METAL STATISTICS

1922

669
M64
1922

ED BY
THE AMERICAN METAL MARKET
AND
DAILY IRON AND STEEL REPORT

PRESENTED BY

American Metal Market

Harvard
1910

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New York : American Metal
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"I know no way of judging the future but by the past."—Patrick Henry.

METAL STATISTICS 1922.

FIFTEENTH ANNUAL EDITION

PUBLISHED BY

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and
DAILY IRON AND STEEL REPORT

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BUYERS' DIRECTORY

Pages 453 to 512

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THE AMERICAN METAL MARKET CO.

PREFACE.

The fifteenth annual edition of "Metal Statistics" contains the same general assortment of statistical information concerning ferrous and non-ferrous metals that has been supplied in previous years, but various new tables have been introduced which it is hoped will further increase its usefulness to the trade. The aim each year is to furnish statistics which provide the information most generally required by the buyers of metals and iron and steel products, and the editors are always pleased to receive suggestions concerning alterations or additions that would improve the book.

Attention is directed to the fact that the prices given in this volume are based on the daily quotations appearing in our daily publication "The American Metal Market and Daily Iron and Steel Report" and represent wholesale selling prices.

All the iron and steel production statistics are gathered by the American Iron and Steel Institute, while the production statistics on metals are for the most part based on figures furnished by the United States Geological Survey, and special thanks are due to these authorities for the very complete records of production which they supply to the public each year.

C. S. J. TRENCH,
B. E. V. LUTY,

New York, March 1, 1922.

Central Admin

1922 cop

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Information and suggestions regarding investments gladly furnished.

J. M. Byrne & Co.

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Fence

Woven—Right of Way and Farm
Chain Link, Factory Partitions,
Gates

Wire

Plain and Galvanized—Spring, Rope,
Telephone, Telegraph

Rods

Ingot Iron and Special Analysis
Steels

Page Steel & Wire Co.

Bridgeport, Conn.

District Sales Offices:

CHICAGO NEW YORK PITTSBURGH
SAN FRANCISCO PORTLAND, ORE.

INDEX STEEL PRICES.

Average price obtained by weighting each price proportionate to tonnage output in 1906.

	Per-centage	Av'ge 1892	Low 1897-8	High 1899	High 1907	High 1910	High 1912-3	Low 1914	Govt. 1917-8	*High 1920	Dec.31 1921
Rails	22.6	30.00	16.00	35.00	28.00	28.00	28.00	28.00	55.00	55.00	40.00
Shapes	11.5	2.00	.95	2.25	1.70	1.55	1.50	1.05	3.00	3.75	1.50
Plates	13.3	1.90	.95	2.90	1.70	1.55	1.50	1.05	3.25	4.00	1.50
Sheets	6.7	2.90	1.90	3.35	2.55	2.40	2.35	1.80	5.00	8.00	3.00
Tin plate	3.3	5.00	2.50	4.65	3.85	3.60	3.60	3.10	7.75	9.00	4.75
Pipe	9.3	3.00	1.60	4.10	2.70	2.10	2.10	1.90	4.80	5.50	2.85
Bars	18.3	1.60	.90	2.50	1.60	1.50	1.40	1.05	2.90	4.00	1.50
Hoops	3.0	2.00	1.10	2.90	2.00	1.60	1.60	1.20	3.50	6.00	2.00
Wire (nails)	12.0	1.85	1.25	3.20	2.05	1.85	1.80	1.50	3.50	4.50	2.50
Average: Pound..		2.06	1.10	2.69	1.85	1.70	1.65	1.35	3.42	4.32	2.03
Gross ton..		46.11	24.71	60.15	41.48	37.98	36.88	30.25	76.72	96.67	45.54

* Highest prices secured by independents on any considerable tonnage.

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Finance Building, Philadelphia, Pa.
Security Building, St. Louis, Mo.
207 North Peters St., New Orleans, La.
948 Security Bldg., Minneapolis, Minn.
Book Bldg., Detroit, Mich.
448 Hanna Bldg., Cleveland, O.
Export Representatives:
Consolidated Steel Corporation, New York, N. Y.

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Works: Carnegie, Pa.

TOTAL PRODUCTION.

Gross tons, except that nails are in kegs of 100 pounds.

	1920	Total through 1920
Iron ore	67,604,465	1,425,000,000
Pig iron	36,925,987	742,000,000
O. H. steel*	32,671,895	359,000,000
Bessemer steel*	8,883,087	259,000,000
Total steel*	42,132,934	625,000,000
Iron rails	.....	10,700,000
Bessemer steel rails	142,899	64,625,000
Open-hearth rails	2,334,222	24,850,000
All steel rails†	2,477,418	89,475,000
Wire rods	3,136,907	55,400,000
Structural shapes	3,306,748	51,750,000
Cut nails (kegs)	844,583	210,000,000
Wire nails (kegs)	16,449,506	330,000,000
Tin plates	1,436,686	18,200,000

* Ingots and castings.

† Excluding rerolled rails since 1911.

Estimates for 1921.

Iron ore	29,547,000
Pig iron	16,650,000
Steel ingots	19,500,000
Steel castings	500,000
Steel ingots and castings	20,000,000
Finished rolled steel	14,750,000
Finished rolled iron	500,000

Hickman, Williams & Co.

INCORPORATED

Basic
Bessemer
Low Phos
Malleable
Foundry
Silvery
Charcoal

Ferro Silicon
Ferro Manganese
Spiegeleisen
Ferro Phosphorus
Sheet Bars
Ingots Billets Slabs

Fluor Spar
Mill Cinder
Mill Scale
Coke
Wire Rods

CHICAGO—Mc Cormick Bldg.
CINCINNATI—First National Bank Bldg.
PITTSBURGH—Oliver Bldg.
ST. LOUIS—Federal Reserve Bank Bldg.
PHILADELPHIA—Morris Bldg.
BIRMINGHAM—Brown-Marx Bldg.
NEW YORK—Equitable Bldg.

COMPOSITE PIG IRON.

Composite pig iron is a convention devised by the **American Metal Market** to show at one glance the bulk movement of all pig iron. The price of composite pig iron is thus computed (for January 1, 1922):

One ton Bessemer, valley	$20.00
Two tons basic, valley (18.25)	36.50
One ton No. 2 foundry, valley	19.50
One ton No. 2X foundry, Philadelphia	21.34
One ton No. 2X foundry, Buffalo	19.75
One ton No. 2 foundry, Cleveland	20.56
One ton No. 2 foundry, Chicago	20.20
Two tons No. 2 Southern foundry, Cincinnati (21.50)	43.00
Total, ten tons	$200.85
One ton	**$20.085**

Monthly averages of composite pig iron, 1909 to 1920, on adjacent page. Annual averages below.

1890	17.00	1906	18.84
1891	14.82	1907	22.49
1892	13.48	1908	16.02
1893	12.20	1909	16.23
1894	10.39	1910	15.55
1895	11.71	1911	14.00
1896	11.14	1912	14.82
1897	9.98	1913	15.42
1898	10.41	1914	13.52
1899	17.34	1915	14.15
1900	17.82	1916	20.31
1901	14.35	1917	39.99
1902	19.89	1918	34.38
1903	17.75	1919	29.91
1904	13.34	1920	43.80
1905	15.96	1921	24.05

Ten-year average through 1913 .... 16.267

PILLING & COMPANY

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Low Phosphorous, Malleable, Basic
Bessemer, Foundry, Forge

IRON ORES

Foreign and Domestic
All Grades

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Steam, Gas, Bunkering

COKE

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PHILADELPHIA, PA.

71 BROADWAY, NEW YORK

COMPOSITE PIG IRON—Monthly Averages.

Averaged from daily figures. Explanation of composite on adjacent page.

	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.	1921.
Jan.	16.27	17.60	14.38	13.42	17.39	13.49	13.07	18.69	30.75	34.19	32.40	39.84	32.616
Feb.	16.00	17.22	14.34	13.43	17.14	13.72	13.07	18.56	30.95	34.19	32.40	42.72	29.950
Mar.	15.41	16.70	14.42	13.58	16.78	13.84	12.97	18.57	34.53	34.14	30.47	43.05	27.351
April	14.85	16.32	14.37	13.78	16.36	13.85	12.91	19.02	39.14	33.88	28.05	43.62	25.799
May	14.85	15.75	14.24	13.92	15.68	13.81	13.03	18.97	42.04	33.88	27.74	44.44	24.469
June	15.13	15.32	14.03	14.00	14.97	13.61	13.05	18.55	48.16	33.91	27.15	44.80	23.084
July	15.49	15.13	13.93	14.29	14.58	13.52	13.13	18.58	52.56	34.05	27.66	45.60	21.571
Aug.	16.03	14.73	13.87	14.67	14.56	13.52	14.08	18.51	51.93	34.05	27.99	47.41	20.287
Sept.	17.04	14.61	13.82	15.39	14.69	13.50	14.89	18.70	47.28	34.31	28.26	48.98	20.989
Oct.	17.92	14.43	13.69	16.71	14.74	13.26	15.21	20.19	34.17	35.36	28.65	47.07	21.154
Nov.	17.95	14.41	13.53	17.23	14.28	13.05	16.40	25.24	34.19	35.39	31.48	41.80	20.916
Dec.	17.78	14.41	13.43	17.48	13.84	13.07	17.99	30.08	34.19	35.23	36.74	36.31	20.422
Av.	16.23	15.55	14.00	14.82	15.42	13.52	14.15	20.31	39.99	34.38	29.91	43.80	24.051

Jones & Laughlin Steel Company

Manufacturers of

VARIOUS STEEL PRODUCTS

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Soho Works — Aliquippa Works
Eliza Furnaces and Coke Ovens

WAREHOUSES:

Chicago — Pittsburgh

GENERAL OFFICES:

Jones & Laughlin Building
PITTSBURGH

COMPOSITE FINISHED STEEL.

