
Total	4,295,414	4,641,564	5,178,122

PRODUCTION OF PIG IRON IN CERTAIN DISTRICTS.

Pennsylvania.	Lehigh Valley	544,987	560,190	609,338
	Schuylkill Valley	306,926	309,049	342,701
	Upper Susquehanna	168,128	125,785	201,367
	Lower Susquehanna	217,889	218,329	300,240
	Shenango Valley	215,313	198,968	264,078
	Allegheny County	300,497	383,453	358,840
	Miscellaneous coke	286,007	341,104	322,717
	Charcoal	43,374	51,908	49,975
Ohio.	Hanging Rock coke	60,316	77,500	77,364
	Mahoning Valley	226,877	245,737	258,478
	Hocking Valley	85,719	88,146	78,770
	Miscellaneous coke	232,105	232,994	225,634
	Hanging Rock charcoal	64,854	61,487	55,546
	Miscellaneous charcoal	4,336	4,682	3,108

PRODUCTION OF PLATE AND SHEET IRON (EXCLUDING NAIL PLATE) IN THE UNITED STATES IN 1880, 1881, AND 1882.

STATES.	Net tons of 2,000 pounds.		
	1880.	1881.	1882.
New Hampshire	100	.....	.....
Massachusetts	29,640	29,446	35,688
New York	2,062	4,945	3,023
New Jersey	921	1,823	2,016
Pennsylvania	223,940	251,225	258,603
Delaware	10,506	10,355	12,895
Maryland	14,645	14,215	16,590
District of Columbia	11	82	29
West Virginia	5,550	6,234	7,991
Kentucky	10,348	6,035	16,380
Ohio	33,826	37,327	49,182
Indiana	6,500	975	542
Michigan	7,265	5,920	3,820
Missouri	4,343	4,500	6,055
Total	349,657	373,082	412,814

PRODUCTION OF ROLLED IRON (EXCLUDING RAILS AND PLATE AND SHEET IRON) IN 1880, 1881, AND 1882.

States.	Bar, bolt, rod, skelp, hoop, and shaped iron, and rolled axles.—Net tons.		
	1880.	1881.	1882.
Maine	7,639	5,433	10,537
New Hampshire	3,000	3,000	3,508
Massachusetts	48,323	58,524	46,086
Rhode Island	7,632	10,769	11,877
Connecticut	16,046	17,589	20,676
New York	106,274	106,372	131,226
New Jersey	48,995	56,793	76,408
Pennsylvania	551,302	714,113	685,049
Delaware	19,300	23,920	25,366
Maryland	19,400	18,517	17,067
District of Columbia	265	220	121
Virginia	31,441	33,984	31,554
Georgia	1,022	3,000	.....
Alabama	6,304	8,772	8,460
West Virginia	4,638	4,106	5,494
Kentucky	20,677	15,425	35,247
Tennessee	6,215	5,158	10,589
Ohio	182,677	229,247	253,933
Indiana	17,908	20,485	23,177
Illinois	33,647	52,500	48,932
Michigan	12,539	14,685	8,004
Wisconsin	34,683	47,478	39,611
Missouri	20,942	12,141	12,090
California	10,555	14,204	22,807
Kansas	8,900	10,528	10,800
Wyoming Territory	400	3,286	3,235
Colorado	.....	2,306	3,934
Total	1,220,724	1,492,555	1,545,788

PRODUCTION OF CUT NAILS IN KEGS OF 100 POUNDS.

Massachusetts	532,299	525,089	592,276
New York	7,482	2,256	166
New Jersey	294,122	248,521	360,340
Pennsylvania	1,737,560	1,914,706	1,949,405
Virginia	123,728	127,566	169,806
West Virginia	1,025,155	1,241,102	1,023,711
Kentucky	120,900	69,000	149,382
Tennessee	64,503	94,495	171,413
Ohio	824,683	860,665	796,857
Indiana	289,948	326,496	394,682
Illinois	290,132	352,643	462,956
Nebraska	60,000	31,667	60,000
Colorado	.....	.....	16,103
Total	5,370,512	5,794,206	6,147,097

PRODUCTION OF ALL KINDS OF ROLLED IRON (INCLUDING RAILS AND NAIL PLATE) IN THE UNITED STATES IN 1880, 1881, AND 1882, BY STATES.

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

States.	Net tons.		
	1880.	1881.	1882.
Maine	7,639	7,616	10,862
New Hampshire	3,100	3,000	3,508
Vermont	1,650	.....	.....
Massachusetts	114,250	116,846	111,388
Rhode Island	7,632	10,769	11,877
Connecticut	16,046	17,589	20,676
New York	147,601	123,366	138,541
New Jersey	64,622	71,286	96,441
Pennsylvania	1,032,602	1,254,866	1,123,886
Delaware	29,806	34,275	38,261
Maryland	40,932	32,732	33,657
District of Columbia	276	302	150
Virginia	37,734	41,002	40,044
Georgia	1,507	7,000	.....
Alabama	6,604	11,072	9,188
West Virginia	63,601	75,547	66,107
Kentucky	51,406	29,915	61,096
Tennessee	25,402	33,793	38,770
Ohio	308,566	345,727	361,608
Indiana	80,428	82,430	71,626
Illinois	109,429	148,818	93,943
Michigan	19,804	20,605	11,824
Wisconsin	64,890	88,643	64,296
Missouri	26,558	16,641	18,145
Wyoming Territory	9,821	15,172	16,488
Kansas	37,985	29,544	17,867
California	15,277	19,839	25,843
Colorado	4,500	3,949	4,739
Nebraska	3,000	1,583	3,000
Total	2,332,668	2,643,927	2,493,831

PRODUCTION OF IRON AND STEEL RAILS IN THE UNITED STATES IN 1880, 1881, AND 1882, BY STATES.

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

States.	Net tons.			Per cent. of total production in 1882.	Per cent. decrease on 1881.
	1880.	1881.	1882.		
Pennsylvania	670,198	891,179	850,908	50	5
Illinois	322,883	433,420	362,250	21	16
Ohio	133,487	153,596	113,806	7	26
New York	109,921	109,283	105,021	6	4
Missouri	35,746	64,226	85,528	5	Increase.
Indiana	41,523	44,645	28,173	2	37
Vermont	17,650	15,200	26,100	2	Increase.
Tennessee	18,552	32,660	25,390	2	22
Wisconsin	30,207	41,165	24,685	1	40
Colorado	4,500	1,643	18,217	1	Increase.
Massachusetts	9,672	2,622	15,707	Less than 1 per cent. each.	Increase.
Wyoming Ty	9,421	11,886	13,253		Increase.
California	4,722	6,035	8,200		Increase.
Kansas	29,085	19,016	7,067		63
Kentucky	14,336	5,005	2,000		60
Georgia	485	4,000	.....		.....
West Virginia	2,155	3,152	1,436		54
Alabama	300	2,300	728		68
Maine	.....	2,183	325		85
Virginia	107	640	.....		.....
New Jersey	.....	244	.....		.....
Maryland	6,887	.....	.....		.....
Total	1,461,837	1,844,100	1,688,794	.....	8

PRODUCTION OF ALL SIZES OF IRON RAILS IN THE UNITED STATES IN 1880, 1881, AND 1882, BY STATES.

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

States.	Net tons.		
	1880.	1881.	1882.
Maine	.....	2,183	325
Vermont	1,650	.....	.....
Massachusetts	9,672	2,622	.....
New York	38,891	11,936	4,284
New Jersey	.....	244	.....
Pennsylvania	170,482	193,793	82,764
Maryland	6,887	.....	.....
Virginia	107	640	.....
Georgia	485	4,000	.....
Alabama	300	2,300	728
West Virginia	2,155	3,152	1,436
Kentucky	14,336	5,005	2,000
Tennessee	15,962	23,910	19,610
Ohio	50,829	36,120	18,650
Indiana	41,523	44,645	28,173
Illinois	61,275	78,686	21,863
Wisconsin	30,207	41,165	24,685
Missouri	1,273	.....	.....
Wyoming Territory	9,421	11,886	13,253
Kansas	29,085	19,016	7,067
California	4,722	5,635	3,036
Colorado	4,500	1,643	.....
Total	493,762	488,581	227,874

AVERAGE PRICES OF No. 1 ANTHRACITE FOUNDRY PIG IRON IN PHILADELPHIA, FROM 1842 TO 1883.—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	26½	24½	25½	25	25	25	.....	..1842
1844..	24	24	24	24	24	26⅛	26½	26½	27¼	28	27½	26¾	25⅜	..1844
1845..	26¼	26½	27¾	33⅛	34⅛	33	31	28½	27	26⅞	28⅛	28	29¼	..1845
1846..	28	28	28¼	28	28½	28	29	26½	27¼	27	28½	28¼	27⅞	..1846
1847..	28½	28⅛	28⅝	29	29	28⅝	28	28½	30½	33¾	35⅜	33⅜	30¼	..1847
1848..	31	28½	27½	26⅝	26½	26¼	25¾	25½	25½	25	25	24⅞	26½	..1848
1849..	25	24½	24¾	24	†23½	23	†22¾	22½	†21⅞	21½	20	21	†22½	..1849
1850..	21	21	20⅔	20⅞	20⅞	20⅛	20	20⅞	21	21	21	21¾	20⅞	..1850
1851..	21⅛	22	22	22	21⅞	21½	21	21	21	21	21	21	21⅜	..1851
1852..	21¼	21⅛	20¾	20⅜	20¼	20½	20¼	21¼	23¼	26½	27¾	28¾	22⅝	..1852
1853..	32¾	36⅞	35⅜	35⅞	35⅞	36	36	36	36¼	37⅜	37⅝	36¾	36½	..1853
1854..	37	36¼	37	38	38	38	38	38	37¾	36½	35½	32⅞	36⅞	..1854
1855..	31⅛	29½	27⅛	26¾	26½	26⅛	26⅛	26½	28	28⅝	28½	27¾	27⅜	..1855
1856..	27½	27½	27½	28	28	27½	27	27	27	26¾	26	26	27½	..1856
1857..	26¼	26½	26⅜	27¾	27⅞	27¾	27¼	26¾	26⅜	25¾	23½	23¾	26⅜	..1857
1858..	23⅛	22½	22½	22½	22½	22½	21⅜	21½	22	21½	21¾	22½	22¼	..1858
1859..	22¾	23⅝	24½	23⅞	23½	23⅛	23	23⅛	22⅞	23¾	23¼	23½	23⅜	..1859
1860..	23	23	23⅜	22⅜	22¼	22¼	22¾	22⅛	22¼	22⅜	22⅝	22½	22⅜	..1860
1861..	22⅛	21¾	21¼	21⅞	21⅛	20½	19⅞	18¾	18¾	18⅝	18⅞	19½	20¼	..1861
1862..	20	20¾	20½	21½	21½	22¾	24	24⅜	24½	25¼	30½	31½	23⅞	..1862
1863..	32	33½	35¼	36	34⅜	33½	32¾	31¾	33	35¾	41½	43½	35½	..1863
1864..	43½	48⅜	50½	54½	57¼	57⅝	60½	‡73⅝	72¼	63¾	61½	59⅝	¶59¼	..1864
1865..	58⅛	53⅛	50⅜	45½	39⅛	35	35⅜	40⅛	44½	49⅜	51	50¾	46½	..1865
1866..	50⅜	49	46½	41¾	41⅜	43⅞	46½	47¼	48½	48¾	49½	49½	46⅞	..1866
1867..	48¾	46½	44¾	41	42¾	43	43½	44	44½	44½	43¾	42⅝	44⅛	..1867
1868..	38⅜	36¾	37⅞	38⅛	37	37	38½	39¼	40½	41⅜	42⅝	43¼	39¼	..1868
1869..	42	40½	41⅛	40	39¼	40⅞	41⅝	41½	40¾	40½	39¾	39½	40⅝	..1869
1870..	36¼	34½	34½	33¼	33½	32½	32¾	33½	33¾	32½	31½	31½	33¼	..1870
1871..	30½	30⅞	34¼	35⅜	35¼	35	35¼	36	36¼	36⅔	37¼	37½	35⅛	..1871
1872..	37	40¾	47	49½	49½	53⅜	51¼	52¾	53⅔	53½	51¼	47½	48⅞	..1872
1873..	45⅛	48	48⅜	47¾	46	45	43¾	43½	42½	38	33	32½	42¾	..1873
1874..	32	32	32	32	31½	31½	31½	31	29½	29	26¼	24	30¼	..1874
1875..	25⅜	26½	27	27	26	26	26	26	25	24	23¾	23½	25½	..1875
1876..	23½	23	23	23¾	22	22	22	22	21¾	21¾	21½	21¼	22½	..1876
1877..	20¾	20	20	19½	19	18¾	18¼	18	18¼	18½	18	18	18⅜	..1877
1878..	18½	18⅛	18½	18½	18	17¼	17⅛	17⅛	17⅛	17	‖16½	17	‖17⅝	..1878
1879..	17¼	17½	17⅞	18	18½	18¾	19¾	20¾	24½	30	28	30½	21½	..1879
1880..	40	41	37½	31	25	23	23½	25	23¼	23	24½	25	28½	..1880
1881..	25	25¼	26	25	25	24	24½	24¼	25¼	25¼	25¾	26	25⅛	..1881
1882..	26	26	25¾	25½	25½	25⅛	25½	25½	26	26¼	26	25¾	25¾	..1882
1883..	25	24½	24	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	..1883

* 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 1883 averaged from weekly quotations in The Bulletin of The American Iron and Steel Association.

AVERAGE PRICES OF IRON RAILS, AT MILLS IN EASTERN PENNSYLVANIA, FROM 1847 TO 1882.—PER TON OF 2,240 LBS.

YEARS.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Average.	Average price of gold.
	$	$	$	$	$	$	$	$	$	$	$	$	$	
1847...	.....	71¾	70⅛	70	70	70	69½	69¼	67½	67	67½	67½	.....	100
1848...	63	63	63	63	63	63	63	61⅞	61⅜	61	61	61	62¼	100
1849...	61	57½	53¾	53⅓	54¼	53½	53½	53¼	52	51½	51½	51½	53⅞	100
1850...	47	47½	48	49	49	50	46	46¾	47½	48	48	48	47⅜	100
1851...	43	45	47½	45	45	48	46	45½	45	45	46	46¼	45⅝	100
1852...	46⅛	46⅛	46⅛	46⅛	46⅛	46⅛	46⅛	46⅛	47¾	49¼	51	61	48⅜	100
1853...	74⅛	77½	77½	77½	77½	77½	77½	77½	77½	77½	77½	77½	77¼	100
1854...	81	81	81	81	81	81	81	81	81	81	77½	73½	80⅛	100
1855...	70	65	62½	62½	60	58⅓	59½	59½	64½	65	65	63	62⅝	100
1856...	62½	62½	63⅜	65	65	65	65	65	65	65	65	64	64⅜	100
1857...	65½	65½	64½	65¼	67	67	67	67	67	67	58½	50	64¼	100
1858...	50	50	50	50	50	50	50	50	50	50	50	50	50	100
1850...	49¾	49¼	49¼	50⅛	50¼	50¼	49¾	48¾	48¾	48¾	48¾	48¾	49⅛	100
1860...	48¾	48¼	48¾	48¾	48¾	48¾	48¾	46	47	47½	47½	46½	48	100
1861...	44	44	44	44	44	44	44	43½	43	41⅝	36½	36½	42⅜	100
1862...	36½	36½	41½	41¼	41½	41½	41½	41¾	43	43¾	46	46	41½	113
1863...	72½	69¼	72¾	73½	73½	78¾	81½	73⅜	72½	79½	87½	87½	76⅞	145
1864...	94	101¼	105	111	120	127½	141½	152½	153¾	140	133¾	132	126	202
1865...	125⅞	121¼	116¼	108½	90¼	84¼	82½	86¼	90	92½	95	91	98⅝	157
1866...	90	90	87½	84¾	84	85¾	86⅜	87	87⅝	87⅜	85	85	86¼	140
1867...	85	85	84¼	82⅞	82½	82½	82½	82½	82½	82½	82½	82½	83⅛	138
1868...	81⅜	79	79	79	79	79	79	79	79	78¼	76	78½	78⅜	140
1869...	76¾	76	76	76	76	76	76	80	78½	78½	78¼	78½	77¼	136
1870...	74	72½	72½	72½	72⅛	72½	72½	72½	72½	72½	70½	70	72¼	115
1871...	68¼	69	69	69½	71	71	71	71	71	71	71	71	70⅜	112
1872...	71⅛	75⅞	81⅛	83⅜	90¼	90	89	87¾	88¼	88¼	88¼	85½	85⅛	112
1873...	83½	83	83	82	80	78	76	75	75	70	68	66	76⅜	113
1874...	66	64	62	60	60	60	60	58	58	55	52	50	58¾	112
1875...	50	50	50	49	49	49	48½	47	46½	46	45½	43¾	47⅜	114
1876...	43½	43	42½	42	42	41	41	41	40	40	39½	39	41¼	110
1877...	38	38	38	37½	37	34½	34½	34	33	32½	33	33	35¼	105
1878...	33½	33½	33½	33½	33½	33½	34	34	34	34	34	34	33⅝	102
1879...	34	34½	35	35½	37½	38½	40	41	44	48	53	54	41¼	100
1880...	65	68	66	60	50	46¼	45	46	46	46	46½	45¼	49¼	100
1881...	46⅛	47½	47	47	46½	46½	46¾	47	47¾	47½	47¾	48	47⅛	100
1882...	48½	48½	47½	47	44¾	44¾	45	45	No	quotations.			.....	100

AVERAGE PRICES OF BESSEMER STEEL RAILS, AT WORKS IN PENNSYLVANIA, FROM 1868 TO 1883.—PER TON OF 2,240 LBS.

YEARS.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Yearly Average.
	$	$	$	$	$	$	$	$	$	$	$	$	$
1868...	165	167¼	174	172	165	162½	150	150	150	150	148	147½	158⅛
1869...	145	143¾	135	134	130¼	128	130	130	130	130½	130¼	120	132⅝
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	120¾	112
1873...	121	122	122½	120¼	120	121¾	121¾	121¾	118	120	120	120	120¼
1874...	117½	117½	115	98⅔	98½	96¼	91	89¼	78¼	78¼	75⅝	75⅝	94¼
1875...	71	71	71	69	69	69	69	69	69	67	66	65	68⅜
1876...	67	65	62	62	62	60	59	59	56	54	53	52	59⅞
1877...	49	49	49	49	47¼	46½	45¼	44⅜	44	42¼	40½	40½	45⅓
1878...	41	41½	41½	42	43½	43	43½	42½	42½	42½	42	41	42⅝
1879...	41	42	43	42½	42	43	44	48	50	55	61	67	48¾
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	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

AVERAGE WHOLESALE STORE PRICES OF BEST REFINED ROLLED BAR IRON IN PHILADELPHIA, FROM 1844 TO 1883.

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	95 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	109 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	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...	56 00	53 76	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

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, $40.32. The highest average price reached in any year was in 1864, $146.46; the lowest average price in any year was in 1878, $44.24.

PRICES IN DOLLARS OF ANTHRACITE COAL FROM 1826 TO 1883.

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..	3.26	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	3.33	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	.....	.....	.....	.....	.....	.....	.....	.....	.....

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 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	52.01	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

IMPORTS OF IRON AND STEEL AND MANUFACTURES THEREOF INTO THE UNITED STATES FROM ALL COUNTRIES DURING THE CALENDAR YEARS 1880, 1881, AND 1882.

(GOLD VALUES.)

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

COMMODITIES.	1880.		1881.		1882.	
	Net tons.	Values.	Net tons.	Values.	Net tons.	Values.
Pig iron	784,968	$14,998,212	520,835	$8,923,465	604,978	$9,896,669
Castings	114	6,806	632	37,625	2,079	115,691
Bar iron	126,987	5,721,828	47,820	2,075,161	79,220	3,304,967
Boiler iron	168	7,817	290	9,724	175	12,631
Band, hoop, and scroll iron	25,322	1,032,026	827	28,296	6,021	208,825
Railroad bars, of iron	132,459	4,094,550	137,013	3,464,989	41,992	1,077,059
Railroad bars, of steel	158,230	5,098,351	249,308	7,649,498	182,135	5,403,980
Sheet iron	11,412	943,669	8,121	613,810	12,985	794,017
Old and scrap iron	694,273	14,704,879	151,107	2,705,072	164,591	2,736,483
Anchors, cables, and chains	1,393	140,808	1,520	134,390	1,530	142,108
Hardware	.....	116,253	.....	84,013	.....	77,966
Machinery	.....	1,601,523	.....	1,739,486	.....	2,275,753
Fire-arms	.....	1,083,305	.....	1,334,004	.....	1,656,349
Steel ingots, bars, sheets, and wire	.....	5,583,363	.....	9,949,918	.....	12,990,233
Cutlery	.....	1,894,675	.....	1,954,317	.....	2,027,496
Files	.....	159,817	.....	168,506	.....	169,885
Saws and tools	.....	5,862	.....	24,205	.....	32,775
Tin-plates	177,015	16,478,110	204,966	14,886,907	239,665	17,975,161
Other manufactures	.....	6,771,508	.....	5,771,691	.....	6,177,077
Total	2,112,341	$80,443,362	1,322,439	$61,555,077	1,335,371	$67,075,125

DOMESTIC EXPORTS OF IRON AND STEEL AND MANUFACTURES THEREOF FROM THE UNITED STATES TO ALL COUNTRIES DURING THE CALENDAR YEARS 1880, 1881, AND 1882.—GOLD VALUES.

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

COMMODITIES.	1880.		1881.		1882.	
	Quantities.	Values.	Quantities.	Values.	Quantities.	Values.
IRON AND MANUFACTURES OF:						
Pig iron.....Net tons.	2,096	$70,496	6,897	$184,364	6,245	$186,221
Bar iron..... "	383	31,426	448	32,325	847	60,628
Boiler-plate iron..... "	143	11,535	69	5,578	41	3,425
Railroad bars or rails..... "	1,006	40,671	597	34,262	2,518	126,878
Sheet, band, and hoop..... "	138	15,882	115	8,895	122	11,537
Castings, not specified.....	.....	211,682	.....	288,005	.....	378,884
Car-wheels.....No.	8,673	96,901	13,643	139,222	14,370	149,320
Stoves, and parts of.....	.....	120,781	.....	142,097	.....	213,158
Steam-engines, locomotives.....No.	73	651,686	104	913,952	174	1,878,528
Steam-engines, stationary..... "	98	130,431	94	88,158	104	183,211
Boilers, separate from engines.....	.....	84,707	.....	161,121	.....	189,413
Machinery, not specified.....	.....	3,685,205	.....	4,817,698	.....	6,129,244
Nails and spikes.....Net tons.	3,935	318,283	4,577	312,059	4,053	320,753
All other manufactures of iron.....	.....	4,654,409	.....	5,766,262	.....	6,490,223
STEEL AND MANUFACTURES OF:						
Ingots, bars, sheets, and wire.....Net tons.	148	35,568	235	46,457	501	89,076
Cutlery.....	.....	73,563	.....	96,552	.....	91,994
Edge-tools.....	.....	967,988	.....	1,115,156	.....	997,032
Files and saws.....	.....	31,877	.....	42,355	.....	68,210
Fire-arms.....	.....	1,370,149	.....	1,018,471	.....	927,180
Railroad bars or rails.....Net tons.	67	6,541	87	7,123	1,088	81,350
All other manufactures of steel.....	.....	351,214	.....	562,090	.....	453,494
Total exports of iron and steel.....	.....	$12,960,995	.....	$15,782,202	.....	$19,029,759
AGRICULTURAL IMPLEMENTS:						
Fanning mills.....No.	25	$797	2	$51	109	$1,333
Horse-powers..... "	8	1,005	37	9,065	61	20,350
Mowers and reapers..... "	6,862	811,965	6,210	656,274	11,420	1,127,925
Plows and cultivators..... "	22,633	189,908	21,245	180,239	35,564	335,643
All others not specified.....	.....	1,460,215	.....	1,576,207	.....	1,941,988
SCALES AND BALANCES.....	.....	293,024	.....	234,777	.....	315,898
SEWING-MACHINES.....	.....	1,896,149	.....	2,179,770	.....	2,975,616
FIRE-ENGINES AND APPARATUS.....	.....	6,535	.....	19,372	.....	27,561
Total agricultural implements, etc.....	.....	$4,659,598	.....	$4,855,755	.....	$6,746,314

THE NEW TARIFF ON IRON AND STEEL.

APPROVED BY THE PRESIDENT MARCH 3, 1883, AND TO GO INTO EFFECT JULY 1, 1883.

Iron ore, including manganiferous iron ore, also the dross or residuum from burnt pyrites, *seventy-five cents per ton.* Sulphur ore, as pyrites or sulphuret of iron in its natural state, containing not more than three and one half per centum of copper, *seventy-five cents per ton: Provided,* That ore containing more than two per centum of copper shall pay, *in addition thereto, two and one-half cents per pound* for the copper contained therein.

Iron in pigs, iron kentledge, spiegeleisen, wrought and cast scrap iron, and scrap steel, *three-tenths of one cent per pound;* but nothing shall be deemed scrap iron or scrap steel except waste or refuse iron or steel that has been in actual use and is fit only to be remanufactured.

Iron railway-bars, weighing more than twenty-five pounds to the yard, *seven-tenths of one cent per pound.*

Steel railway-bars and railway-bars made in part of steel, weighing more than twenty-five pounds to the yard, *seventeen dollars per ton.*

Iron or steel tee rails, weighing not over twenty-five pounds to the yard, *nine-tenths of one cent per pound;* iron or steel flat rails, punched, *eight-tenths of one cent per pound.*

Bar iron, rolled or hammered, comprising flats not less than one inch wide, nor less than three-eighths of one inch thick, *eight-tenths of one cent per pound*; comprising round iron not less than three-fourths of one inch in diameter, and square iron not less than three-fourths of one inch square, *one cent per pound*; comprising flats less than one inch wide, or less than three-eighths of one inch thick; round iron less than three-fourths of one inch and not less than seven-sixteenths of one inch in diameter, and square iron less than three-fourths of one inch square, *one and one-tenth of one cent per pound: Provided,* That all iron in slabs, blooms, loops, or other forms less finished than iron in bars, and more advanced than pig iron, except castings, shall be rated as iron in bars, and pay a duty accordingly: and none of the above iron shall pay

PRESENT DUTIES ON IRON AND STEEL.

[The figures refer to the numbered paragraphs in the Indexed Tariff published by the Treasury Department. The statements in brackets are mainly references to Treasury Department decisions.]