Composite finished steel is a convention devised by the **American Metal Market** to show at once glance the bulk movement of prices of finished steel products, excluding rails, the groups being weighted according to their tonnage importance. The price of composite finished steel is thus computed (for January 1, 1922):

Pounds	Group	Price	Extension
2½	Bars	1.50	3.750
1½	Plates	1.50	2.250
1½	Shapes	1.50	2.250
1½	Pipe (1-3)	2.85	4.275
1½	Wire (nails)	2.50	3.750
1	Sheets (28 bl.)	3.00	3.000
½	Tin plates	4.75	2.375
10 pounds			21.650
One pound			**2.165**

Monthly averages on adjacent page. Annual averages below.

1897	1.40	1910	1.79
1898	1.40	1911	1.66
1899	2.37	1912	1.62
1900	2.26	1913	1.72
1901	2.15	1914	1.52
1902	2.06	1915	1.63
1903	1.97	1916	2.80
1904	1.77	1917	4.46
1905	1.73	1918	3.79
1906	1.90	1919	3.32
1907	2.06	1920	3.63
1908	1.98	1921	2.69
1909	1.74		

Average 1904-13.... 1.80

INLAND
BASIC OPEN HEARTH
STEEL PRODUCTS

Billets : : Shapes
Plates :: Bars
S h e e t s
R o o f i n g
R i v e t s
R a i l s
Rail Joints
Track Spikes
Track Bolts
Tie Plates

INLAND STEEL COMPANY
Chicago
First National Bank Building
Works: Indiana Harbor, Ind. and Chicago Heights, Ill.

COMPOSITE FINISHED STEEL—Monthly Averages.

Averaged from daily figures. Explanation of composite on adjacent page.

	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.	1921.
Jan.	2.03	2.06	1.92	1.86	1.74	1.51	1.77	1.54	1.46	2.14	3.55	3.80	3.58	3.35	3.25
Feb.	2.04	2.06	1.85	1.85	1.75	1.49	1.76	1.58	1.47	2.30	3.65	3.80	3.58	3.58	3.10
Mar.	2.04	2.06	1.68	1.85	1.76	1.48	1.76	1.56	1.51	2.56	3.95	3.80	3.47	3.78	2.94
Apr.	2.04	2.06	1.65	1.84	1.76	1.52	1.77	1.53	1.54	2.72	4.20	3.80	3.25	3.77	2.93
May	2.05	2.06	1.60	1.83	1.75	1.56	1.78	1.51	1.54	2.80	4.53	3.80	3.25	3.71	2.93
June	2.07	1.95	1.62	1.80	1.68	1.58	1.77	1.48	1.53	2.83	5.16	3.80	3.25	3.67	2.83
July	2.07	1.92	1.67	1.78	1.67	1.62	1.76	1.48	1.57	2.84	5.80	3.80	3.25	3.70	2.63
Aug.	2.07	1.92	1.71	1.75	1.64	1.68	1.74	1.54	1.61	2.86	5.72	3.80	3.25	3.80	2.48
Sep.	2.08	1.92	1.74	1.75	1.61	1.71	1.71	1.56	1.65	2.90	5.19	3.80	3.22	3.80	2.37
Oct.	2.08	1.92	1.79	1.74	1.55	1.76	1.68	1.52	1.73	2.97	4.14	3.80	3.23	3.67	2.31
Nov.	2.08	1.92	1.82	1.73	1.48	1.77	1.62	1.48	1.91	3.20	3.82	3.80	3.25	3.50	2.28
Dec.	2.08	1.92	1.84	1.74	1.48	1.78	1.56	1.43	2.03	3.47	3.80	3.67	3.25	3.28	2.23
Av.	2.06	1.98	1.74	1.79	1.66	1.62	1.72	1.52	1.63	2.80	4.46	3.79	3.32	3.63	2.69

HANNA

M·A HANNA & Co.

IRON ORE

From the Menominee Gogebic, Mesaba and Marquette Ranges

PIG IRON

COAL

COKE

M.A. HANNA & CO.

CLEVELAND

SALES OFFICES

Chicago New York Pittsburgh
Baltimore Cincinnati
Philadelphia Toledo Williamsport, Pa.
Buffalo Detroit
Toronto

IRON ORE PRODUCTION.

(Gross tons)
(U. S. Geological Survey)

	Lake Superior.	All other.	Total.
1901...	21,445,903	7,441,576	28,887,479
1902...	26,977,404	8,576,731	35,554,135
1903...	26,573,271	8,446,037	35,019,308
1904...	20,198,311	*7,446,019	27,644,330
1905...	33,325,018	9,201,115	42,526,133
1906...	37,876,371	9,873,357	47,749,728
1907...	41,526,579	10,194,040	51,720,619
1908...	28,108,079	7,816,692	35,924,771
1909...	41,863,635	9,291,802	51,155,437
1910...	46,328,743	10,560,991	56,889,734
1911...	35,550,225	8,326,327	43,876,552
1912...	46,368,878	8,781,269	55,150,147
1913...	52,377,362	9,603,075	61,980,437
1914...	33,540,403	7,899,358	41,439,761
1915...	46,944,254	8,582,236	55,526,490
1916...	63,735,088	11,432,584	75,167,672
1917...	63,481,321	11,807,530	75,288,851
1918...	59,779,794	9,878,484	69,658,278
1919...	52,003,000	8,463,000	60,466,000
1920...	57,945,049	9,659,416	67,604,465
20 years	835,948,688	183,281,639	1,019,230,327
1921 (est.)	25,394,000	4,153,000	29,547,000

IRON ORE ON LAKE ERIE DOCKS.

	May 1	December 1
1908	5,480,300	9,526,003
1909	5,370,268	9,471,428
1910	5,444,080	9,797,980
1911	6,687,325	9,270,341
1912	5,717,801	10,053,836
1913	5,456,774	9,250,500
1914	5,919,717	8,375,014
1915	5,893,721	8,812,499
1916	3,311,399	9,958,306
1917	4,772,232	10,023,743
1918	5,624,587	10,376,509
1919	5,686,188	10,454,843
1920	6,204,556	10,955,868
1921	8,093,854	9,032,595

W. P. SNYDER & CO.

ESTABLISHED 1888

The Shenango Furnace Co.

PITTSBURGH, PA.

IRON ORES

PIG IRON

COAL

COKE

LAKE SUPERIOR IRON ORE.

(At Lake Erie Dock).

	— Old Range —		— Mesabi —	
	Bess.	Non-Bess.	Bess.	Non-Bess.
1885	4.00	4.00		
1887 ...	6.00	5.00		
1888 ...	4.75	4.00		
1889 ...	5.00	3.75		
1890 ...	6.00	4.50		
1891 ...	4.75	3.75		
1892 ...	4.50	3.75		
1893	4.00	3.25		
1894 ...	2.75	2.00	2.50	1.75
1895 ...	2.90	2.25	2.25	1.90
1896	4.00	2.60	3.25	2.40
1897	2.65	2.25	2.10	1.80
1898 ...	2.75	1.80	2.15	1.70
1899 ...	2.80	2.00	2.25	1.90
1900 ...	5.50	4.15	4.40	4.00
1901 ...	4.25	2.85	2.75	2.35
1902 ...	4.25	3.00	3.00	2.60
1903 ...	4.50	3.60	4.00	3.20
1904 ...	3.00	2.60	2.75	2.35
1905 ...	3.75	3.20	3.50	3.00
1906 ...	4.25	3.70	4.00	3.50
1907 ...	5.00	4.20	4.75	4.00
1908-9 ..	4.50	3.70	4.25	3.50
1910 ...	5.00	4.20	4.75	4.00
1911 ...	4.50	3.70	4.25	3.50
1912 ...	3.75	3.00	3.50	2.85
1913 ...	4.40	3.60	4.15	3.40
1914	3.75	3.00	3.50	2.85
1915 ...	3.75	3.00	3.45	2.80
1916 ...	4.45	3.70	4.20	3.55
1917-8 ..	5.95	5.20	5.70	5.05
July 1, '18	6.40	5.65	6.15	5.50
Oct. 1, '18	6.65	5.90	6.40	5.75
1919 ...	6.45	5.70	6.20	5.55
1920	7.45	6.70	7.20	6.55
1921 ...	6.45	5.70	6.20	5.55

Particularly 1894 to 1899 some grades sold at materially higher prices. Base ore content (natural state) 1906 and some previous years; Bessemer, 56.70; non-Bessemer, 52.80; 1907 and later: Bessemer, 55; non-Bessemer, 51.50.

BRANCH SALES OFFICE
KIRBY BLDG.,
CLEVELAND, O.

LAKE SUPERIOR ORE SHIPMENTS.

Compiled by the Iron Trade Review—Gross tons.

1854	3,000	1897	12,475,120
1855	1,449	1898	14,042,824
1860	114,401	1899	18,271,535
1865	236,208	1900	19,080,379
1870	830,940	1901	20,615,907
1875	981,257	1902	27,585,904
1878	1,111,110	1903	24,329,710
1879	1,375,691	1904	21,849,401
1880	1,908,745	1905	34,384,116
1881	2,307,005	1906	38,565,762
1882	2,965,412	1907	42,266,668
1883	2,352,840	1908	26,014,987
1884	2,506,814	1909	42,586,869
1885	2,516,201	1910	43,435,171
1886	3,559,371	1911	32,793,130
1887	4,742,276	1912	48,221,546
1888	5,046,503	1913	49,947,116
1889	7,292,644	1914	32,729,726
1890	9,003,701	1915	47,272,751
1891	7,071,053	1916	66,658,466
1892	9,081,285	1917	64,437,003
1893	6,129,279	1918	62,836,082
1894	7,759,753	1919	48,546,651
1895	10,445,509	1920	60,411,572
1896	9,947,972	1921 (est)	25,000,000

Totals from Opening.