414. Mineral and bituminous substances in a crude state not otherwise provided for: *twenty per centum ad valorem.*

[Includes iron ore and magnetic iron sand.]

67. Iron in pigs: *seven dollars per ton.*

[Iron kentledge, which is pig iron cast specially for ballasting ships, was formerly ruled to be dutiable under this clause, but is now held to be "castings of iron not otherwise provided for," dutiable at 30 per cent. Spiegeleisen is dutiable under the above clause; also, manganese iron and so-called "Bessemer pig iron;" also "iron dirt"– rust, scale, etc.]

113. Cast scrap iron of every description: *six dollars per ton.*

114. Wrought scrap iron of every description: *eight dollars per ton.*

But nothing shall be deemed scrap iron except waste or refuse iron that has been in actual use, and is fit only to be remanufactured.

[New pieces, such as punchings and clippings, are held to be dutiable under paragraph 68 at 1 cent per pound.]

[For scrap steel see "120. Steel in any form not otherwise provided for," below: *thirty per cent.*]

70. Iron bars for railroads or inclined planes: *seventy cents per one hundred pounds.*

92. Steel railway bars: *one cent and one-fourth per pound.*

93. Railway bars, made in part of steel: *one cent per pound.* And metal converted, cast, or made from iron by the Bessemer or pneumatic process, of whatever form or description, shall be classed as steel.

68. Bar iron, rolled or hammered, comprising flats not less than one inch or more than six inches wide, nor less than three-eighths of an inch or more than two inches thick; rounds not less than three-fourths of an inch nor more than two inches in diameter; and squares not less than three-fourths of an inch nor more than two inches square: *one cent per pound.*

Bar iron, rolled or hammered, comprising flats less than three-eighths of an inch or more than two inches thick, or less than one inch or more than six inches wide; rounds less than three-fourths of an inch or more than two inches in diameter; and squares less than three-fourths of an inch or more than two inches square: *one cent and one-half per pound.*

But all iron in slabs, blooms, loops, or other forms, less finished than

NEW DUTIES ON IRON AND STEEL.—*Continued.*

a less rate of duty than *thirty-five per centum ad valorem: Provided, further,* That all iron bars, blooms, billets, or sizes or shapes of any kind, in the manufacture of which charcoal is used as fuel, shall be subject to a duty *of twenty-two dollars per ton.*

Round iron, in coils or rods, less than seven-sixteenths of one inch in diameter, and bars or shapes of rolled iron not specially enumerated or provided for in this act, *one and two-tenths of one cent per pound.*

Boiler or other plate iron, sheared or unsheared, skelp-iron, sheared or rolled in grooves, *one and one-fourth cents per pound;* sheet iron, common or black, thinner than one inch and one-half and not thinner than number twenty wire gauge, *one and one-tenth of one cent per pound;* thinner than number twenty wire gauge and not thinner than number twenty-five wire gauge, *one and two-tenths of one cent per pound;* thinner than number twenty-five wire gauge and not thinner than number twenty-nine wire gauge, *one and five-tenths of one cent per pound;* thinner than number twenty-nine wire gauge, and all iron commercially known as common or black taggers iron, whether put up in boxes or bundles, or not, *thirty per centum ad valorem: And provided,* That on all such iron and steel sheets or plates aforesaid excepting on what are known commercially as tin-plates, terne-plates, and taggers-tin, and hereafter provided for, when galvanized or coated with zinc or spelter, or other metals, or any alloy of those metals, *three-fourths of one cent per pound additional.*

Polished, planished, or glanced sheet iron, or sheet steel, by whatever name designated, *two and one-half cents per pound: Provided,* That plate or sheet or taggers iron, by whatever name designated, other than the polished, planished, or glanced herein provided for, which has been pickled or cleaned by acid, or by any other material or process, and

PRESENT DUTIES ON IRON AND STEEL.—*Continued.*

iron in bars, and more advanced than pig iron, except castings, shall be rated as iron in bars, and pay a duty accordingly; and none of the above iron shall pay a less rate of duty than *thirty-five per centum ad valorem.*

[Includes all pieces of new bar iron, bar ends, and punchings and clippings fit to be made into wire or other articles; and when such pieces constitute any considerable proportion of so-called "scrap iron" the whole is dutiable as bar iron. Also includes horseshoe iron and all similar iron, "regardless of length, designation, or quality," and iron blooms.]

69. [*a.* The duty on Moisic iron, of whatever condition, grade, or stage of manufacture, shall be the same as on all other species of iron of like condition, grade, or stage of manufacture. Act of February 8, 1875, sec. 6.]

82. All other descriptions of rolled or hammered iron not otherwise provided for: *one cent and one-quarter per pound.*

[Includes iron wire rods, in coils, of over 3–16 inch thick, car-truck channels, hammered forgings from scrap, iron beams and other structural iron, gas strips, octagonal bar iron, toe-calk iron, and nail plates.]

81. Slit rods: *one cent and one-half per pound.*

71. Boiler or other plate iron not less than three-sixteenths of an inch in thickness: *one cent and one-half per pound.*

[Includes so-called "sheet iron" which is fit for some uses of plate iron, as tank and shutter plates. Also includes tank plates *not* under 3–16 inch thick, cut to all sizes and punched.]

72. Boiler and other plate iron, not otherwise provided for: *twenty-five dollars per ton.*

[Includes plates cut to all sizes and punched, if under 3–16 inch thick. Slab iron for the manufacture of safes is dutiable either as plate or sheet iron according to its thickness.]

77. Sheet iron, common or black, not thinner than number twenty wire gauge: *one cent and one-quarter per pound;* thinner than number twenty and not thinner than number twenty-five wire gauge: *one cent and one-half per pound;* thinner than number twenty-five wire gauge: *one cent and three-quarters per pound.*

[Includes sheet iron of slightly polished appearance from being rolled in single sheets to toughen it for making spoons, etc.]

116. Taggers iron: *thirty per centum ad valorem.*

131. Iron and tin-plates galvanized or coated with any metal otherwise than by electric batteries: *two cents and one-half per pound.*

[Includes tin-coated strips for the manufacture of hoops for buckets, etc.]

130. Iron and tin-plates galvanized or coated with any metal by electric batteries: *two cents per pound.*

76. Smooth or polished sheet iron, by whatever name designated: *three cents per pound.*

NEW DUTIES ON IRON AND STEEL.—*Continued.*

which is cold rolled, shall pay *one-quarter cent per pound more duty* than the corresponding gauges of common or black sheet or taggers iron.

Iron or steel sheets, or plates, or taggers iron, coated with tin or lead, or with a mixture of which these metals is a component part, by the dipping or any other process, and commercially known as tin-plates, terne-plates, and taggers-tin, *one cent per pound;* corrugated or crimped sheet iron or steel, *one and four-tenths of one cent per pound.*

Hoop, or band, or scroll, or other iron, eight inches or less in width, and not thinner than number ten wire gauge, *one cent per pound;* thinner than number ten wire gauge and not thinner than number twenty wire gauge, *one and two-tenths of one cent per pound;* thinner than number twenty wire gauge, *one and four-tenths of one cent per pound: Provided,* That all articles not specially enumerated or provided for in this act, whether wholly or partly manufactured, made from sheet, plate, hoop, band, or scroll iron herein provided for, or of which such sheet, plate, hoop, band, or scroll iron shall be the material of chief value, shall pay *one-fourth of one cent per pound more duty* than that imposed on the iron from which they are made, or which shall be such material of chief value.

Iron and steel cotton-ties, or hoops for baling purposes, not thinner than number twenty wire gauge, *thirty-five per centum ad valorem.*

Cast-iron pipe of every description, *one cent per pound.*

Cast-iron vessels, plates, stove-plates, andirons, sad-irons, tailors' irons, hatters' irons, and castings of iron, not specially enumerated or provided for in this act, *one and one-quarter of one cent per pound.*

Cut nails and spikes, of iron or steel, *one and one-quarter of one cent per pound.*

Cut tacks, brads, or sprigs, not exceeding sixteen ounces to the thousand, *two and one-half cents per thousand;* exceeding sixteen ounces to the thousand, *three cents per pound.*

Iron or steel railway fish-plates, or splice-bars, *one and one-fourth of one cent per pound.*

Malleable iron castings, not specially enumerated or provided for in this act, *two cents per pound.*

Wrought iron or steel spikes, nuts, and washers, and horse, mule, or ox shoes, *two cents per pound.*

Iron or steel rivets, bolts, with or without threads or nuts, or bolt-blanks, and finished hinges or hinge-blanks, *two and one-half of one cent per pound.*

PRESENT DUTIES ON IRON AND STEEL.—*Continued.*

129. [*a.* On tin in plates or sheets and on terne and taggers tin: *one and one-tenth cents per pound.* Act of February 8, 1875, sec. 4.]
[Includes tin-plates.]

78. All band, hoop, and scroll iron from one-half to six inches in width, not thinner than one-eighth of an inch: *one cent and one-fourth per pound.*
79. All band, hoop, and scroll iron from one-half to six inches wide, under one-eighth of an inch in thickness, and not thinner than number twenty wire gauge: *one cent and one-half per pound.*
[Iron strips or hoop iron cut into lengths to be made into hoops, or cut and splayed for the same purpose, are dutiable as hoop iron; but when made into cotton-ties, or cut into strips for cotton ties, with buckles or other fastenings, or with permanent studs and holes or ends punched, they are dutiable as manufactures of iron at 35 per cent.]
80. All band, hoop, and scroll iron thinner than number twenty wire gauge: *one cent and three-fourths per pound.*

110. Cast-iron steam, gas, and water pipe: *one and one-half cents per pound.*
109. Vessels of cast iron, not otherwise provided for, and on andirons, sadirons, tailors' and hatters' irons, stoves and stove plates, of cast iron: *one and one-half cents per pound.*
115. All other castings of iron not otherwise provided for: *thirty per centum ad valorem.* [Includes iron kentledge.]
104. Cut nails and spikes: *one cent and one-half per pound.*

106. Cut tacks, brads, or sprigs, not exceeding sixteen ounces to the thousand: *two cents and one-half per thousand;* exceeding sixteen ounces to the thousand: *three cents per pound.*
100. Wrought-iron railroad chairs, and wrought-iron nuts and washers, ready punched: *two cents per pound.*
99. Blacksmiths' hammers and sledges, axles or parts thereof, and malleable iron in castings, not otherwise provided for: *two cents and one-half per pound.*
[Includes hammered forgings for axles, whether finished or unfinished.]
102. Wrought board-nails, spikes, rivets, and bolts: *two cents and one-half per pound.*
[Includes *patent* wrought nails; but iron wire nails are dutiable as "manufactures of iron not otherwise provided for," at 35 per cent.]
101. Bed-screws and wrought-iron hinges: *two cents and one-half per pound.*
111. Cast-iron butts and hinges: *two and a half cents per pound.*

NEW DUTIES ON IRON AND STEEL.—*Continued.*

Anvils, anchors or parts thereof, mill-irons and mill-cranks of wrought iron, and wrought iron for ships, and forgings of iron and steel for vessels, steam-engines, and locomotives, or parts thereof, weighing each twenty-five pounds or more, *two cents per pound.*

Iron or steel blacksmiths' hammers and sledges, track-tools, wedges, and crowbars, *two and one-half of one cent per pound.*

Iron or steel axles, parts thereof, axle-bars, axle-blanks, or forgings for axles, without reference to the stage or state of manufacture, *two and one-half of one cent per pound.*

Forgings of iron and steel, or forged iron, of whatever shape, or in whatever stage of manufacture, not specially enumerated or provided for in this act, *two and one-half cents per pound.*

Horseshoe-nails, hob-nails, and wire-nails, and all other wrought-iron or steel nails, not specially enumerated or provided for in this act, *four cents per pound.*

Boiler tubes, or flues, or stays, of wrought iron or steel, *three cents per pound.*

Other wrought iron or steel tubes or pipes, *two and one-quarter cents per pound.*

Chain or chains of all kinds, made of iron or steel, not less than three-fourths of one inch in diameter, *one and three-quarter cents per pound;* less than three-fourths of one inch and not less than three-eighths of one inch in diameter, *two cents per pound;* less than three-eighths of one inch in diameter, *two and one-half cents per pound.*

Cross-cut saws, *eight cents per linear foot.*

Mill, pit, and drag saws, not over nine inches wide, *ten cents per linear foot;* over nine inches wide, *fifteen cents per linear foot.*

PRESENT DUTIES ON IRON AND STEEL.—*Continued.*

98. Anchors, or parts thereof: *two cents and one-fourth per pound.*

95. Mill-irons and mill-cranks of wrought-iron, and wrought-iron for ships, steam-engines, and locomotives, or parts thereof, weighing each twenty-five pounds or more: *two cents per pound.*

96. Anvils and iron cables, or cable chains, or parts thereof: *two cents and one-half per pound. Provided,* That no chains made of wire or rods of a diameter less than one-half of one inch shall be considered a chain-cable.

[See "99. Blacksmiths' hammers and sledges," above.]

[See "82. All other descriptions of rolled or hammered iron," above.]

91. All manufactures of steel, or of which steel shall be a component part, not otherwise provided for: *forty-five per centum ad valorem.* But all articles of steel partially manufactured, or of which steel shall be a component part, not otherwise provided for, shall pay the same rate of duty as if wholly manufactured.

[Includes steel railway blooms; hammer moulds or swaged steel; propeller shafts; cast-steel tires; axles; shafts and other forgings in the rough, wholly or partly manufactured; fish plates; gun-barrel moulds not in bars; clock-spring steel in sheets; steel horseshoes; steel shovels and spades; steel chains, and sundry small steel wares.]

105. Horseshoe-nails: *five cents per pound.*

146. Manufactures, articles, vessels, and wares not otherwise provided for, of brass, iron, lead, pewter, and tin or other metal, (except gold, silver, platina, copper, and steel,) or of which either of these metals shall be the component material of chief value: *thirty-five per centum.*

[Includes all kinds of cotton-ties made of hoop iron or strips of iron, with buckles or other fastenings, or with permanent studs and holes or ends punched; iron wire nails; iron horseshoes; iron chains when tinned or washed; hoops fit for use; iron shovels and spades; square wire for umbrella and parasol stretchers, cut to lengths; iron wire over ¼ inch in diameter; iron telegraph cable, and sundry small iron wares.]

103. Steam, gas, and water tubes and flues of wrought-iron: *three cents and one-half per pound.*

[Since the passage of the Revised Statutes of 1874 no distinction is made between flues and tubes.]

97. Chains, trace-chains, halter-chains, and fence-chains, made of wire or rods, not less than one-fourth of one inch in diameter: *two cents and one-half per pound;* less than one-fourth of one inch in diameter, and not under number nine wire-gauge: *three cents per pound;* under number nine wire gauge: *thirty-five per centum ad valorem.*

121. Cross-cut saws: *ten cents per lineal foot.*

122. On mill, pit, and drag saws, not over nine inches wide: *twelve and a half cents per lineal foot;* over nine inches wide: *twenty cents per lineal*

NEW DUTIES ON IRON AND STEEL.—*Continued.*

Circular saws, *thirty per centum ad valorem.*

Hand, back, and all other saws, not specially enumerated or provided for in this act, *forty per centum ad valorem.*

Files, file blanks, rasps, and floats of all cuts and kinds, four inches in length and under, *thirty-five cents per dozen;* over four inches in length and under nine inches, *seventy-five cents per dozen;* nine inches in length and under fourteen inches, *one dollar and fifty cents per dozen;* fourteen inches in length and over, *two dollars and fifty cents per dozen.*

Steel ingots, cogged ingots, blooms, and slabs, by whatever process made; die blocks or blanks; billets and bars and tapered or beveled bars; bands, hoops, strips, and sheets of all gauges and widths; plates of all thicknesses and widths; steamer, crank, and other shafts; wrist or crank pins; connecting-rods and piston-rods; pressed, sheared, or stamped shapes, or blanks of sheet or plate steel, or combination of steel and iron, punched or not punched; hammer-moulds and swaged steel; gun-moulds, not in bars; alloys used as substitutes for steel tools; all descriptions and shapes of dry sand, loam, or iron-moulded steel castings, all of the above classes of steel not otherwise specially provided for in this act, valued at four cents a pound or less, *forty-five per centum ad valorem;* above four cents a pound and not above seven cents per pound, *two cents per pound;* valued above seven cents and not above ten cents per pound, *two and three-fourths cents per pound;* valued at above ten cents per pound, *three and one-fourth cents per pound: Provided,* That on all iron or steel bars, rods, strips, or steel sheets, of whatever shape, and on all iron or steel bars of irregular shape or section, cold-rolled, cold-hammered, or polished in any way in addition to the ordinary process of hot-rolling or hammering, there shall be paid *one-fourth cent per pound in addition* to the rates provided in this act; and on steel circular saw plates there shall be paid *one cent per pound in addition* to the rate provided in this act.

Iron or steel beams, girders, joists, angles, channels, car-truck channels, **TT**, columns and posts, or parts or sections of columns and posts, deck and bulb beams, and building forms, together with all other structural shapes of iron or steel, *one and one-fourth of one cent per pound.*

Steel wheels and steel-tired wheels for railway purposes, whether wholly or partly finished, and iron or steel locomotive, car, and other railway tires, or parts thereof, wholly or partly manufactured, *two and one-half of one cent per pound;* iron or steel ingots, cogged ingots, blooms or blanks for the same, without regard to the degree of manufacture, *two cents per pound.*

Iron or steel rivet, screw, nail, and fence, wire rods, round, in coils

PRESENT DUTIES ON IRON AND STEEL.—*Continued.*

foot. [Circular saws, *forty-five per centum ad valorem.*]

83. All handsaws not over twenty-four inches in length: *seventy-five cents per dozen, and in addition thereto thirty per centum ad valorem;* over twenty-four inches in length: *one dollar per dozen, and in addition thereto thirty per centum ad valorem.*

84. All back saws not over ten inches in length: *seventy-five cents per dozen, and in addition thereto thirty per centum ad valorem;* over ten inches in length: *one dollar per dozen, and in addition thereto thirty per centum ad valorem.*

85. Files, file-blanks, rasps, and floats of all descriptions, not exceeding ten inches in length: *ten cents per pound, and in addition thereto thirty per centum ad valorem;* exceeding ten inches in length: *six cents per pound, and in addition thereto thirty per centum ad valorem.*

117. Steel, in ingots, bars, coils, sheets, and steel wire, not less than one-fourth of one inch in diameter, valued at seven cents per pound or less: *two cents and one-fourth per pound;* valued at above seven cents and not above eleven cents per pound: *three cents per pound;* valued at above eleven cents per pound: *three cents and one-half per pound, and ten per centum ad valorem.*

[Includes steel wire-blooms; steel in sheets invoiced as "best cross-cuts;" sheets in circular form; steel in bars with raised borders; billets; steel in sheets of varying thicknesses; so-called "Bessemer sheet iron;" and steel in coils without regard to size.]

[See "82. Rolled or hammered iron not otherwise provided for." Also, see "117. Steel in ingots, bars," etc.]

94. Locomotive tire, or parts thereof: *three cents per pound.*
[Includes steel locomotive tires.]

120. Steel, in any form, not otherwise provided for: *thirty per cent.*

NEW DUTIES ON IRON AND STEEL.—*Continued.*

and loops, not lighter than number five wire gauge, valued at three and one-half cents or less per pound, *six-tenths of one cent per pound.* Iron or steel, flat with longitudinal ribs for the manufacture of fencing, *six-tenths of a cent per pound.*

Screws, commonly called wood screws, two inches or over in length, *six cents per pound;* one inch and less than two inches in length, *eight cents per pound;* over one-half inch and less than one inch in length, *ten cents per pound;* one-half inch and less in length, *twelve cents per pound.*

Iron or steel wire, smaller than number five and not smaller than number ten wire gauge, *one and one-half cents per pound;* smaller than number ten and not smaller than number sixteen wire gauge, *two cents per pound;* smaller than number sixteen and not smaller than number twenty-six wire gauge, *two and one-half cents per pound;* smaller than number twenty-six wire gauge, *three cents per pound: Provided,* That iron or steel wire covered with cotton, silk, or other material, and wire commonly known as crinoline, corset, and hat wire, shall pay *four cents per pound in addition* to the foregoing rates: *And provided further,* That no article made from iron or steel wire, or of which iron or steel wire is a component part of chief value, shall pay a less rate of duty than the iron or steel wire from which it is made either wholly or in part: *And provided further,* That iron or steel wire-cloths, and iron or steel wire-nettings, made in meshes of any form, shall pay a duty equal in amount to that imposed on iron or steel wire of the same gauge, and *two cents per pound in addition* thereto: There shall be paid on galvanized iron or steel wire (except fence wire) *one-half of one cent per pound in addition* to the rate imposed on the wire of which it is made. On iron wire rope and wire strand, *one cent per pound in addition* to the rates imposed on the wire of which it is made. On steel wire rope and wire strand, *two cents per pound in addition* to the rates imposed on the wire of which it is made.

Steel, not specially enumerated or provided for in this act, *forty-five per centum ad valorem; Provided,* That all metal produced from iron or its ores, which is cast and malleable, of whatever description or form, without regard to the percentage of carbon contained therein, whether produced by cementation, or converted, cast or made from iron or its ores, by the crucible, Bessemer, pneumatic, Thomas-Gilchrist, basic, Siemens-Martin, or open-hearth process, or by the equivalent of either, or by the combination of two or more of the processes, or their equiva-

PRESENT DUTIES ON IRON AND STEEL.—*Continued.*

Provided, That no allowance or reduction of duties for partial loss or damage shall be hereafter made in consequence of rust of iron or steel or upon the manufactures of iron or steel, except on polished Russia sheet iron.

[Includes steel wire-rods in coils, steel bars slightly tapered, steel rail ends, scrap steel, and axe-shaped steel.]

[For "iron wire-rods" see "82. Rolled and hammered iron not otherwise provided for" above.]

107. Screws, commonly called wood-screws, two inches or over in length: *eight cents per pound;* less than two inches in length: *eleven cents per pound.*

108. Screws of any other metal than iron, and all other screws of iron except wood-screws: *thirty-five per centum ad valorem.*

73. Iron wire, bright, coppered, or tinned, drawn and finished, not more than one-fourth of an inch in diameter, not less than number sixteen wire gauge: *two dollars per hundred pounds, and fifteen per centum.*

Over number sixteen and not over number twenty-five wire gauge: *three dollars and fifty cents per hundred pounds, and fifteen per centum.*

Over or finer than number twenty-five wire gauge: *four dollars per hundred pounds, and fifteen per centum ad valorem.*

But wire covered with cotton, silk, or other material shall pay *five cents per pound in addition* to the foregoing rates.

[Includes wire rope and wire strand or chain made of iron wire, either bright, coppered, galvanized, or coated with other metals.]

119. Steel, commercially known as crinoline, corset, and hat steel wire: *nine cents per pound, and ten per centum ad valorem.*

74. Round iron in coils, three-sixteenths of an inch or less in diameter, whether coated with metal or not so coated, and all descriptions of iron wire, and wire of which iron is a component part, not otherwise specifically enumerated and provided for, shall pay the same duty as iron wire, bright, coppered, or tinned.

75. Wire spiral furniture springs, manufactured of iron wire: *two cents per pound, and fifteen per centum ad valorem.*

118. Steel wire less than one-fourth of an inch in diameter and not less than number sixteen wire gauge: *two cents and one-half per pound, and twenty per centum ad valorem;* less or finer than number sixteen wire gauge: *three cents per pound, and twenty per centum ad valorem.*

[Includes wire rope and wire strand or chain made of steel wire, either bright, coppered, galvanized, or coated with other metals.]

[See "120. Steel in any form not otherwise provided for," above.]

NEW DUTIES ON IRON AND STEEL.—*Continued.*

lents, or by any fusion or other process which produces from iron or its ores a metal either granular or fibrous in structure, which is cast and malleable, excepting what is known as malleable iron castings, shall be classed and denominated as steel.

No allowance or reduction of duties for partial loss or damage in consequence of rust or of discoloration shall be made upon any description of iron or steel, or upon any partly manufactured article of iron or steel, or upon any manufacture of iron and steel.

Cutlery, not specially enumerated or provided for in this act, *thirty-five per centum ad valorem.*

Steel plates, engraved, stereotype plates, and new types, *twenty-five per centum ad valorem.*

Hollow-ware, coated, glazed, or tinned, *three cents per pound.*

Muskets, rifles, and other fire-arms, not specially enumerated or provided for in this act, *twenty-five per centum ad valorem.*

All sporting breech-loading shot-guns, and pistols of all kinds, *thirty-five per centum ad valorem.*

Forged shot-gun barrels, rough-bored, *ten per centum ad valorem.*

Needles for knitting or sewing machines, *thirty-five per centum ad valorem.*

Needles, sewing, darning, knitting, and all others not specially enumerated or provided for in this act, *twenty-five per centum ad valorem.*

Pen-knives, pocket-knives, of all kinds, and razors, *fifty per centum ad valorem;* swords, sword-blades, and side-arms, *thirty-five per centum ad valorem.*

Pens, metallic, *twelve cents per gross;* pen-holder-tips and pen-holders, or parts thereof, *thirty per centum ad valorem.*

Chromate of iron, or chromic ore, *fifteen per centum ad valorem.*

Mineral substances in a crude state and metals unwrought, not specially enumerated or provided for in this act, *twenty per centum ad valorem.*

Manufactures, articles, or wares, not specially enumerated or provided for in this act, composed wholly or in part of iron, steel; copper, lead, nickel, pewter, tin, zinc, gold, silver, platinum, or any other metal, and whether partly or wholly manufactured, *forty-five per centum ad valorem.*

PRESENT DUTIES ON IRON AND STEEL.—*Continued.*

[See the rust clause attached to "120. Steel in any form not otherwise provided for" above.]

337. Cutlery of all kinds: *thirty-five per centum ad valorem.*

509. Stereotype plates: *twenty-five per centum ad valorem.*
524. Types, new: *twenty-five per centum ad valorem.*
473. Plates, engraved, of steel: *twenty-five per centum ad valorem.*

112. Hollow-ware, glazed or tinned: *three and one-half cents per pound.*

420. Muskets, rifles, and other fire-arms: *thirty-five per centum ad valorem.*

422. Needles, sewing, darning, knitting, and all other descriptions not otherwise provided for: *twenty-five per centum ad valorem.*

89. Needles for knitting or sewing machines: *one dollar per thousand, and in addition thereto thirty-five per centum ad valorem.*
86. Penknives, jack-knives, and pocket-knives of all kinds: *fifty per centum ad valorem.*
87. Sword blades: *thirty-five per centum ad valorem.*
88. Swords: *forty-five per centum ad valorem.*

461. Pens, metallic: *ten cents per gross, and in addition thereto twenty-five per centum ad valorem.*
462. Pen-tips and pen-holders, or parts thereof: *thirty-five per centum ad valorem.*
[See "414. Mineral and bituminous substances," above.]