Opened	Range.	In 1920.	Thro. 1920.
1854	Marquette	4,608,323	136,120,955
1877	Menominee	6,562,106	127,036,680
1884	Vermillion	1,007,435	44,186,945
1884	Gogebic	8,763,332	125,725,449
1892	Mesabi	37,149,277	557,835,908
1911	Cuyuna	2,191,528	13,851,675
1892	Miscellaneous	129,571*	2,199,787

*Mayville and Baraboo

Through 1920	1,006,957,399
In 1921 (estimated)	25,000,000
Through 1921	1,031,957,399

Straub-Atkinson
Producers
Coal & Coke
Shippers
Company
Furnace, Foundry & Heating Coke
Gas, Steam, By-Product Coal
Union Arcade
Pittsburgh, Pa.

LAKE COAL SHIPMENTS.

Net tons of bituminous coal dumped over Lake Erie piers. Furnished by Ore and Coal Exchange to United States Geological Survey.

	1918.		1919.		1920.	
	Cargo.	Total.	Cargo.	Total.	Cargo.	Total.
Toledo	10,074,777	10,338,757	7,729,569	7,936,406	7,280,038	7,483,632
Sandusky	2,389,150	2,448,257	1,407,263	1,442,028	1,604,305	1,630,847
Huron	2,094,324	2,169,727	1,437,640	1,488,516	1,864,527	1,958,446
Lorain	3,342,681	3,434,994	2,720,541	2,871,450	3,276,539	3,488,182
Cleveland	3,217,801	3,533,513	2,540,928	2,800,525	1,659,608	1,859,177
Fairport	271,148	317,584	16,692	29,646	.....	.....
Ashtabula	3,405,365	3,699,048	3,622,844	3,873,791	3,583,753	3,959,855
Conneaut	2,212,947	2,245,892	1,372,321	1,382,719	2,405,884	2,446,960
Erie	1,145,114	1,200,470	865,543	925,311	733,701	840,039
Total	28,153,317	29,388,242	21,713,341	22,750,392	22,408,355	23,667,138

Corresponding figures for 1921: Cargo, 22,412,380 tons, vessel fuel 759,069 tons; total, 23,171,449 tons. Of the cargo coal, 17,632,000 tons was for American ports and 4,780,000 tons for Canadian ports.

STEAM COALS

FOR

QUALITY AND SERVICE

Webster Selected Smithing Coal

Pennsylvania Coal & Coke Corporation

Boston:
141 Milk Street

Syracuse:
Union Building

Miners and Shippers

New York: 17 Battery Place

Philadelphia:
Land Title Building

Hartford:
36 Pearl Street

PITTSBURGH DISTRICT COAL.

Mine-run, spot shipment, per net ton, f. o. b. mines, Pittsburgh district, averaged from weekly quotations in Coal Age.

	1915.	1916.	1917.	1918.	1919.	1920.	1921.
January	1.12	1.55	4.50	2.45	2.35	2.35	3.07
February	1.08	1.34	5.00	2.45	2.34	2.35	2.44
March	1.05	1.20	3.75	2.45	2.30	2.35	2.30
April	1.00	1.17	3.25	2.45	2.10	3.81	2.25
May	1.00	1.35	4.50	2.43	1.88	4.41	2.19
June	1.00	1.61	4.75	2.35	1.61	8.50	1.88
July	1.00	1.31	3.00	2.35	1.49	9.87	2.01
August	1.00	1.37	3.10	2.35	1.86	10.62	2.14
September	1.05	1.60	2.10	2.35	2.43	8.35	2.23
October	1.08	3.20	2.15	2.35	2.30	7.88	2.21
November	1.18	4.80	2.45	2.35	2.35	4.60	2.15
December	1.27	4.50	2.45	2.35	2.35	3.55	2.15
Average	1.06	2.08	3.42	2.39	2.11	5.72	2.25

KEYSTONE
Coal & Coke Co.

Manufacturers of

"KEYSTONE" STANDARD COKE

Low Sulphur, Phos. and Ash

Miners of

GREENSBURG COAL

Especially suitable for
Puddling, heating furnaces etc.
and

WESTMORELAND COUNTY LOW SULPHUR GAS COAL

ANNUAL PRODUCTION
7,000,000 Tons Coal
2,000,000 Tons Coke

General Offices: Greensburg, Pa.

Philadelphia
Widener Bldg.

Harrisburg
Kunkel Bldg.

Baltimore
Continental Bldg.

New Haven
Colonial Bldg.

Pittsburgh
Park Bldg.

Cleveland
Kirby Bldg.

COAL PRODUCTION.

Net tons, 2,000 lbs.

	Bituminous coal.	Penna. anthracite.	Total coal.
1807-20.	3,000	12,000	15,000
1821 ...	.....	1,322	1,322
1830 ...	104,800	215,272	320,072
1840 ...	1,102,931	967,108	2,070,039
1850 ...	2,880,017	4,138,164	7,018,181
1860 ...	6,494,200	8,115,842	14,610,042
1870 ...	17,371,305	15,664,275	33,035,580
1875 ...	29,862,554	22,485,766	52,348,320
1880 ...	42,831,758	28,649,812	71,481,570
1885 ...	72,824,321	38,335,974	111,160,295
1890 ...	111,302,322	46,468,641	157,770,963
1895 ...	135,118,193	57,999,337	193,117,530
1900 ...	212,316,112	57,367,915	269,684,027
1901 ...	225,828,149	67,471,667	293,299,816
1902 ...	260,216,844	41,373,595	301,590,439
1903 ...	282,749,348	74,607,068	357,356,416
1904 ...	278,659,689	73,156,709	351,816,398
1905 ...	315,062,785	77,659,850	392,722,635
1906 ...	342,874,867	71,282,411	414,157,278
1907 ...	394,759,112	85,604,312	480,363,424
1908 ...	332,573,944	83,268,754	415,842,698
1909 ...	379,744,257	81,070,359	460,814,616
1910 ...	417,111,142	84,485,236	501,596,378
1911 ...	405,907,059	90,464,067	496,371,126
1912 ...	450,104,982	84,361,598	534,466,580
1913 ...	478,435,297	91,524,922	569,960,219
1914 ...	422,703,970	90,821,507	513,525,477
1915 ...	442,624,426	88,995,061	531,619,487
1916 ...	502,519,682	87,578,493	590,098,175
1917 ...	551,790,563	99,611,811	651,402,374
1918 ...	579,385,820	98,826,084	678,211,904
1919* ..	458,063,000	88,092,000	546,155,000
1920* ..	556,516,000	89,100,000	645,616,000
1921* ..	407,000,000	87,500,000	494,500,000

* Preliminary.

Totals through 1921:

Bituminous coal	11,318,067,388
Pennsylvania anthracite ...	3,177,220,966
Total coal	14,495,288,354

WENTZ COMPANY

ANTHRACITE

Girardville
Hazle Brook
Midvalley
Upper Lehigh
Maryd
Raven Run

COKE

Furnace
Foundry

MINERS AND SHIPPERS

DEPENDABLE COAL

Our Engineering Department will assist you with combustion problems which may arise at your plant

Garfield, Miller Vein, Smokeless
Orrmont---Fairmont

BITUMINOUS

SMOKELESS
New River
Pocahontas
Somerset
Clearfield

GAS
Westmoreland
Youghiogheny
Fairmont
Kanawha

Coking Coals

General Office: 1727 Land Title Building, Philadelphia

25 Broadway
NEW YORK

Unity Building
BOSTON

Dime Bank Building
Detroit

BITUMINOUS COAL PRODUCTION BY METHODS—Net Tons, 1919.

	Total.	By hand	Shot from the solid.	Machine.	Strip pits	Unaccounted.
Alabama	15,536,721	2,765,365	7,289,462	5,135,655	276,454	69,785
Arkansas	1,429,020	54,702	1,238,187	113,218	10,982	11,931
Colorado	10,323,420	5,056,839	1,025,639	4,157,836	.....	83,106
Georgia	53,337	.....	53,337	.....	.....	.....
Illinois	60,862,608	4,518,306	19,794,179	35,913,902	413,909	222,312
Indiana	20,912,288	1,651,565	7,373,601	10,819,551	908,873	158,698
Iowa	5,624,692	1,144,701	3,709,060	659,209	.....	111,722
Kansas	5,224,724	144,861	4,421,792	54,670	584,112	19,289
Kentucky	30,036,061	1,229,768	4,536,474	23,965,661	11,261	292,897
Maryland	3,021,686	2,288,571	401,066	311,324	8,357	12,368
Michigan	996,545	12,880	39,600	943,519	.....	546
Missouri	3,979,798	614,286	1,370,414	888,657	960,511	145,930
Montana	3,236,369	377,849	1,372,239	1,429,304	.....	56,977
New Mexico	3,138,756	2,039,413	129,216	957,549	.....	12,578
North Dakota	840,959	51,352	326,698	324,961	11,003	126,945
Ohio	35,876,682	1,354,739	943,464	31,238,608	1,749,435	590,436
Oklahoma	3,802,113	30,761	1,798,838	1,798,933	158,694	14,887
Pennsylvania	150,758,154	57,222,242	5,369,605	86,382,120	670,507	1,113,680
Tennessee	5,213,205	1,290,934	2,305,833	1,597,489	9,944	9,005
Texas	1,680,656	1,293,826	376,348	10,267	.....	214
Utah	4,631,323	1,123,606	314,332	3,187,766	.....	5,619
Virginia	9,326,830	1,286,853	1,717,290	6,312,020	.....	10,667
Washington	2,990,447	1,937,697	779,635	273,115	.....	.....
West Virginia	79,036,553	20,939,708	2,375,934	55,562,196	.....	158,715
Wyoming	7,219,738	1,256,360	1,976,096	3,982,269	.....	5,013
Other states	107,373	28,748	64,954	.....	858	12,813
Total	465,860,058	109,715,932	71,103,293	276,019,799	5,774,900	3,246,134

WESTMORELAND FUEL COMPANY

Sales Offices
Union Arcade Bldg., Pittsburgh, Pa.