[See "91. All manufactures of steel," and "146. Manufactures, articles, vessels," etc., above.]

ANALYTICAL COMPARISON OF THE OLD AND NEW DUTIES ON IRON AND STEEL.

We present below a carefully-made analytical comparison of the old and new duties, which shows the changes in the rates on all the leading articles of iron and steel.

ARTICLES.	New Duties.	Present Duties.
Iron ore	75c. per ton	20 per cent.
Pig iron	$6.72 " "	$7 per ton.
Wrought scrap iron	" " "	$8 " "
Cast " "	" " "	$6 " "
Scrap steel	" " "	30 per cent.
Iron rails over 25-lb	$15.68 " "	$15.68 per ton.
Steel " " "	$17 " "	$28 " "
Iron rails not over 25-lb	$20.16 " "	$15.68 " "
Steel " " " "	" " "	$28 " "
Iron flat rails, punched	$17.92 " "	$15.68 " "
Steel " " "	" " "	$28 " "
Flat bar iron over 2 inches thick or over 6 inches wide	" " "	$33.60 " "
Round bar iron over 2 inches in diameter, and square bar iron over 2 inches square	$22.40 " "	" " "
Flat bar iron from 3/8 to 2 inches thick and from 1 to 6 inches wide	$17.92 " "	$22.40 " "
Round bar iron from 3/4 to 2 inches in diameter, and square bar iron from 3/4 to 2 inches square	$22.40 " "	" " "
Flat bar iron less than 1 inch wide or 3/8 inch thick, round bar iron from 7/16 to 3/4 inch in diameter, and square bar iron less than 3/4 inch square	$24.64 " "	$33.60 " "
Round iron less than 7/16 inch in diameter	$26.88 " "	" " "
Rolled iron not enumerated	" " "	$28 " "
Plate iron not under 7/16 inch thick	$28 " "	$33.60 " "
Plate iron under 7/16 inch thick	" " "	$25 " "
Sheet iron not thinner than No. 20	$24.64 " "	$28 " "
Sheet iron from No. 21 to No. 25	$26.88 " "	$33.60 " "
" " " 26 " " 29	$33.60 " "	$39.20 " "
" " thinner than No. 29	30 per cent.	" " "
Taggers iron	" " "	30 per cent.
Galvanized plates and sheets	$16.80 per ton extra	$56 per ton.
Russia sheet iron	$56 per ton	$67.20 per ton.
Tin-plates	$22.40 per ton	$24.64 " "
Hoop iron not thinner than No. 10	" " "	$28 " "
" " from No. 11 to No. 20	$26.88 " "	$33.60 " "
" " thinner than No. 20	$31.36 " "	$39.20 " "
Cotton-ties	35 per cent.	35 per cent.
Cast iron pipe	$22.40 per ton	$33.60 per ton.
Cast iron stove-plates, etc	$28 " "	" " "

ARTICLES.	New Duties.	Present Duties.
Iron castings not enumerated	$28 per ton	30 per cent.
Cut nails and spikes	1¼c. per lb	1½c. per lb.
Cut tacks	2½c. per M to 3c. per lb.	2½c. per M to 3c. per lb.
Iron fish-plates	$28 per ton	$44.80 per ton.
Steel "	" " "	45 per cent.
Malleable iron castings	2c. per lb	2½c. per lb.
Spikes	" " "	" " "
Horseshoes	2c. per lb	35 per cent.
Rivets, bolts, and hinges	2½c. per lb	2½c. per lb.
Anchors	2c. " "	2¾c. per lb.
Anvils	" " "	2½ c. per lb.
Forgings for vessels, steam engines, and locomotives	" " "	2c. per lb.
Blacksmith's hammers and sledges	2½c. per lb	2½c. per lb.
Iron axles	" " "	" " "
Steel axles	" " "	45 per cent.
Forgings unenumerated	" " "	1¼c. per lb.
Horseshoe nails	4c. per lb	5c. per lb.
Boiler tubes	3c. " "	3½c. " "
Other tubes	2¼c. " "	" " "
Cable chains	1¾c. " "	2½c. " "
Other chains	1¾c. to 2¼c. per lb	2½c. to 3c. per lb. to 35 pr. ct.
Cross-cut saws	8c. per linear foot	10c per linear foot.
Mill, pit, and drag saws	10c. to 15c. per lin. foot	12½c. to 20c. per linear foot.
Circular saws	30 per cent	45 per cent.
Other saws	40 " "	75c. per doz. and 30 per cent., to $1 per doz. and 30 per cent.
Files	35c. to $2.50 per doz	6c. per lb. and 30 per cent., to 10c. per lb. and 30 per cent.
Steel railway blooms	45 per cent	45 per cent.
Steel ingots, bars, etc., valued at 4c. per lb. or less	" " "	2¼c. per lb.
Valued not above 7c	2c. per lb	" " "
Valued not above 10c	2¾c. " "	3c. " "
Valued above 10c	3¼c. " "	3c. per lb. up to that valued at 11c., and 3½c. per lb. and 10 per cent. on all valued above 11c.
Steel circular saw plates	1c. " " extra	3½c. per lb. and 10 per cent.
Iron beams	$28 per ton	$28 per ton.
Steel beams	" " "	$50.40 per ton.
Steel tires	2½c. per lb	3c. per lb.
Steel wire rods	$13.44 per ton	30 per cent.
Iron wire rods	" " "	$28 per ton.
Wood screws	6c. to 12c. per lb	8c. to 11c. per lb. to 35 pr. ct.
Iron wire	1½c. to 3c. " "	2c. per lb. and 15 per cent., to 4c. per lb. and 15 pr. ct.
Steel wire	" " " " "	2¼c. per lb. and 20 pr. ct., to 3c. per lb. and 20 pr. ct.
Corset wire	4c. per lb. extra	9c. per lb. and 10 per cent.
Steel not enumerated	45 per cent	30 per cent.
Cutlery not enumerated	35 " "	35 " "

ARTICLES.	New Duties.	Present Duties.
Engraved plates, steel	25 per cent	25 per cent.
Hollow-ware	3c. per lb	3½c. per lb.
Fire-arms	25 per cent. to 35 per cent.	35 per cent.
Needles	" " " " " " "	25 per cent. to $1 per M and 35 per cent.
Pen-knives	50 per cent	50 per cent.
Razors	" " "	35 " "
Swords	35 " "	" " " to 45 per cent.
Pens, metallic	12c. per gross	10c. per gross and 25 pr. ct.
Manufactures of iron not enumerated	45 per cent	35 per cent.
Manufactures of steel not enumerated	" " "	45 " "

STATISTICS OF THE FOREIGN IRON TRADE FOR 1882.

GENERAL SUMMARY FOR 1882 AND 1883.

THE course of the European iron and steel industries in 1882 was characterized by great activity but also by generally declining prices. The activity was somewhat greater than in the same industries of the United States, and the decline in prices was less marked. In both Great Britain and on the Continent the year may, therefore, be said to have been a prosperous one. Production and domestic consumption were steadily maintained, and in those countries which largely rely upon a foreign demand for their iron and steel products this demand was very generally increased. If prices were not as satisfactory as could have been desired, they were not ruinous nor as low as they have been. It is well to remember, too, that European manufacturers are accustomed to low prices, and readily adapt their business to all the conditions which low prices imply; indeed, low prices are the rule rather than the exception in all European countries; hence a moderate decline in the prices of European iron and steel, such as was experienced in 1882, is not accompanied by serious consequences. In this country, upon the other hand, steadiness in the prices of iron and steel seems to be impossible of attainment; the happy mean between too high and too low prices we seldom strike, and when we do we never maintain it. The usual course with us is to go to extremes; we have either a fever or a severe chill. For all this many good reasons may, of course, be given, but the results of a chronic instability of prices are none the less unfortunate. Our European competitors are more happily situated in this respect.

Since the beginning of the present year the tendency of the iron and steel markets of Great Britain has been toward lower prices and a decrease in exports, owing mainly to the large falling off in American orders. In the first quarter of 1882 the total exports of iron and steel from Great Britain to all countries amounted to 993,507 tons, and in the first quarter of 1883 they amounted to 878,835 tons, a decrease of 114,672 tons. In the first quarter of

1882 the total exports of iron and steel from Great Britain to the United States amounted to 331,206 tons, and in the first quarter of 1883 they amounted to 169,577 tons, a decrease of 161,629 tons. On the Continent the tendency of the French and Belgian and Swedish iron and steel markets has recently been toward less activity, with correspondingly weak prices, but in Austria and Germany it has been just the reverse. Looking at the European iron and steel markets as a whole in the month of April, and considering especially the magnitude of the British markets as compared with those of the Continent, and the vast influence of the former upon the latter, we can plainly discern that a reaction from the extraordinary activity of the last three years has fairly commenced. Without inquiring closely into all the causes of this reaction, it is doubtless true that, in addition to the decreased demand from the United States, above alluded to, there is at work a natural law which places a check upon overtrading. While Europe has not overtraded, or over-speculated, as we have done, the law of trade which limits supply to the demand, and again limits that demand within reasonable bounds, is more promptly recognized and respected in the business and financial circles of Europe than in the same circles of our own country. True, the industrial development of Europe, and particularly the development of the iron and steel industries of the Continent, has not culminated, but the special industries referred to can not be developed indefinitely in advance of the increase in population or of the wants of the already existing population; nor can the iron and steel industries of Great Britain continue to grow as they have recently grown if other countries insist on making their own iron and steel. Then, too, if steel is replacing iron, is it reasonable to suppose that all the world can continue making both iron *and* steel in increasingly large quantities? And then as to steel: if it is much more durable than iron, as we know that it is, must there not soon come a check to its production from this cause alone, as, for instance, for rails? And what may be true of Europe can not be without its application in the United States.

A noticeable feature of the iron and steel industries of Europe in 1882 and the immediately preceding years is the attention which has been bestowed upon the basic process in the manufacture of steel, a process that has not yet been even experimentally tested in the United States. When we consider how rapidly steel is taking the place of iron, and how general may be the application of the basic process because of its adaptability to the utilization of inferior

ores, the wide favor with which this invention of yesterday has been received in Europe is a most interesting incident of this most remarkable metallurgical age. Only twenty years ago Great Britain was the chief source of the world's supply of steel, having then just added the Bessemer and open-hearth processes to its previously well-established crucible steel industry; only ten years ago the United States was Great Britain's only formidable competitor in the production of steel; but to-day, owing to the phenomenal spread of the basic process on the Continent of Europe, as well as in Great Britain, in the last five years, the manufacture of steel is not only rapidly increasing but is also being widely distributed. If this process had not been discovered, one of two results would certainly be in operation to-day as a consequence of the unadaptability of many of the iron ores of the Continent to the original Bessemer process: either steel would not be in such general use as it is, or Great Britain's monopoly of its supply would be enormous and astounding. Germany, which is almost totally wanting in pure Bessemer ores, is now making basic steel at the rate of about 300,000 tons annually, leading even Great Britain itself in its production, although the process originated in the latter country. The manufacture of basic steel has also obtained a strong foothold in France, Austria, and Belgium, and it has been introduced into Luxemburg and Russia.

Two events of importance in connection with the growth in European countries of the wise policy of protecting home industries by duties on imports occurred in 1882. The Cobden commercial treaty between Great Britain and France expired in the early part of the year, and the utmost exertions of the British government and British manufacturing interests could not induce the French government to assent to the negotiation of any new treaty in its stead. By this refusal Great Britain now enjoys in her trade with France no other advantages than such as are possessed by the most favored nation with which the latter country is connected by treaty. The other event to which we refer is the adoption by the Austro-Hungarian government of an entirely new customs tariff, which went into effect on the 1st of June, 1882, and which greatly increases duties. The effect of this new tariff on the iron and steel industries of the empire, as well as upon other industries, has been most beneficial, stimulating their development and preventing ruinous foreign competition. Austria and Hungary are now earnestly and effectively enlisted with France, Germany, and Russia in support of the protective policy. There were modifications of other

Continental tariffs in 1882 in the direction of increased protection, the most important of which was by the Russian government, but the two events above noted are of especial significance. In our annual report a year ago we called attention to the fact that some of the European tariffs were more protective in name than in fact, but this opinion must now be modified.

EUROPEAN WEIGHTS AND COINAGE.

Before proceeding to give such details as are in our possession concerning the progress of the iron and steel industries of Europe in 1882 we give below two tables explanatory of the weights and coins of Europe in their American equivalents.

Weights.	Equivalent in English pounds.
Gross Ton (Great Britain and the United States)	2,240.
Net Ton (United States)	2,000.
Metric Ton = 1000 Kilogrammes (Continent of Europe)	2,204.
Kilogramme or Kilo (Continent of Europe)	2.2
Pood (Russia)	36.11
Centner (Sweden)	93.7

Foreign Coins.	Country.	Equivalent in United States money.
Pound Sterling.....£	England	$4.8665
Shilling.....s	"	.243
Penny.....d	"	.020
Farthing.....qr	"	.005
Franc	France, Belgium, and Switzerland	.193
Mark	Germany	.238
Thaler	"	.7146
Florin	Austria	.482
Rouble = 100 copecks	Russia	.748
Copeck	"	.007
Real	Spain	.0496
Rupee	British India	.445

GREAT BRITAIN.

Coal.—The production of coal in Great Britain in 1882, according to the report of the Inspectors of Mines, was 156,499,977 gross tons, which was an increase of about two million tons over the production of 1881. The total number of persons employed in the production of coal in 1882 was 503,987, including 4,345 women above ground.

The production of coal in Great Britain from 1854 to 1882 is given as follows by Mr. Robert Hunt, Keeper of Mining Records, to which we add the figures of the Inspectors of Mines for 1882. (Mr. Hunt is the official government statistician, but his statistics do not usually appear annually until after the issue of our annual report.)

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		
1860....	80,042,698	1868....	103,141,157	1876....	133,344,766		
1861....	84,013,941	1869....	107,427,557	1877....	134,610,763		

The exportation of coal from Great Britain makes steady progress from year to year, notwithstanding the increased production of coal by other coal-producing countries, even by countries which import coal from Great Britain. The following table gives the exports of coal from Great Britain to foreign countries (not including coal for the use of steamers engaged in the foreign trade) from 1867 to 1882.

Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.	Years.	Gross tons.
1867...	10,565,829	1871...	12,747,989	1875...	14,544,916	1879...	16,442,296
1868...	10,967,062	1872...	13,198,494	1876...	16,299,077	1880...	18,719,971
1869...	10,744,945	1873...	12,617,566	1877...	15,420,050	1881...	19,587,063
1870...	11,702,649	1874...	13,927,205	1878...	15,494,633	1882...	20,958,824

Iron Ore.—From the annual report of Mr. J. S. Jeans, the Secretary of the British Iron Trade Association, for the year 1882, we gather valuable statistical information concerning the iron and steel industries of Great Britain in the year mentioned. Commencing with iron ore, Mr. Jeans gives the quantity mined in Great Britain in 1882 as 16,627,000 gross tons. The quantity of iron ore imported in 1882 amounted to 3,282,496 tons, which was an increase of 833,219 tons upon the importations of 1881. The following table gives the imports of iron ore into Great Britain from 1873 to 1882, in round numbers.

Years.	Gross tons.	Years.	Gross tons.
1873.....	967,000	1878.....	1,173,000
1874.....	754,000	1879.....	1,083,000
1875.....	458,000	1880.....	2,634,000
1876.....	672,000	1881.....	2,449,000
1877.....	1,140,000	1882.....	3,282,000

Of the imports of 1882 about 2,900,000 tons were obtained from the Bilbao district in Spain. The average price of these ores was 7s. per ton, free on board in Bilbao river.

In 1866 British imports of Spanish iron ores amounted to only 27,619 tons, and in 1870 they amounted to only 179,083 tons. The largely increased importations of Spanish ores in the last few years have been mainly for use in the manufacture of Bessemer pig iron, but latterly these ores have been required in increasingly large quantities for the manufacture of ferro-manganese and spiegeleisen, of which Great Britain produced 194,125 tons in 1882. Great Britain is now a larger producer of spiegeleisen than Germany. She obtains her supplies of manganiferous iron ores chiefly from the south of Spain, Porman being the principal port of shipment.

Pig Iron.—Mr. Jeans gives the production of pig iron in Great Britain in 1882 as 8,493,287 gross tons, an increase of 115,923 tons upon the production of 8,377,364 tons in 1881. The increase in 1882 was very much less than in 1880 or 1881.

The following table, compiled from statistics prepared principally by Mr. Hunt, shows the growth of the pig iron industry of Great Britain from 1740 to 1882. The figures for 1881 and 1882 are by Mr. Jeans.

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		
1833...	700,000	1858...	3,456,064	1871...	6,627,179		
1835...	1,000,000	1859...	3,712,904	1872...	6,741,929		

Of the production of pig iron in 1882 the Cleveland district contributed 2,688,650 tons; Scotland, 1,126,000 tons; West Cumberland, 1,001,181 tons; Lancashire, 782,739 tons; and South Wales, 883,305 tons.

The stocks of pig iron held by makers or in warrant stores at the close of 1882 amounted to 1,576,894 tons, a decrease of 159,368 tons upon 1,736,262 tons held in stock at the close of 1881.

Prices of Pig Iron.—In January, 1882, the price of Scotch warrants was 53s. 1½d., from which there was a decline to 46s. 8d. in April, when the decline was stopped. The average price for the year was 49s. 10¾d. At the beginning of April last the price was 47s. 1d. In January, 1882, the price of Cleveland No. 3 pig iron was 43s. 1d., and in December the price was 42s. 9d. At the beginning of April last the price had fallen to 40s. At the beginning of 1882 the price of Bessemer (hematite) pig iron was 62s., from which there was a steady decline to 53s. in May. After May there was a recovery in the price, which reached 57s. in July, but in December it had again fallen to 53s. In April last the price was 51s. The heavy fall in Bessemer pig iron was largely due to the heavy fall in steel rails and pig iron in the United States, which country had become a large consumer of West Coast pig iron.

Manufactured Iron.—Mr. Jeans is unable to obtain full statistics of the production of finished iron in Great Britain. He gives the production of puddled iron in 1882 as 2,841,534 tons, which is a slight increase over the production of 1881. The figures for 1882, which for the first time are comprehensive of all the districts that produce puddled iron, indicate very clearly that Great Britain does not produce annually a much larger quantity of finished iron than the United States. Our production of finished iron in 1881 was 2,643,927 net tons, and in 1882 it was 2,493,831 net tons. Iron rails are included in both the British and American statistics. Relative to these, Mr. Jeans shows that their manufacture in Great Britain has declined still more than in the United States. In 1882 there were produced in the former country 60,339 tons, of which South Wales produced 46,978 tons. Of the whole quantity 46,532 tons were exported. In 1881 Great Britain produced about 150,000 tons of iron rails.

Bessemer Steel.—The production of Bessemer steel ingots in Great Britain in 1882 was 1,673,649 gross tons, an increase of 231,930 tons on the production of 1,441,719 tons in 1881. The production of Bessemer steel rails in 1882 was 1,235,785 tons, an increase of

212,045 tons on the production of 1,023,740 tons in 1881. There were 23 Bessemer steel works and 80 converters in operation in Great Britain in 1882. (On pages 28 and 29 of this report will be found a comparison of the Bessemer steel production of Great Britain and the United States in the last three years.) The best record that has yet been made by any of the Bessemer steel works of Great Britain was made in 1882, when at one works 78,202 tons of ingots were made with two converters. At another works in the same year the average yield of each converter in use was 31,178 tons. The average output of the working converters of Great Britain has increased gradually from 12,641 tons in 1879 to 20,920 tons in 1882.

Great Britain annually exports more than one-half of her total production of Bessemer and open-hearth steel rails. Of the latter her production in 1882 was 58,000 tons. In 1881 the exports amounted to 595,911 tons, and in 1882 to 733,919 tons.

South Wales is the leading producer of Bessemer steel in Great Britain, closely followed by Sheffield, which is followed by Cleveland, and it by Lancashire, after which comes West Cumberland, the list being closed by Staffordshire which produces but little. Scotland does not produce any Bessemer steel. The total number of completed converters in Great Britain at the close of 1882 was 104, while 10 were in course of construction.

The production of Bessemer steel ingots and rails in Great Britain in the last six years, compared with the production of the United States in the same period, was as follows:

YEARS.	Great Britain.—Gross tons.		United States.—Gross tons.	
	Ingots.	Rails.	Ingots.	Rails.
1877	750,000	508,400	509,524	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

A considerable part of the ingot production of Great Britain in late years has passed into the form of blooms for exportation, chiefly to the United States. In 1882 over 170,000 tons of these blooms were exported. The disposition made of all the Bessemer steel ingots produced in Great Britain in 1882 was as follows, according to Mr. Jeans: Rails, 1,235,785 tons; blooms for export, about 170,000 tons;

plates, 33,500 tons; finished steel for other purposes, about 100,000 tons; approximate waste in conversion, 10 per cent.; the whole making the year's production of 1,673,649 tons of ingots. With the cessation of the demand from the United States for blooms, and with the probable decrease in our demand for British steel rails, it may be expected that the production of Bessemer steel ingots by Great Britain in 1883 will not exceed that of 1882. We do not expect our own production this year to quite equal that of last year.

Open-Hearth Steel.—Dr. Siemens and Mr. Jeans agree in placing the production of open-hearth steel in Great Britain in 1882 at 436,000 tons, an increase of 98,000 tons upon the production of 338,000 tons in 1881, and of 185,000 tons upon the production of 251,000 tons in 1880. This branch of the steel industry of Great Britain is making rapid progress. Since 1879 the production of open-hearth steel has more than doubled, as has also the production of Bessemer steel. The united production in 1879 was 1,009,511 tons, and in 1882 it was 2,109,649 tons.

Scotland produced in each of the years 1881 and 1882 very nearly one-half of all the open-hearth steel produced in Great Britain. Mr. Jeans explains that this prominence is due to the demand on the Clyde for open-hearth steel plates and angles, nearly 150,000 tons of which were produced in 1882. Next to Scotland the largest production of open-hearth steel in Great Britain in 1881 and 1882 was in South Wales. The total number of open-hearth furnaces erected in Great Britain at the close of 1882 was 168, distributed among 41 works. The average production of each of the furnaces at work in 1882 was 3,114 tons. The best record ever accomplished by an open-hearth furnace in Great Britain was 4,300 tons in one year.

The product of 436,000 tons of open-hearth steel in Great Britain in 1882 was distributed about as follows: Plates and angles, 150,000 tons; rails, 58,000 tons; forgings, castings, wire, axles, wheels, and other forms, over 200,000 tons.

Crucible Steel.—The statistics of the production of crucible steel in Great Britain from year to year are not given by Mr. Jeans, nor are they obtainable from any other source. It would probably be entirely safe to assume that the annual production does not exceed 150,000 tons.

Tin-Plates.—The production of tin-plates in Great Britain in 1882 is placed by Mr. Jeans at 300,000 tons, which was more than double the production of six years ago. The exports of tin-plates

in 1882 amounted to 265,021 tons, of which the United States took 214,552 tons, for which we paid nearly $18,000,000.

Although Great Britain is a free-trade country, its tin-plate industry is wonderfully well protected, and under this protection it is growing rapidly. It is protected by the Congress of the United States, which country, as we have above shown, consumes more than *two-thirds* of the British production of tin-plates, the United States itself not producing one box of tin-plates, although possessing the same facilities for their production, except cheap labor, that are possessed by Great Britain. This monopoly of our supply of tin-plates the American Congress secures to our British friends through its refusal to protect an *American* tin-plate industry. It deliberately chooses to maintain a British monopoly of the manufacture of tin-plates rather than to encourage the establishment of a competing manufacture which would employ our own people, develop our own resources, and save to us $18,000,000 annually. It has adopted the same policy with regard to our supply of cotton-ties and wire rods, encouraging their manufacture abroad and discouraging their manufacture in our own country. When our own Congress does these things we can not condemn our foreign trade rivals for profiting by our dullness and our recreancy to all our protectionist professions. If the British tin-plate manufacturers especially were as wise as they might be they would charge us a great deal more for their tin-plates than they do, for we could not help ourselves against their exactions.

Iron and Steel Shipbuilding.—The total tonnage of new vessels launched in British shipyards in 1882 amounted to 1,240,824 tons, against 1,013,208 tons in 1881, and 796,221 tons in 1880. These figures show remarkable and astonishing progress. The tonnage of 1882 was distributed among 796 iron and steel vessels and 123 wooden vessels, making a total of 919 vessels. The exact number of vessels built of iron and steel respectively is not given, but it is known that the building of steel vessels is not proceeding with equal pace with that of iron vessels. Many steel vessels were, however, built in 1882, and it is noteworthy that there were then constructed in Her Majesty's dockyards three large steel vessels—the *Colossus*, the *Edinburgh*, and the *Collingwood*, with a total gross tonnage of 14,500 tons.

During 1882 there were lost or broken up 996 vessels belonging to Great Britain—more than were built in the same year, but the tonnage of those built was in excess of that of the vessels destroyed.

Exports.—The total exports of all kinds of iron and steel from Great Britain from 1871 to 1882 were as follows, in gross tons.

Years.	Gross tons.	Years.	Gross tons.
1871	3,169,219	1877	2,346,370
1872	3,382,762	1878	2,296,860
1873	2,957,813	1879	2,883,484
1874	2,487,162	1880	3,792,993
1875	2,458,306	1881	3,820,225
1876	2,224,470	1882	4,350,297

The exports of 1881 and 1882 embraced the following items, every item showing an increase in 1882, but the chief increase being in pig iron and railroad iron and steel.

ARTICLES.	1881.	1882.	Increase.
	Gross tons.	Gross tons.	Gross tons.
Pig iron	1,482,354	1,758,152	275,798
Bar, angle, bolt, and rod iron	294,361	313,645	19,284
Railroad iron and steel	820,800	933,123	112,323
Wire	75,129	86,686	11,557
Hoops, sheets, and boiler plates	304,925	343,287	38,362
Tin-plates	243,381	265,021	21,640
Cast and wrought, and all other manufactures	291,754	329,399	37,645
Old iron for remanufacture	123,725	131,393	7,668
Unwrought steel	167,423	171,653	4,230
Steel, or steel and iron combined	16,373	17,938	1,565
Total	3,820,225	4,350,297	530,072

The quantities of iron and steel exported from Great Britain to the United States in the last four years are given in the following table. Wire is not included, its tonnage not being ascertainable.