Executive Offices
Kuhns Bldg., Greensburg, Pa.

S. A. CARSON, Treas.

Exclusive Selling Agents for

Mt. Pleasant Coke Company's
Standard Connellsville Coke

Coxe Mining Company's
Pittsburgh No. 8 Steam Coal

Mt. Pleasant By-Product Coal Company's
By-Product and Steam Coal

AND OTHER GAS AND STEAM COALS AND CONNELLSVILLE COKE

WORLD'S COAL PRODUCTION.

Net tons of 2,000 pounds in first column, metric tons of 2,204.6 pounds in second column.

	1913.		Latest.
United States	569,960,219	1921	448,600,000
Great Britain	321,922,130	1921	166,992,000
Germany	305,714,664	1921	265,400,000
Austria	a60,575,201	1920	2,521,169
Czechoslovakia	.....	1920	30,826,300
Jugoslavia ...	.....	1919	2,497,394
Poland	.....	1919	6,083,700
France	45,108,544	1921	29,000,000
Russia	35,500,674	....	27,310,000
Belgium	25,196,869	1921	21,807,160
Japan	23,988,292	1920	31,000,000
China	15,432,200	1919	23,000,000
India	18,163,856	1920	18,000,000
Canada	15,115,089	1921	13,300,000
Australia ...	14,981,000	1920	9,100,000
Spain	4,731,647	1919	6,243,509
U. of S. Africa	9,857,361	1921	9,400,000
New Zealand	2,115,834	1919	1,847,848
Holland	2,064,608	1920	5,511,489
Chile	1,362,334	1918	1,539,314
Mexico	*982,000	1919	693,866
Turkey	909,000	1920	700,000
Italy	772,802	1920	1,811,745
Indo-China ..	617,912	1918	636,000
Dutch E. Indies	453,136	1919	841,705
Sweden	401,199	1919	429,267
Serbia	342,000	1919	104,000
Bulgaria	394,000	1920	744,000
Peru	301,970	1919	339,560
Roumania ...	265,000	1920	3,000,000
Rhodesia	237,728	1920	524,796
Oth. countries	472,000	....	.....
	1,479,500,000		†1,100,000,000

* In 1912. † Estimated for 1921 exclusively.
(a) Includes Hungary.

Bell 'Phone
Grant 957

P. & A Phone
Main 1131

Manufacturers of High Grade

"SALINA"

FIRE CLAY BRICK

"LYON" **"YOUGH"**

SILICA BRICK

Shippers of

GANISTER

Fire Brick Works
Salina, Pa.
Conemaugh Div. P. R. R.

Silica Brick Works
Childs, Pa.
Youghio. Div. P. & L. E.

Ganister Quarries
Brookes Mills, Blair Co., Pa.
Middle Div., P. R. R.

Office:
ROOM 2244 OLIVER BUILDING
PITTSBURGH, PA.

OIL AND GAS PRODUCTION.

Marketed production; petroleum in barrels of 42 gallons, natural gas in thousands of cubic feet.

	Petroleum.	Natural gas.
1859	2,000	.....
1860	500,000	.....
1870	5,260,745	.....
1880	26,286,123	.....
1890	45,823,572	.....
1900	63,620,529	.....
1910	209,557,248	.....
1911	220,449,391	.....
1912	222,935,044	562,203,452
1913	248,446,230	581,898,239
1914	265,762,535	591,866,733
1915	281,104,104	628,578,842
1916	300,767,158	753,170,253
1917	335,315,601	795,110,376
1918	355,927,716	721,100,959
1919	377,719,000	*638,600,000
1920	*443,402,000	.....
1921	†427,992,000	.....

* Preliminary. † Eleven months.

Total petroleum through 1920, 5,429,693,000 barrels.

Fuel Production in Heat Units.

Weighted average of all coal produced, = 14,250 B.t.u. per pound.

Weighted average of all petroleum produced = roughly, 19,000 B.t.u. per pound, which at about .9 sp. gr. = about 6,000,000 B.t.u. per bbl. of 42 gal.

Weighted average of all natural gas produced = about 1,025 B.t.u. per cu. ft.

Production in 1919 estimated, heat equivalent and proportion:

		Trillion B.t.u.*	%
458,063,000	net tons coal	= 15,565	84.20
377,719,000	bbl. petroleum	= 2,266	12.26
638,600,000	M. cu. ft. gas	= 655	3.54
Total		18,486	100.00

* Twelve cyphers omitted.

YOLANDE COAL & COKE COMPANY

GENERAL OFFICE, BIRMINGHAM, ALA.

We
Specialize
in

FOUNDRY COKE AND BLACKSMITH COAL

YOLANDE 72 HOUR HAND PICKED FOUNDRY COKE

Without an equal for 15 years

YOLANDE WASHED AND SIZED BLACKSMITH COAL

High Carbon. Low Ash and Sulphur.
Short Blue Flame—Free of Thick Smoke.
Crushed, Washed and Sized
Thru Two Screens Under Water.

ANALYSIS

	Blacksmith Coal	Foundry Coke
Fixed Carbon	67.15	88.70
Volatile	24.70	1.10
Ash	7.30	9.70
Moisture	.85	.50
Total	100.00	100.00
Sulphur	.65	.71
B. T. U's (dry basis)	15,205	

YOLANDE COAL & COKE COMPANY
Originated the "Sizing & Rewashing" of
Smithing Coal

ADAMS, ROWE & NORMAN,
Birmingham, Alabama
Exclusive Sales Agents.
Inquiries Appreciated.

COKE PRODUCTION—Short tons.

	Beehive.	By-product.	Total.
1895	13,315,193	18,521	13,333,714
1899	18,762,035	906,534	19,668,569
1900	19,457,621	1,075,727	20,533,348
1905	28,768,781	3,462,348	32,231,129
1906	31,843,090	4,558,127	36,401,217
1907	35,171,665	5,607,899	40,779,564
1908	21,832,292	4,201,226	26,033,518
1909	33,060,421	6,254,644	39,315,065
1910	34,570,076	7,138,734	41,708,810
1911	27,703,644	7,847,845	35,551,489
1912	32,868,435	11,115,164	43,983,599
1913	33,584,830	12,714,700	46,299,530
1914	23,335,971	11,219,943	34,555,914
1915	27,508,255	14,072,895	41,581,150
1916 ...	†35,464,224	19,069,361	54,533,585
1917	33,167,548	22,439,280	55,606,828
1918	30,480,605	†25,997,580	†56,478,185
1919 ...	*19,650,000	25,143,542	*44,793,542
1920 ...	*20,980,000	*30,908,000	*51,888,000
1921 ...	* 5,500,000	*20,000,000	*25,500,000

* Preliminary. † Maximum.

Number of ovens completed at end of year, U. S. Geological Survey.

	Beehive.	Retort.
1900	57,309	1,085
1901	62,786	1,165
1902	67,406	1,663
1903	77,378	1,956
1904	80,689	2,910
1905	84,461	3,103
1906	90,354	3,547
1907	95,996	3,684
1908	97,419	3,799
1909	99,993	3,989
1910	100,362	4,078
1911	99,255	4,624
1912	97,019	5,211
1913	96,962	5,488
1914	93,946	5,809
1915	93,110	6,268
1916	91,581	7,283
1917	88,027	7,869
1918	84,635	9,279
Retort ovens operating during 1920		11,038

Hillman Coal & Coke Co.

First Nat'l. Bank Bldg., Pittsburgh

Standard Connellsville Coke

Low Ash
Low Sulphur
Low Phosphorus

BLAST FURNACE, FOUNDRY, SMELTER

High Grade Pittsburgh Coals

Suitable For
Gas Making, Steam Making
or By-Product Coking

ANY RAILROAD DELIVERY

CONNELLSVILLE COKE.

Compiled by Connellsville Courier, Connellsville and Lower Connellsville region.

	Total Ovens.	Shipments, Net tons.	Average Price.
1880	7,211	2,205,946	$1.79
1885	10,471	3,096,012	1.22
1890	16,020	6,464,156	1.94
1893	17,513	4,805,623	1.49
1894	17,834	5,454,451	1.00
1895	17,947	8,244,438	1.23
1896	18,351	5,411,602	1.90
1897	18,628	6,915,052	1.65
1898	18,643	8,460,112	1.55
1899	19,689	10,129,764	2.00
1900	20,954	10,166,234	2.70
1901	21,575	12,609,949	1.95
1902	26,329	14,138,740	2.37
1903	28,092	13,345,230	3.00
1904	29,119	12,427,468	1.75
1905	30,842	17,896,526	2.26
1906	34,059	19,999,326	2.75
1907	35,697	19,029,058	2.90
1908	37,842	10,700,022	1.80
1909	39,158	17,785,832	2.00
1910	39,137	18,689,722	2.10
1911	38,904	16,334,174	1.72
1912	38,884	20,000,873	1.92
1913	39,067	20,097,901	2.95
1914	37,965	14,075,638	2.00
1915	38,986	17,921,216	1.80
1916	38,362	21,654,502	2.58
1917	38,110	17,806,181	6.25
1918	37,061	16,138,590	7.25
1919	35,758	10,254,640	4.70
1920	35,678	10,750,227	8.30
1921	35,473	3,572,417	4.07

Production by quarters, 1921:

	Merchant.	Furnace.	Total.
1st	320,029	1,330,082	1,650,111
2nd	273,402	242,144	515,546
3rd	287,158	152,636	439,794
4th	480,366	486,600	966,966
Year	1,360,955	2,211,462	3,572,417
Connellsville total			2,090,610
Lower Connellsville total			1,481,807

Washington Coal & Coke Company

OFFICE OF SALES AGENT
FIRST NATIONAL BANK BUILDING
PITTSBURGH, PA.