ARTICLES.	1879.	1880.	1881.	1882.
	Gross tons.	Gross tons.	Gross tons.	Gross tons.
Pig iron	277,939	614,005	394,934	487,697
Bar, angle, bolt, and rod	20,648	51,413	18,858	22,255
Rails	44,919	221,131	292,617	198,278
Hoops, sheets, and plates	10,447	45,237	36,162	37,220
Tin-plates	155,595	164,167	179,843	214,552
Old iron for remanufacture	188,705	197,653	99,859	94,710
Other iron	10,437	20,464	6,163	6,794
Steel	9,296	44,066	135,268	131,177
Total	717,986	1,358,136	1,163,704	1,192,683

Mr. Jeans calls attention to the fact that, while there was in 1882 an increase of 530,072 tons in the total exports of iron and steel from Great Britain, the increase to the United States was only 28,979 tons. The whole increase was distributed among nearly all the countries which buy British iron and steel, only Russia, Spain, and Egypt showing a decrease. The increased exports to India, Australia, and other British colonies amounted to over 150,000 tons; to Germany and Holland, (the latter principally in transit to Germany,) to nearly 150,000 tons; to France, to over 25,000 tons; and to Italy, to over 45,000 tons.

The following table shows the destination of the iron and steel exports of Great Britain in 1881 and 1882, with the increase or decrease in 1882 over 1881.

COUNTRIES.	Total Exports, 1881.	Total Exports, 1882.	Increase upon 1881.	Decrease upon 1881.
	Tons.	Tons.	Tons.	Tons.
United States	1,163,704	1,192,683	28,979	.....
British North America	228,538	247,258	18,720	.....
India	216,292	274,854	58,562	.....
Australia	260,194	301,418	41,224	.....
British South Africa	20,976	56,951	35,975	.....
Russia	185,622	163,963	.....	21,659
Germany	297,006	351,994	54,988	.....
Holland	244,913	329,311	84,398	.....
Belgium	81,036	85,797	4,761	.....
France	179,324	205,295	25,971	.....
Italy	62,406	107,542	45,136	.....
Turkey	8,865	9,764	899	.....
Sweden and Norway	7,532	9,938	2,406	.....
Spain and Canaries	32,099	31,989	.....	110
Egypt	5,243	2,573	.....	2,670
Brazil	58,649	67,140	8,491	.....
Peru	1,493	3,866	2,373	.....
Chili	1,375	4,895	3,520	.....
Destinations not specified	764,958	903,066	138,108	.....
Total	3,820,225	4,350,297	554,511	24,439

Whether we view the production of iron and steel by Great Britain in 1882 or its exports of these products we can only be amazed at the grand totals that are presented. Had they been predicted twenty years ago as being within the range of probability in this century they could scarcely have been accepted; yet they have been realized in 1883. There must come a check to this phenomenal development, and it may come this year or the next.

GERMANY.

Coal.—The production of stone coal in Germany in 1882 was 52,094,895 tons, against 48,677,140 tons in 1881. The production of brown coal in 1882 was 13,238,030 tons, against 12,818,210 tons in 1881. The total production of coal was 65,332,925 tons in 1882, and 61,495,350 tons in 1881.

Pig Iron.—The production of pig iron by Germany, including Luxemburg, which is embraced in the Zollverein, was 3,170,957 metric tons in 1882, an increase of 256,948 tons upon the production of 2,914,009 tons in 1881. The production of iron ore in Germany in 1882 was 8,150,162 tons, against 7,473,324 tons in 1881. The following table shows the production of pig iron by Germany and Luxemburg in the eleven years from 1872 to 1882.

Years.	Metric tons.	Years.	Metric tons.	Years.	Metric tons.
1872.....	1,988,394	1876.....	1,846,345	1880.....	2,729,038
1873.....	2,240,574	1877.....	1,932,725	1881.....	2,914,009
1874.....	1,906,262	1878.....	2,147,641	1882.....	3,170,957
1875.....	2,029,389	1879.....	2,226,587		

Luxemburg contributed 263,666 tons to the production of 1880; 293,616 tons to that of 1881; and 376,587 tons to that of 1882. This little country is a large producer of iron ore, the most of which is, however, smelted in German, Belgian, and French furnaces. In 1879 the production was 1,617,300 tons; in 1880 it was 2,069,814 tons; and in 1881 it was 2,161,881 tons.

The production of spiegeleisen in Germany in 1879 was 42,242 tons; in 1880 it was 54,524 tons; in 1881 it was 115,520 tons; and in 1882 it was 139,514 tons.

Manufactured Iron.—The production of all kinds of manufactured iron in Germany in 1881 was 1,358,000 tons, and in 1882 it is supposed to have been 1,600,000 tons.

Steel.—Full statistics of the production of steel in Germany in 1882 have not yet come to hand. In 1881 the production was 897,425 tons; in 1880 it was 660,591 tons; and in 1879 it was 500,900 tons. These figures show a growth of the steel industry of Germany that is fairly comparable with the growth of the same industry in Great Britain and the United States. The production in 1882 certainly exceeded a million tons, the production of Bessemer steel ingots being reported at 993,000 tons. Nearly all the steel produced in Germany is made by the Bessemer process. At the

close of 1882 there were 23 Bessemer works in Germany, having 80 converters and a productive capacity of about 1,300,000 tons. Of the converters at work in 1882 no fewer than 21 were operated by the basic process. At the close of the same year 16 other converters, to be operated by the same process, were reported to be in course of construction.

Rails.—The production of steel rails in Germany in 1881 was 504,132 tons, and the production of iron rails was 26,000 tons. In 1880 the production of steel rails was 407,731 tons, and in 1879 it was 335,828 tons.

Iron Shipbuilding.—The iron shipbuilding industry of Germany is making steady progress. Although far behind that of Great Britain, it is noteworthy that it is much in advance of that of any other country, the United States included. Incomplete statistics for 1882 record the construction of 60 iron vessels in Germany in that year; also the construction of 28 wooden vessels. Included in the iron vessels built in 1882 was the first iron-clad corvette ever constructed for the Chinese navy—the *Everlasting Peace*, of 7,400 tons, and first-class in all respects. It was built at the Vulcan works at Stettin. The tonnage of ocean vessels built in Germany in 1882 was 76,108 tons, of which 67,873 tons were of iron and 8,235 tons were of wood. No steel vessels appear to have been built.

Imports and Exports.—The following table, from *Stahl und Eisen*, gives the imports and exports of iron and steel by Germany in the last two years.

Articles.	Imports.		Exports.	
	1881. Tons.	1882. Tons.	1881. Tons.	1882. Tons.
Pig iron	244,601	282,958	245,496	186,938
Old and scrap iron	5,644	8,048	67,073	59,315
Billets and ingots	330	683	40,677	32,957
Bars	14,258	15,779	152,804	144,397
Tires and plow shares	47	38	15,569	14,052
Angles and tees	71	199	4,554	3,695
Rails	1,495	663	250,708	186,053
Track material	297	173	11,981	11,596
Axles, wheels, etc	171	239	17,083	11,822
Plates and sheets	3,053	3,156	40,932	44,204
Wire rods	3,276	3,480	159,416	227,415
Wire nails	32	23	21,710	23,877
Total	273,275	315,439	1,028,003	946,321

The Engineering and Mining Journal, of New York, remarks:

The Germans are the leading producers of wire in the world. On the 1st of July the Russian government raised the duty on wire-rods from 35 copecks to 1 rouble 10 copecks per pood, or an increase of 185.77 per cent., and, as the Russian wire mills produce only a portion of the quantity required by wire-drawers and nail-makers, they endeavored to obtain as heavy an amount of the supplies of raw material as possible. The German mills were therefore taxed to their utmost capacity, and the number of trains added to their plant was extraordinary, carrying the total number in the Northwest District, which is the chief producing section, to 51, so that fears are expressed of a danger of overproduction. The Germans are making great efforts to produce barbed wire.

FRANCE.

Pig Iron.—The production of pig iron in France in 1880 was 1,725,293 metric tons; in 1881 it was 1,899,861 tons; and in 1882 it was 2,033,104 tons. Like all leading iron-producing countries, France makes nearly all her pig iron with mineral fuel. In 1880 she made only 54,890 tons with charcoal, and in 1881 she made 58,482 tons with the same fuel. France imported 285,080 tons of pig iron in 1882, and 275,637 tons in 1881. The imports of iron ore amounted to 1,425,870 tons in 1882, against 1,286,760 tons in 1881.

Steel.—The total production of steel in France in 1880 was 388,894 tons; in 1881 it was 418,094 tons; and in 1882 it was 453,783 tons. The products of the Bessemer and open-hearth processes are not separately classified by French statisticians, but unitedly they constitute more than nine-tenths of the total annual production of steel in France, the remainder being puddled, cemented, and crucible steel. In 1881, of the total production of 418,094 tons, 389,040 tons were made by the Bessemer and open-hearth processes. The imports of steel into France in 1882 amounted to 45,963 tons, and in 1881 to 23,585 tons.

Rails.—Much the larger part of the annual production of steel in France passes into rails. In 1881 there were produced 303,222 tons of steel rails, and in 1882 there were produced 332,121 tons. The production of iron rails in 1881 was 28,468 tons, and in 1882 it was 27,016 tons; in 1880 it was 42,325 tons.

Finished Iron.—The production of all kinds of finished iron in France in 1881 was 1,026,290 tons, and in 1882 it was 1,074,054 tons. In 1882 there were imported into France 86,554 tons of manufactured iron, against 80,821 tons in 1881. The total exports of iron and steel from France amount to an inconsiderable quantity annually; in 1882 they amounted to 104,836 tons.

Coal.—The production of coal in France in 1881 was 19,211,963 tons, and in 1882 it was 20,251,531 tons. In 1881 there were also produced 554,020 tons of lignite, and in 1882 there were produced 551,801 tons. The total production of mineral fuel was 19,765,983 tons in 1881, and 20,803,332 tons in 1882. France annually imports about 8,000,000 tons of coal and a million tons of coke; its exports of coal amount to less than a million tons annually, and its exports of coke are merely nominal.

BELGIUM.

Coal.—The following table gives the production of coal in Belgium in the eleven years from 1872 to 1882, in metric tons.

Years.	Tons.	Years.	Tons.	Years.	Tons.
1872.....	15,658,948	1876.	14,329,578	1880.....	16,866,698
1873.....	15,778,401	1877.....	13,938,523	1881.....	16,873,951
1874	14,669,029	1878.....	14,899,175	1882.....	17,485,000
1875.....	15,011,331	1879.....	15,447,292		

Belgium annually imports about one million tons of coal and coke, and exports about five million tons.

Wages in Coal Mining.—The following official statistics of the persons employed and wages paid in the mining of coal in Belgium in 1881 are worthy of preservation. We give them exactly as we find them in the English *Iron and Coal Trades Review.*

The number of hands employed during 1881 is as follows:

	Underground.	On the surface.	Total.
Men	59,000	16,773	75,773
Women.....	4,551	3,508	8,059
Boys under 16	9,252	2,437	11,689
Girls under 16	3,519	2,311	5,830
Total.....	76,322	25,029	101,351

The amount paid in wages was 94,397,000 fr. (£3,775,880), giving a mean yearly amount for men, women, and children, both underground and on the surface, of 931 fr. (£37 4s. 9½d.), against 920 fr. (£36 16s.) in 1880. Reckoning 300 working days in the year, the mean daily wage was 3 fr. 10 c. (2s. 5¾d.), made up as follows:

	Underground.				Surface.			
	fr.		s.	d.	fr.		s.	d.
Men	3.79	=	3	0½	3.0	=	2	4¾
Women.....	2.04	=	1	7½	1.56	=	1	3
Boys under 16.....	1.70	=	1	4½	1.15	=	0	11
Girls under 16.....	1.34	=	1	1	1.07	=	0	10¼

Pig Iron.—The production of pig iron in Belgium in 1881 was 624,736 metric tons, and in 1882 it was, in round numbers, 717,000 tons. This was much the largest production in the history of the Belgian iron industry. Having just referred to the wages of coal miners in Belgium in 1881 it may here be added that there were employed at the blast furnaces of Belgium in the same year 3,452 persons, "at a mean daily wage of 2s. 4½d.," as stated by *Iron*. Belgium annually imports about 200,000 tons of pig iron, and exports about one-eighth of this quantity.

Manufactured Iron.—In 1881 Belgium produced 479,807 tons of finished iron, and in 1882 it produced, in round numbers, 500,000 tons. Belgium annually exports the greater part of its production of finished iron. The wages paid in the finished iron works of Belgium in 1881 amounted to "a mean daily wage of 2s. 10d.," according to *Iron*.

Steel.—The steel statistics of Belgium are incomplete, owing to the reticence of some manufacturers, but enough is known of its steel industry to make certain the production of about 200,000 tons of steel in 1882. The production of 1881 is said to have been 141,640 tons, but it was probably somewhat in excess of this quantity. Again quoting from *Iron* we find that the workmen employed at the steel works of Belgium in 1881 were paid "a daily wage of nearly 2s. 10½d."

Rails.—The production of steel rails in Belgium in 1881 was about 120,000 tons, and the production of iron rails was 45,355 tons. The production of steel rails in 1882 is supposed to have amounted to 150,000 tons.

AUSTRIA AND HUNGARY.