Manufacturers of
HIGHEST GRADE

Connellsville Coke

For Blast Furnaces and Foundries

SUPERIOR HIGH VOLATILE

BY-PRODUCT Coking Coal

The shipment of Washington Coking Coal to By-Product Ovens regularly for over 15 years has demonstrated the unusual merit in this Coal for By-Product oven use.

We sell nothing but our own products, which insures customers uniform quality.

Coke Production 60,000 tons - per month - Coal Shipping Capacity 55,000 tons

GENERAL OFFICES
DAWSON, Fayette County, Pa.

CONNELLSVILLE COKE.

Prompt shipment, per net ton, f.o.b. ovens.

	Furnace													Foundry			
	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	1918	1919	1920	1921
Jan.	1.70	2.60	1.40	1.88	3.85	1.88	1.55	3.14	9.44	6.00	5.84	6.00	5.10	7.00	6.85	7.00	6.75
Feb.	1.65	2.25	1.47	1.84	2.60	1.90	1.55	3.41	10.57	6.00	4.72	6.00	4.80	7.00	5.54	7.00	6.15
Mar.	1.55	2.00	1.57	2.04	2.47	1.92	1.53	3.45	9.58	6.00	4.05	6.00	4.43	7.00	4.75	7.00	5.63
April	1.43	1.80	1.58	2.53	2.20	1.90	1.55	2.45	8.00	6.00	3.71	11.10	3.60	7.00	4.63	13.10	5.15
May	1.45	1.70	1.50	2.37	2.15	1.83	1.50	2.34	8.40	6.00	3.80	14.50	3.40	7.00	4.65	14.00	5.10
June	1.50	1.65	1.45	2.21	2.20	1.80	1.50	2.54	11.20	6.00	3.92	15.60	3.12	7.00	4.75	16.00	4.67
July	1.55	1.65	1.45	2.34	2.50	1.75	1.67	2.65	12.32	6.00	4.06	18.00	2.95	7.00	5.08	19.00	4.20
Aug.	1.75	1.65	1.53	2.25	2.50	1.74	1.54	2.75	13.42	6.00	4.32	17.78	2.95	7.00	5.64	19.15	4.20
Sept.	2.30	1.60	1.50	2.42	2.37	1.70	1.66	2.94	11.85	6.00	4.42	16.85	3.26	7.00	6.16	18.25	4.34
Oct.	2.80	1.55	1.50	3.46	2.10	1.65	2.18	5.69	6.00	6.00	4.60	14.95	3.35	7.00	6.24	17.25	4.40
Nov.	2.85	1.45	1.50	3.95	1.88	1.60	2.35	6.91	6.00	6.00	6.05	8.54	3.15	7.00	7.05	10.60	4.17
Dec.	2.85	1.50	1.68	4.00	1.77	1.60	2.85	9.00	6.00	6.00	6.81	6.25	2.90	7.00	7.28	7.75	4.00
Av.	1.95	1.78	1.51	2.61	2.38	1.77	1.79	3.94	9.40	6.00	4.69	11.80	3.58	7.00	5.72	13.01	4.90

Note—Government price limits. Announcement September 24, 1917, coke, $6.00; announcement November 9, 1917, furnace coke, $6.00; foundry $7.00. Off, January 31, 1919. On again December 8, 1919; off, April 1, 1920.

BELGIAN AMERICAN COKE OVENS CORPORATION

This company is prepared to contract for the building of Piette By-Product Recovery Coke Ovens, with or without recovery of heat; also for plants for condensation and distillation of tar, production of sulphate of ammonia or concentrated liquor, recovery of benzol and carbolic acid, manufacturing of pure products; volatile alkali, benzene, toluene, xylene, naphthlene, phenol.

A battery of ovens is now in operation by the Laclede Gas Light Company in St. Louis, Missouri. An inspection of the plant and results obtained is requested.

RESULTS GUARANTEED

686 East Catalan Street, St. Louis, Mo. } **OFFICES** { **25 Broad Street, New York, N. Y.**

BY-PRODUCTS OBTAINED FROM COKE-OVEN OPERATIONS.

Geological Survey; by-products produced and sold in 1919 at by-product ovens; coke produced, 25,143,542 short tons.

Product		Production	Sales	Value of Sales	Unit Value
Tar	gallons	288,898,764	217,980,143	$ 6,919,265	$0.032
Ammonia:					
Sulphate	pounds	544,231,985	557,619,631	21,075,718	.038
Anhydrous or free ammonia (a)	pounds	50,535,639	51,646,744	5,692,950	.110
Gas	M cu. ft.	415,642,265	.....	.....	....
Illuminating and household purposes	" "	.....	5,238,486	2,106,806	.402
Industrial purposes	" "	.....	138,179,761	8,015,877	.058
To public service corporations	" "	.....	49,655,732	6,562,324	.132
Benzol products:					
Crude light oil	gallons	92,356,750	.....	.....	.....
Secondary light oil	"	44,060,970	44,697,615	7,776,669	.174
Benzol	"	17,006,532	18,403,909	3,783,552	.206
Refined toluol	"	1,160,136	1,353,827	355,990	.263
Solvent naphtha	"	3,915,489	3,625,978	552,853	.153
Other oils	"	575,885	127,483	18,358	.144
Crude naphthalene	pounds	3,549,998	4,038,455	82,244	.020
Refined naphthalene	"	2,763,271	2,663,585	109,120	.041
Other products (b)		.....	.....	645,142	....
Total		.....	.....	(c) $63,696,868	....

(a) Includes liquor and sulphate sold by pound of ammonia.

(b) Includes sodium ferrocyanide, pyridin oil, nut coke, drip oil, spent oxide, residue, coal tar, paint and wash oil.

(c) Does not include value of 1,839,291 net tons of coke breeze, valued at $2,442,541.

HARBISON-WALKER REFRACTORIES CO.

Manufacturers Of

Highest Grade Silica,
Magnesia, Chrome,
Fire Clay and
Acid-Proof Brick

Dead-Burned
Magnesite
and Chrome Ore

THERMOLITH
High Temperature Cement

General Offices
PITTSBURGH, PA.

SALES OFFICES:

New York Philadelphia Chicago
Birmingham Pittsburgh
Cleveland Buffalo
Detroit Montreal

PIG IRON PRODUCTION.

(Tons, 2,240 lbs.)

1855	700,159	1897	9,652,680*
1856	788,515	1898	11,773,934*
1857	712,640	1899	13,620,703*
1858	629,548	1900	13,789,242*
1859	750,560	1901	15,878,354*
1860	821,223*	1902	17,821,307*
1861	653,164	1903	18,009,252*
1862	703,270	1904	16,497,033
1863	846,075*	1905	22,992,380*
1864	1,014,282*	1906	25,307,191*
1865	831,770	1907	25,781,361*
1866	1,205,663*	1908	15,036,018
1867	1,305,023*	1909	25,795,471*
1868	1,431,250*	1910	27,303,567*
1869	1,711,287*	1911	23,649,547
1870	1,665,179	1912	29,726,937*
1871	1,706,793	1913	30,966,152*
1872	2,548,713*	1914	23,332,244
1873	2,560,963*	1915	29,916,213
1874	2,401,262	1916	39,434,797*
1875	2,023,733	1917	38,621,216
1876	1,868,961	1918	39,054,644
1877	2,066,594	1919	31,015,364
1878	2,301,215	1920	36,925,987
1879	2,741,853*	1921 est.	16,650,000
1880	3,835,191*		
1881	4,144,254*	Totals.	
1882	4,623,323*	1831-40	2,400,000
1883	4,595,510	1841-50	5,500,000
1884	4,097,868	1851-60	6,700,000
1885	4,044,526	1861-70	11,366,963
1886	5,683,329*	1871-80	24,055,278
1887	6,417,148*	1881-90	56,902,041
1888	6,489,738*	1891-00	98,124,754
1889	7,603,642*	1901-10	211,321,934
1890	9,202,703*		
1891	8,279,870	1831-10	416,370,970
1892	9,157,000	1911-20	322,643,101
1893	7,124,502		
1894	6,657,388	1831-20	739,014,071
1895	9,446,308*		
1896	8,623,127	* Record years	

Star Clay Products Co.

Pittsburgh, Pa.

Miners, Manufacturers and Distributors

STAR CLAY PRODUCTS

HAND MADE—DRY AND REPRESS

FIRE BRICK

FOR

Furnaces of All Kinds
Ladles—Boilers—Stoves—Kilns
Cupola Block and Special Shapes
FIRST AND SECOND QUALITY

FIRE CLAYS

FLINT & PLASTIC—RAW OR CALCINED

Ground to YOUR Specification from
PEA size to DUST

W. VA.	CLAYS	FUSION	2714°
OHIO	"	"	2894° to 3182°
PENNA.	"	"	3002° to 3038°
JERSEY	"	"	3182°
KENTUCKY	"	"	3254°
MT. SAVAGE MARYLAND		"	3218° to 3290°

Special Mix
CLAYS for ALL Purposes

Star CLAY Products in use throughout the United States and Canada. There's a REASON. Are YOU getting RESULTS?

PRODUCTION OF PIG IRON BY GRADES.

(Tons of 2,240 pounds.)

Grades—	1900.	1905.	1910.	1915.	1919.	1920.
Bessemer	7,943,452	12,220,209	10,986,565	10,120,224	9,975,934	12,062,084
Low phosphorus	35,875	186,907	259,077	403,082	(†)	(†)
Basic (mineral fuel)	1,072,376	4,105,179	9,084,668	13,093,214	14,494,131	16,737,722
Foundry	3,376,445	4,697,383	5,144,635	4,712,282	4,916,758	5,957,782
Ferrosilicon	(*)	60,655	115,812	131,617	(*)	(*)
Malleable	173,413	635,236	843,123	829,921	1,009,049	1,310,951
Forge	793,092	727,817	564,157	316,214	271,286	318,048
Spiegeleisen	207,505	227,797	153,055	97,885	84,246	111,449
Ferromanganese	48,472	62,186	71,376	149,521	185,357	295,447
All other	138,612	69,011	81,159	62,253	78,603	132,504
Totals	13,789,242	22,992,380	27,303,567	29,916,213	31,015,364	36,925,987

*Included in foundry. † Included in Bessemer.

The Ironton Fire Brick Co.

INCORPORATED

MANUFACTURERS OF HIGH GRADE

FIRE BRICK

Made from the famous

OLIVE HILL, KENTUCKY CLAYS

Also Ground Fire Clay

Mines: Bradmyer, Carter County, Ky.

GENERAL OFFICE AND WORKS:

IRONTON, OHIO

PIG IRON PRODUCTION.

(Tons, 2,240 lbs.)

Production by fuels, 1920:	
Coke (and bituminous coal) ..	36,300,024
Anthracite and coke	302,567
Charcoal (cold blast)	1,734
Charcoal (hot and warm blast) .	321,662
Total	36,925,987
Maximum anthracite. 1887	2,087,847
Maximum charcoal, 1890	628,145

Consumption of materials, 1920:	
Ore, briquettes, etc., tons	66,449,584
Scrap, scale, cinder, etc., tons ..	4,986,435
Limestone, tons	17,825,095
Coke, net tons	41,976,171
Bituminous coal, net tons	70,214
Anthracite, tons	57,369
Charcoal, bushels	31,798,814

Consumption per ton of iron made:	
Ore, briquettes, etc., tons	1.807
Scrap, scale, cinder etc. ton	.136
Limestone, pounds	1,086.0
Coke and bituminous coal, pounds	2,305.7
Charcoal, bushels (about 20 lbs.)	98.3
Anthracite and coke pig:	
Anthracite, pounds	424.7
Coke, pounds	2,515.8

Total pig iron by half years:

	First half.	Second half.	Total.
1913	16,488,602	14,477,550	30,966,152
1914	12,536,094	10,796,150	23,332,244
1915	12,233,791	17,682,422	29,916,213
1916	19,619,522	19,815,275	39,434,797
1917	19,258,235	19,362,981	38,621,216
1918	18,227,730	20,826,914	39,054,644
1919	16,278,175	14,737,189	31,015,364
1920	18,435,602	18,490,385	36,925,987
1921	9,530,981	*7,120,000	*16,650,000

* Estimated.

Crocker Bros.

21 East 40th Street

NEW YORK

Ferro Manganese

Ferro Silicon

Low Phosphorus Pig Iron

Foundry Pig Iron - Coke

Philadelphia Boston Cincinnati

FERROMANGANESE IMPORTS AND PRODUCTION.

Ferromanganese, 80 per cent. gross tons; imports of manganese ore and oxide are general imports; of ferromanganese, imports for consumption to January 1, 1916, general imports thereafter; ferromanganese average value per ton is at foreign shipping port, no freight or duty.

	Manganese ore imports.	Ferromanganese imports.	Average value.	Ferromanganese production.	Production plus imports.
1905	257,033	52,841	35.67	62,186	115,027
1906	221,260	84,359	58.72	55,520	139,879
1907	209,021	87,400	61.27	55,918	143,318
1908	178,203	44,624	41.70	40,642	85,266
1909	212,765	88,934	38.19	82,209	171,143
1910	242,348	114,278	37.99	71,376	185,654
1911	176,852	80,263	37.56	74,482	154,745
1912	300,661	99,137	39.41	125,378	224,515
1913	345,090	128,070	44.37	119,495	247,565
1914	283,294	82,997	43.61	106,083	189,080
1915	313,985	55,263	60.33	149,521	204,784
1916	576,321	90,928	101.62	221,532	312,460
1917	629,972	45,381	134.58	260,125	305,506
1918	491,303	27,168	156.75	333,027	360,195
1919	333,344	33,022	129.72	185,357	218,379
1920	601,437	59,254	131.22	295,447	354,701
1921* ...	395,074	9,000	97.82	104,000	113,000

* Partly estimated.

AMERICAN MANGANESE MANUFACTURING CO.

BULLITT BUILDING
PHILADELPHIA

Sales Office:
Oliver Bldg., Pittsburgh, Pa.

Furnaces:
Dunbar, Pa.

Ferro-Manganese, Spiegeleisen
Pig Iron - Iron Ores
Manganiferous Ores

E. E. MARSHALL

BULLITT BLDG.
PHILADELPHIA

Operating

Lochiel Furnace
Harrisburg, Pa.

Marshall Furnace
Newport, Pa.

Graham Furnace
Graham, Va.

PIG IRON - SPIEGELEISEN
FERRO-MANGANESE

FERROMANGANESE.

Averaged from daily quotations, carloads to 100 tons, f.o.b. Baltimore; in 1917 and later, delivered; 80%, except May 16, 1918, to November 11, 1918, 70%.

	1910.	1911.	*1912.	*1913.	*1914.	*1915.	*1916	1917.	1918.	‡1919.	*1920.	‡1921.
Jan..	44.25	38.25	41.00	65.00	43.42	68.00	115.40	175.00	250.00	190.00	147.00	105.00
Feb..	43.60	37.75	41.00	65.00	38.33	68.00	139.00	210.00	250.00	160.00	160.00	90.00
Mar..	42.75	37.30	41.40	64.00	38.40	78.00	175.00	270.00	250.00	140.00	172.50	90.00
April.	41.00	36.75	42.54	61.00	38.00	78.00	175.00	325.00	250.00	120.00	191.50	90.00
May.	40.75	36.50	47.25	61.00	38.00	91.00	175.00	400.00	250.00	110.00	200.00	85.00
June.	39.75	36.50	48.50	61.00	38.00	100.00	175.00	400.00	250.00	110.00	200.00	75.00
July.	39.25	36.85	49.27	59.00	37.50	100.00	175.00	400.00	250.00	110.00	200.00	70.00
Aug..	39.25	37.00	51.56	56.70	‡111.00	100.00	175.00	375.00	250.00	105.00	187.00	68.50
Sept.	39.40	36.50	56.02	54.50	83.00	107.50	165.00	360.00	250.00	100.00	170.00	66.00
Oct..	38.85	37.00	60.28	†50.28	68.00	105.00	165.00	300.00	250.00	105.00	160.00	60.00
Nov..	38.50	37.04	61.42	50.00	68.00	105.00	165.00	250.00	250.00	112.50	155.00	60.00
Dec..	38.50	39.50	65.00	47.00	68.00	106.00	170.00	245.00	200.00	123.08	125.00	59.00
Av. .	40.49	37.25	50.40	57.87	55.80	92.21	164.12	309.17	245.83	132.16	172.33	76.54

* Contract prices. † Tariff off, October 4, 1913, $2.50. ‡ Prompt.

Ferro - Alloys
Ores

FERRO-MANGANESE
FERRO-SILICON
FERRO-CHROME
FERRO-MOLYBDENUM
FERRO-TUNGSTEN
FERRO-VANADIUM
Lump — *Ground*

SPIEGELEISEN

CHROME ORE
MANGANESE ORE
Lump — *Ground*

Manganese Dioxide
Foreign - **Fluor Spar** - *Domestic*
Chrome Brick - *Magnesite Brick*
Chrome Cement - *Silica Cement*
Silica Brick - *Zirconia Ore*
Fire Clay Brick

Crushed Limestone *Trap Rock*
Building Stone

E. J. LAVINO
AND COMPANY
Bullitt Bldg., Philadelphia, Pa.
Oliver Bldg., Pittsburgh, Pa.

SPIEGELEISEN.

Imports for consumption, with average stated value (at foreign port) and domestic production, calendar years, gross tons.

	Imports.	Value.	Production.	Supply.
1903	122,016	$22.21	156,700	278,716
1904	4,623	28.65	162,370	166,993
1905	55,457	24.09	227,797	283,254
1906	103,267	28.50	244,980	348,247
1907	48,995	28.56	283,430	332,425
1908	4,579	27.31	111,376	115,955
1909	16,921	20.89	142,831	159,752
1910	25,383	19.27	153,055	178,438
1911	20,970	19.33	110,236	131,206
1912	1,015	27.68	96,346	97,361
1913	77	28.22	110,338	110,415
1914	2,870	24.79	79,935	82,805
1915	200	25.55	97,885	98,085
1916	0	....	194,002	194,002
1917	3,968	73.49	192,985	196,953
1918	1,969	115.80	283,853	285,822
1919	27	37.70	84,246	84,273
1920	5,234	53.10	111,449	116,683
1921	*269	34.32	†52,408	.....

* First nine months. † First six months.

MANGANESE ORE PRODUCTION.