The iron and steel industries of Austria and Hungary were greatly benefited in 1881 and 1882 by a revival of new railroad enterprises and by a general demand for new rolling stock and rails for existing railroads. To these favorable influences was added in 1882 the stimulating effect of a new protective tariff and the confidence inspired by a good harvest. Under these combined influences, which still continue, Austria and Hungary now take a much more advanced rank among iron and steel producing countries than heretofore. Complete statistics for 1881 and 1882 are, however, unfortunately wanting.

Pig Iron.—The production of pig iron in Austria and Hungary in 1881 was 523,571 metric tons.

Steel.—The production of Bessemer steel in the empire in 1880 was 101,369 tons; in 1881 it was, in round numbers, 130,000 tons; and in 1882 it is estimated to have been at least 150,000 tons. The production of open-hearth steel in 1880 was 27,638 tons, which was probably doubled in 1882. The quantity of both kinds of steel made in 1882 undoubtedly exceeded 200,000 tons; in addition to which a small quantity of puddled steel was also produced.

Coal.—In 1881 there were produced in Austria and Hungary 6,343,315 tons of coal and 8,961,498 tons of lignite, making a total of 15,304,813 tons.

SWEDEN.

We are indebted to Professor Richard Akerman, of Stockholm, for complete statistics of the production of iron and steel in Sweden in 1880 and 1881, and for statistics of the exports of Swedish iron and steel in 1881 and 1882, which we give below in metric tons.

ARTICLES.	Production.		Exports.	
	1880. Tons.	1881. Tons.	1881. Tons.	1882. Tons.
Iron ore	775,453	826,254	24,232	20,200
Pig iron	405,765	435,489	55,489	55,500
Bar iron	219,265	247,742	136,556	154,000
Rolled wire and rods			52,000	56,000
Bessemer steel	30,017	39,334	7,165	9,800
Martin steel	7,719	11,159		
Other kinds of steel	1,550	1,741	.....	.....
Plates	11,910	13,136	2,362	2,200
Nails	7,446	7,133	1,052	900
Blooms	.....	.....	8,802	8,000

The number of blast furnaces at work during 1881 was 197, and they were unitedly in blast during 44,677 days. The number of Bessemer converters at work during 1881 was 28, at 14 works.

The year 1882, as will be inferred from the statistics of exports given above, was a more productive year than 1881.

Shipbuilding.—The iron and steel shipbuilding industry of Sweden is worthy of notice. In 1882 there were built in Swedish shipyards a much larger number of iron and steel vessels than in any preceding year. Incomplete statistics record the construction of 11 iron and 2 steel vessels in that year; also of 9 wooden vessels. The iron and steel vessels were built chiefly for Russia and Norway. It is stated that, "in spite of the duty imposed by the Russian govern-

ment on vessels built abroad, there seems to be no decrease in the orders for steamers from that country, and most of the Swedish yards have contracts on hand to occupy them until June next. A change of great importance will probably take place in this industry next year, as negotiations are in progress for the transfer of the entire Kockum shipbuilding yard and engineering works at Malmö to the Motala Aktiebolag, to whom the two largest yards in Sweden, Motala and Lindholmen, already belong."

Railroads.—Iron, the same authority from which we have just quoted, speaking of 1882, says of Swedish railroads:

The Swedish railways have been worked with considerable profit during the year, and several new lines have been opened for traffic; of these we may mention the new connecting link between Sweden and Norway—the Östersund-Throndhjem Railway, which will no doubt influence the iron industry of the country to a considerable extent. The construction of other lines is also in contemplation, of which the most important are a railway connecting the port of Sundsvall with the great trunk system, with a further extension to Norway, and a railway from the port of Lulea, in the Baltic, to the enormous iron deposits at Gellivara. A great deal of railway material has been manufactured during the year, the greater part at the Atlas works, at Stockholm, which have delivered more than a hundred carriages to Russia, and nearly the entire rolling stock of the Norwegian Smaalensbane. In Norway several important lines have been opened during the year; namely, a line between Christiania and Skien, *via* Laurvig, and another between Christiania and Fredrikshald—a new line to Sweden—both broad gauge, and which it has taken nearly five years to construct.

RUSSIA.

Statistics of the production of iron and steel and coal in Russia are not obtainable for any later year than 1880. For this year we have the following very full statistics.

ARTICLES.	Metric tons.
Iron ore	1,023,883
Coal	3,292,212
Pig iron	448,514
Castings (cast iron)	52,570
Round and square iron, etc	212,302
Sheet and plate iron	74,695
Bessemer and Martin steel	300,538
Cemented and puddled steel	6,844
Steel rails	201,432
Iron rails	5,132
Iron wire	3,327
Iron forgings	37,825

These statistics show a very great advance upon the production of any previous year. This advance is most notable in the production of steel, of which there were produced in 1879 only 211,004 metric tons, while in 1880 the production was 307,382 tons. There are now 24 Bessemer converters and 62 open-hearth furnaces in Russia.

The number of blast furnaces in operation in Russia in 1880 was 206; the fuel used was almost exclusively charcoal, only 28,000 tons of pig iron being made in that year with mineral fuel.

The small quantity of iron rails made in Russia in 1880, namely, 5,132 tons, will not escape notice. As even a less quantity was imported in each of the years 1880 and 1881 it will be seen that the day for iron rails in Russia is practically over.

Much of the finished iron that is annually produced in Russia is made in bloomaries, but the tendency is toward the substitution of puddling furnaces.

The manufacture of ferro-manganese and steel wire has recently been introduced into Russia, and attention is being given to the manufacture of heavy steel ordnance and of steel plates for shipbuilding. The basic process has been introduced at the Alexandrovsky works, near St. Petersburg, in connection with the Siemens furnace instead of the Bessemer converter. The basic process is also in operation at the Varsovie Bessemer steel works.

An English journal, the *Newcastle Chronicle*, publishes the following remarkable statement concerning the development of the iron and steel industries of Poland.

The opening of six large iron and steel works within a few weeks of each other in the Vistula province indicates that, in one part of Russia at least, trade is reviving. The establishments in question are situated near the Sosnovitz Station of the Warsaw-Vienna Railway, and all of them belong to German capitalists. The output of one of them is estimated as likely to be 20,000 tons of finished iron yearly; at another, several thousand tons of nails and wire are to be turned out. While the iron trade is thus developing in Poland, it is more or less stagnating in other parts of Russia. In spite of the formation of new firms it is believed that the trade will still further increase, and increase enormously, with the approaching completion of the Ivengorod-Dombrova Railway, running through the principal iron and coal regions of Poland. This development is largely due to the rapid growth of industries of every kind in Poland. Generally speaking, the whole of Russia, with the exception of Poland, is suffering from commercial depression, and the amazing progress and prosperity of Poland are ascribed to the circumstance that German manufacturers, debarred by recent changes in the tariff from exporting goods to Russia, have carried their undertakings across the

frontier and recommenced operations on Russian soil. An idea of the condition of things prevailing in the Polish wedge thrust between Austria and Germany, and known as the Vistula province, may be gathered from the fact that in an area about half the size of England there are at the present moment nearly 7,000 manufactories, employing 100,000 workmen, and turning out annually goods to the value of £10,000,000 sterling. Without exaggeration it may be said that manufactories are being built yearly in this province by hundreds, and as machinery is needed for all, to say nothing of the iron used in their construction, the Vistula iron works have abundance of orders to execute. Poland, in short, is acquiring all the characteristics of the North of England, and is attracting to itself a deal of the trade in provincial Russia that was formerly the monopoly of a few firms at St. Petersburg, Moscow, Kharkoff, and Nijni-Novgorod.

The exports of iron and steel by Russia are inconsiderable, but the imports annually amount to about 500,000 tons.

SPAIN.

This interesting and richly-endowed but unprogressive country makes no notable headway in the development of iron and steel industries of her own, but shows no lack of energy from year to year in exporting her precious iron ores for the enrichment of other countries. Nor does Spain gain from this robbery of her treasures as much as might at first sight be supposed, for it is mainly English, French, German, and Belgian capital that is engaged in mining and taking away her ores; the profits of the spoliation do not even inure to any considerable extent to the people of Spain; they go abroad with the ores.

In the whole of Spain there were produced 3,565,338 metric tons of iron ore in 1880, of which 2,932,998 tons were exported. In the same year the production of pig iron in Spain was only 85,939 tons, and the production of finished iron was only 49,021 tons. The production of coal in 1880 was 825,790 tons, and that of lignite was 21,338 tons. No later statistics for the whole country have been received.

The exports of iron ore from the port of Bilbao during the last five years have been as follows, in metric tons:

Years.	Metric tons.	Years.	Metric tons.
1878	1,224,730	1881	2,500,532
1879	1,117,836	1882	3,737,136
1880	2,345,598		

During 1882 there entered the Bilbao river for cargoes of iron

ore 5,244 vessels, the most of which were steamers. On the 19th of March 36 steamers and 8 sailing vessels entered the river, and on the 3d of May 62 steamers and 7 sailing vessels cleared from the port of Bilbao.

Contrary to the general belief, very little iron ore from Bilbao comes to the United States. According to the excellent paper of Mr. William Gill, read before the Iron and Steel Institute of Great Britain in May, 1882, this country imported from Bilbao in 1878 only 5,840 tons; in 1879 only 17,420 tons; in 1880 only 34,849 tons; and in 1881 only 17,536 tons. We have no details for 1882. Our imports of foreign iron ore mainly come from the south of Spain, from Elba, and from Bona in Africa.

We take from *Iron* the following expression of opinion touching the development of the iron and steel industries of Spain.

> With regard to the manufacture of iron and steel in Spain much has been said in various quarters, but the actual progress is not so great as expectations led the world to think it would be. Whilst, in Bilbao, report speaks of large companies being formed and capital subscribed for the manufacture of steel, the actual advance may be recorded in the fact that the Messrs. Ybarra are increasing their output of pig iron, and the furnaces at San Francisco are being increased by two that are now being erected on the most improved modern principles. Steel rails are not yet manufactured in Spain, and the iron works of Asturias and Barcelona continue steady progress, without material increase in the production of the finished article.

Nevertheless the immediate future of Spain is not without hope of greater progress than is above conceded. In our last annual report mention was made that a national industrial exhibition would open at Madrid in April of the present year, under the auspices of the Spanish government, and this display ought to do much to turn the attention of the Spanish people to the desirability and practicability of making both iron and steel sufficient for their own use and for sale to other countries. Even *Iron* itself says:

> In the spring of this year an exhibition is to be held in Madrid, under the auspices of the Spanish government, that will materially influence the mineral interests of Spain. The products of various mines in the raw state and in their various stages of manufacture up to the finished article are to be exhibited. Mining machinery of every description, both that adapted to the extraction of minerals and the drainage of mines and that used in the treatment and manufacture of all productions from the mines of Spain, is to have a place. Pottery, porcelain, and glass will exhibit to the visitors the condition to which these

branches of industry have arrived in Spain. It is anticipated that, as ample funds are voted for the especial purpose of promoting this exhibition, it will be in every way successful, and tend to advance materially these important branches of industry.

MISCELLANEOUS.

There are large and valuable deposits of iron ore in Portugal that will some day come into the market; but situated as they are, generally at some distance from the seaboard, they can not now compete with the more advantageously-placed and enormous deposits of the Bilbao district.

The Italian government has limited the exportation of iron ore from the Island of Elba to 250,000 tons annually. The production in 1880 was 287,680 tons, from six mines, employing altogether 1,200 men at two francs per day, being 69,425 tons more than in 1879. The ore is exported by contract with the government by the Elba General Miners' Bank of Leghorn, Italy. In the thirty years from 1851 to 1881 the total quantity of iron ore exported from Elba was 3,430,372 tons.

The total production of coal in New South Wales in 1881 was 1,775,224 tons, of which 739,753 tons went into home consumption, 657,135 tons were shipped to intercolonial ports, and 372,709 tons were exported to foreign countries; leaving 5,627 tons unaccounted for. In comparison with the figures for the preceding year the greatest expansion is shown in the quantity shipped to foreign ports, which was 170,025 tons more in 1881 than in 1880. The shipments to intercolonial ports increased by 106,463 tons, and the home consumption was about 27,000 tons more. The working of the iron ore deposits of the colony was only commenced at a very recent date, about 1874 or 1875; but 6,560 tons of pig iron and manufactured iron were produced in 1881, the value being £47,871.

Much has been said about the mineral wealth of Madagascar, but it is even greater than has been generally reported. Iron abounds in Imerina, sometimes in an almost pure state; indeed, so plentiful is it that it is said to be difficult for travelers, when passing through the country, to get the bearings of their compasses, owing to the deflection caused by the iron in the ground on which they stand.

Wrought iron is now successfully made at the Onehunga Iron Works, in New Zealand, direct from the Manukau iron sand of the island, which is found in great abundance, to the extent of millions of tons, on the shores of South Head and North Head harbors. The

manufacture is performed by the process invented by Mr. Joel Wilson, of New Jersey, (United States,) and the plant engaged embraces a Wilson furnace 32 feet high, a reverberatory puddling furnace, and a magnetic separator. The works are managed for Messrs. Chambers and Gardener, the proprietors, by Mr. W. H. Jones, of Rockaway, New Jersey. Extensive additions to the present plant are contemplated.

The production of coal in Nova Scotia has been as follows during the past four years: 1879, 788,271 tons; 1880, 1,032,710 tons; 1881, 1,124,270 tons; 1882, 1,365,811 tons.

The production of coal on Vancouver's Island, in British Columbia, is steadily increasing. In 1879 it was 228,974 tons; in 1880 it was 282,128 tons; and in 1881 it was 325,000 tons.