Maximum production prior to 1917, ore 35% and over, 1887, 34,524 gross tons.

Ore shipped or marketed, gross tons:

	35%	10-35%	5-10%
1910	2,258	41,260	19,841
1911	2,457	37,584	6,853
1912	1,664	40,863	10,654
1913	4,048	51,512	7,891
1914	2,635	91,666	6,599
1915	9,613	180,953	14,782
1916	31,474	453,853	90,473
1917	129,405	730,759	130,185
1918	305,869	916,163	254,299
1919	55,322	309,834	123,899
1920	94,420	481,249	286,415
1921 (est.) ..	13,000	72,000	14,000

STANDARD ANALYSES.

Steel Making and Malleable Iron.

	Silicon.	Sulphur.	Phosphorus.
Basic (Must be cast in chills)	Not over 1.00	Not over .05	(Note A)
Malleable (Note B)	*.75—2.00	Not over .05	Not over .20
Bessemer	1.00—2.00	Not over .05	Not over .10
Low phosphorus	1.00—2.00	Not over .04	Not over .04
Washed Metal	.....	*.015—.040	*.015—.040

* As specified by buyer.

Note A.—Virginia, Southern and some Eastern basic, not over 1.00; Northern, all districts, not over .40; some valley furnaces, not over .25.

Note B.—Standard, guaranteed under .80 in manganese.

Standard No. 2 Foundry Iron.

	Silicon.	Sulphur. Not over	Phosphorus.	Manganese About
Central West, valleys, Central lake ports, Chicago; standard	1.75—2.25	.05	.40— .70	.50—1.00
Same districts, extra strong or car wheel	1.25—1.75	"	not over .20	.75—1.25
Buffalo District	1.75—2.25	"	.40—. 70	.50—1.00
Eastern Points	1.75—2.25	"	.50— .90	.50— .90
Virginia	1.75—2.25	"	.60— .80	*.60— .80
Standard Alabama	1.75—2.25	"	.80—1.00	.20— .50
Alabama high manganese	1.75—2.25	"	.80—1.00	.50—1.00
Standard Tennessee (Note A)	1.75—2.25	"	1.10—1.75	.20— .80

* Can also supply high manganese.

Note A.—This analysis now made by several Northern furnaces.

A difference of .50 in silicon usually made between grades coming from same district.

All iron sold per ton 2,240 lbs., f.o.b. furnace. The sand ton of 2,268 lbs., has disappeared.

MANGANESE ORE IMPORTS.

Imports of manganese oxide and ore of manganese, gross tons and average value per ton at foreign port.

	1915.	1916.	1917.	1918.	1919.	1920.	1921.
Cuba, tons	5,141	30,563	44,511	82,974	35,320	8,247	34
Value	$13.52	$16.82	$13.75	$33.15	$40.58	$32.34	$19.97
Brazil tons	268,786	471,837	512,517	345,877	246,592	421,523	262,468
Value	$ 8.26	$15.12	$16.74	$29.41	$29.10	$20.96	$ 7.44
British India, tons	36,450	51,960	48,975	29,275	9,200	71,238	113,730
Value	$ 5.34	$ 7.74	$ 7.40	$18.72	$27.71	$ 7.74	$ 6.46
Japan, tons	2,810	5,196	2,745	709	651	474	20
Value	$38.00	$31.40	$31.16	$42.79	$60.11	$77.56	$48.25
Other countries, tons	798	16,765	21,224	32,468	41,581	105,455	25,102
Value	$56.00	$26.70	$29.35	$49.09	$55.91	$24.11	$27.02
Total tons	313,985	576,321	629,972	491,303	333,344	606,937	401,354
Av. value per ton	$ 8.38	$15.05	$16.27	$30.73	$33.69	$20.15	$ 8.39

High Grade Metals and Alloys

Ferro Chromium	60% Cr.
Ferro Vanadium	35 - 40% V.
Ferro Tungsten	75 - 80% W.
Ferro Molybdenum	55 - 65% Mo.
Ferro Titanium	25% Ti.
Pure Tungsten Powder	97% W.
Tungtabs	97% W.
Pure Cobalt	97 - 98% Co.
Pure Chromium	97 - 98% Cr.
Pure Manganese	95 - 98% Mn.
Manganese Copper	30/70%

(The Thermit alloys mentioned above are technically carbon free)

We also produce the following Aluminum Alloys:

Manganese, Titanium, Copper and Boron

Write for metal booklet No. 2066

METAL & THERMIT CORPORATION

120 BROADWAY, NEW YORK

Boston Toronto
Pittburgh Chicago S. San Francisco

BESSEMER PIG IRON.

Standard Bessemer pig iron, delivered Pittsburgh; quarterly and annual averages:

	1st.	2nd.	3rd.	4th.	Year.
1886 ..	19.63	18.80	17.78	19.67	18.96
1887 ..	22.35	21.73	21.58	19.80	21.36
1888 ..	17.75	16.82	17.40	17.55	17.38
1889 ..	16.53	16.08	17.28	22.08	18.00
1890 ..	22.13	18.13	18.24	16.98	18.87
1891 ..	16.09	16.18	15.91	15.28	15.87
1892 ..	15.20	14.26	13.88	13.79	14.28
1893 ..	13.47	13.48	12.60	11.16	12.68
1894 ..	10.56	11.57	11.57	10.57	11.06
1895 ..	10.06	11.55	15.34	13.95	12.73
1896 ..	12.32	12.70	11.36	11.64	12.00
1897 ..	10.56	9.57	9.56	10.23	9.98
1898 ..	10.10	10.35	10.46	10.36	10.31
1899 ..	12.82	16.63	21.83	24.30	18.89
1900 ..	24.90	22.30	14.85	13.32	18.84
1901 ..	14.62	16.12	16.00	16.17	15.73
1902 ..	16.98	19.53	21.45	22.32	20.07
1903 ..	21.35	19.92	18.32	14.96	18.64
1904 ..	13.70	13.32	12.64	14.96	13.66
1905 ..	16.40	16.01	15.33	17.61	16.33
1906 ..	18.14	18.14	18.84	22.21	19.33
1907 ..	22.86	23.50	23.04	21.07	22.62
1908 ..	18.25	17.11	16.25	16.54	17.04

Note.—Valley-Pittsburgh freight irregular prior to 1899, then 75 cents; January 1, 1900, 90 cents; February 1, 1901, 75 cents; January 1, 1903, 85 cents; June 1, 1907, 90 cents.

Doing It Electrically!

55,000 horse power hydro electric plant at Hales Bar, Tennessee River.

"The Dynamo of Dixie"

as Chattanooga is known Industrially, is now producing

50% FERRO SILICON

Silvery Pig any desired Silicon

Bessemer Ferro Silicon in Pig Form

Favorable rail and water freight rates to majority of consuming points.

Chattanooga Electro Metals Company

Southern Ferro Alloys Co.

Chattanooga, Tenn., U. S. A.

Cable address "Soferalco - Chattanooga"
All standard codes used.

BESSEMER PIG IRON, VALLEY.

Averaged from daily quotations, f. o. b. valley furnaces, ordinary deliveries.

	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.	1921.
Jan.	17.94	16.28	19.00	15.00	14.19	17.25	14.06	13.75	21.00	35.00	36.30	32.20	37.65	32.00
Feb.	16.96	15.83	18.25	15.00	14.00	17.25	14.13	13.64	20.50	35.00	36.30	32.20	41.67	29.63
Mar.	16.97	15.50	17.75	15.00	14.11	17.20	14.20	13.60	20.67	36.70	36.13	30.73	42.00	26.70
Apr.	16.50	14.89	17.40	15.00	14.21	17.00	14.00	13.60	21.00	41.36	35.20	27.95	42.21	25.00
May	16.00	14.87	16.25	15.00	14.24	17.00	14.00	13.60	21.00	44.12	35.20	27.95	42.54	24.32
June	15.99	15.23	15.75	15.00	14.25	16.34	4.00	13.75	21.00	53.50	35.20	27.95	43.23	22.88
July	15.69	15.50	15.54	15.00	14.26	15.86	14.00	13.98	21.00	55.56	35.20	27.95	45.58	21.34
Aug.	15.33	16.26	15.19	15.00	14.59	15.63	14.00	15.12	21.00	54.26	35.20	27.95	47.35	20.00
Sep.	15.05	17.54	15.00	15.00	15.35	15.75	14.00	15.93	21.33	47.58	35.20	27.95	48.50	20.00
Oct.	14.81	18.85	15.00	14.54	16.87	15.67	13.97	16.00	23.81	36.30	35.20	27.95	47.67	20.00
Nov.	15.81	19.00	15.00	14.24	17.10	15.23	13.75	16.67	29.40	36.30	35.20	29.44	40.84	20.00
Dec.	16.50	19.00	15.00	14.25	17.25	14.95	13.75	19.19	34.84	36.30	35.20	35.27	35.00	20.00
Av.	16.13	16.56	16.26	14.84	15.04	16.26	13.99	14.90	23.05	42.67	35.46	29.62	42.85	23.49

Walter - Wallingford

and Company

PIG IRON

IRON ORE

ALLOYS

COKE

OFFICES

CINCINNATI, CHICAGO

PITTSBURGH

THE BESSEMER AVERAGE.

As compiled monthly by W. P. Snyder & Company from the actual sales of standard Bessemer pig iron by valley furnaces. Prices are f.o.b. valley furnaces.

	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.	1921.
Jan.	16.44	19.00	15.00	14.08	17.25	14.04	13.64	20.65	35.00	36.30	32.20	39.07	32.00
Feb.	15.88	18.06	15.00	14.00	17.25	14.23	13.60	21.21	35.42	36.30	32.20	41.54	27.00
Mar.	15.44	17.58	15.00	14.05	17.25	14.17	13.60	20.86	36.42	36.30	31.14	42.00	26.20
Apr.	14.90	17.38	15.00	14.25	17.01	14.00	13.60	20.70	41.33	35.20	27.95	42.32	25.00
May	14.58	16.20	15.00	14.23	16.78	14.00	13.66	20.83	45.99	35.20	27.95	42.60	24.25
June	15.23	15.62	15.00	14.25	16.24	14.00	13.75	21.00	53.27	35.20	27.95	43.49	23.00
July	15.47	15.50	15.00	14.25	15.41	14.00	13.99	21.00	56.50	35.20	27.95	45.81	20.88
Aug.	16.23	15.15	15.00	14.53	15.66	14.00	15.06	21.00	53.22	35.20	27.95	47.39	20.00
Sept.	17.43	15.02	15.00	15.96	15.75	14.00	15.91	21.93	45.45	35.20	27.95	48.50	20.00
Oct.	18.78	15.00	14.54	17.00	15.70	13.94	16.00	23.66	36.30	35.20	27.95	47.25	20.00
Nov.	19.00	14.94	14.02	17.17	15.13	13.64	16.62	29.12	36.30	35.20	30.20	39.30	20.00
Dec.	19.00	15.00	14.19	17.30	14.84	13.75	19.02	34.21	36.30	35.20	35.43	35.00	20.00
Av.	16.53	16.20	14.81	15.09	16.19	13.98	14.87	22.93	42.63	35.48	29.74	42.86	23.19

Valley-Pittsburgh freight advanced from 90 cents to 95 cents on October 26, 1914, from Mahoning valley; November 16, 1914, from Shenango valley; June 1, 1918, 1.10; June 25, 1918, 1.40; August 26, 1920, 1.96.

Cooper, Claypool & Co.

Limited

PITTSBURGH

COAL

STEAM - LOW VOLATILE
GAS AND BY-PRODUCT

COKE

FURNACE, FOUNDRY, HEATING
AND CRUSHED

PIG IRON

BESSEMER BASIC
MALLEABLE

STEEL

BESSEMER AND OPEN-HEARTH
BILLETS
SLABS AND SHEET BARS

THE BASIC AVERAGE.

As compiled monthly by W. P. Snyder & Company from the actual sales of basic pig iron by valley furnaces. Prices are f.o.b. furnaces.

	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.	1921.
Jan.	17.10	15.50	16.88	13.29	12.37	16.45	12.33	12.50	17.83	30.00	33.00	30.00	38.48	30.00
Feb.	17.00	15.19	16.31	13.60	12.25	16.32	13.06	12.50	17.98	30.00	33.00	30.00	41.21	25.00
Mar.	16.00	14.94	16.00	13.75	12.76	16.06	13.04	12.50	18.25	32.54	33.00	30.00	41.50	24.50
Apr.	16.00	14.15	15.94	13.75	12.98	15.71	13.00	12.50	18.00	38.00	32.00	25.75	42.82	22.50
May	14.83	14.12	15.04	13.40	13.00	14.90	13.00	12.65	18.16	41.89	32.00	25.75	43.48	21.88
June	15.25	14.94	14.70	13.06	13.21	14.50	13.00	12.72	18.00	49.15	32.00	25.75	44.01	20.70
July	14.49	15.00	14.50	13.00	13.48	14.23	13.00	12.96	18.00	52.85	32.00	25.75	46.02	18.80
Aug.	14.62	15.27	14.02	13.00	14.00	14.05	13.00	14.36	18.00	49.42	32.00	25.75	48.37	18.33
Sep.	14.27	15.90	13.83	12.67	15.13	14.14	13.00	15.00	18.63	41.34	32.00	25.75	48.50	19.25
Oct.	14.25	16.94	13.15	12.52	16.18	13.71	12.85	15.01	20.31	33.00	33.00	25.75	42.42	19.00
Nov.	14.93	17.49	13.36	12.28	16.19	13.01	12.48	15.52	27.23	33.00	33.00	30.16	37.24	19.00
Dec.	15.50	17.00	13.47	12.44	16.45	12.52	12.50	17.49	30.00	33.00	33.00	34.82	33.00	18.69
Av.	15.35	15.54	14.77	13.06	14.00	14.63	12.85	13.81	20.03	38.68	32.50	27.94	42.25	21.47

Valley-Pittsburgh freight advanced from 90 cents to 95 cents on October 26, 1914, from Mahoning valley; November 16, 1914, from Shenango valley; June 1, 1918, 1.10; June 25, 1918, 1.40; August 26, 1920, 1.96.

"KEOKUK"

50%

FERRO-SILICON

ALL GRADES

BESSEMER FERRO-SILICON

AND

SILVERY IRON

MACHINE CAST PIGS

KEOKUK ELECTRO-METALS CO.

Furnace
Keokuk, Iowa

General Sales Office
134 So. La Salle St.
CHICAGO

BASIC PIG IRON, VALLEY.

Averaged from daily quotations, f. o. b. valley furnaces, ordinary deliveries.

	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.	1921.
Jan. .	16.17	15.50	16.75	13.50	12.33	16.50	12.51	12.50	18.00	30.00	33.00	30.00	36.62	30.00
Feb. .	15.98	15.33	16.25	13.50	12.26	16.43	13.21	12.50	17.88	30.00	33.00	30.00	42.13	27.71
Mar. .	15.98	14.86	16.00	13.75	12.77	16.14	13.05	12.50	18.48	31.93	32.85	28.53	41.50	24.41
April.	15.42	14.20	15.95	13.75	13.00	15.87	13.00	12.50	18.48	38.52	32.00	25.75	42.13	23.00
May .	15.03	14.14	15.25	13.34	13.00	15.25	13.00	12.50	18.21	41.46	32.00	25.75	43.12	22.15
June .	15.25	14.70	14.75	13.03	13.10	14.50	13.00	12.57	18.25	49.23	32.00	25.09	43.62	21.20
July .	14.96	15.00	14.61	13.05	13.42	14.40	13.00	12.87	18.00	53.52	32.00	25.75	45.42	19.52
Aug. .	14.68	15.27	13.95	13.00	13.84	14.09	13.00	13.98	18.00	51.70	32.00	25.75	46.96	18.22
Sept..	14.30	15.94	13.61	12.85	14.32	14.00	13.00	14.80	18.27	43.80	32.20	25.75	48.50	19.00
Oct. .	14.04	17.15	13.10	12.54	16.02	13.97	12.88	15.00	20.17	33.00	33.00	25.75	44.00	19.24
Nov. .	15.19	17.19	13.25	12.44	16.28	13.28	12.50	15.88	24.80	33.00	33.00	27.83	37.62	19.00
Dec. .	15.50	17.00	13.34	12.50	16.50	12.83	12.50	17.73	29.84	33.00	33.00	33.88	33.00	19.00
Av. ..	15.21	15.52	14.73	13.10	13.90	14.77	12.89	13.78	19.87	39.10	32.50	27.49	42.05	21.87

PIG IRON AT PHILADELPHIA.

Charcoal iron; to 1827, best pig iron, to 1833, average of grades; to 1840, gray iron; to 1849, No. 1 foundry:

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

No. 1 anthracite foundry iron:

1845 .. 29.25	1862 .. 23.87	1879 .. 21.50
1846 .. 27.87	1863 .. 35.25	1880 .. 28.50
1847 .. 30.25	1864 .. 59.25	1881 .. 25.12
1848 .. 26.50	1865 .. 46.12	1882 .. 25.75
1849 .. 22.75	1866 .. 46.87	1883 .. 22.37
1850 .. 20.87	1867 .. 44.12	1884 .. 19.87
1851 .. 21.37	1868 .. 39.25	1885 .. 18.00
1852 .. 22.62	1869 .. 40.62	1886 . 18.71
1853 .. 36.12	1870 .. 33.25	1887 .. 20.92
1854 .. 36.87	1871 .. 35.12	1888 .. 18.88
1855 .. 27.75	1872 .. 48.87	1889 .. 17.75
1856 .. 27.12	1873 .. 42.75	1890 .. 18.40
1857 .. 26.37	1874 .. 30.25	1891 .. 17.52
1858 .. 22.25	1875 .. 25.50	1892 .. 15.75
1859 .. 23.37	1876 .. 22.25	1893 .. 14.52
1860 .. 22.75	1877 .. 18.87	1894 .. 12.66
1861 .. 20.25	1878 .. 17.62	1895 .. 13.10

VALLEY FOUNDRY IRON.

Averaged from daily quotations, f.o.b. valley furnaces, ordinary deliveries.

	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.	1921.
Jan.	16.00	15.38	16.93	13.75	13.00	17.50	13.00	12.75	18.50	30.00	33.00	31.00	38.46	31.92
Feb.	15.96	15.00	16.60	13.85	13.00	17.12	13.21	12.75	18.50	30.00	33.00	31.00	41.00	28.29
Mar.	15.51	14.72	16.12	14.00	13.12	16.60	13.25	12.75	18.50	34.96	33.00	27.88	42.00	25.89
Apr.	15.08	14.16	15.75	14.00	13.25	15.66	13.25	12.75	18.50	39.16	33.00	26.75	42.42	24.81
May	14.45	14.18	15.30	13.76	13.25	14.73	13.17	12.75	18.44	42.65	33.00	26.75	43.96	23.60
June	14.58	14.73	14.60	13.59	13.25	14.18	13.00	12.70	18.39	49.19	33.00	26.75	45.00	22.42
July	14.68	15.06	14.50	13.50	13.39	13.88	13.00	12.72	18.25	53.00	33.00	26.75	45.15	20.40
Aug.	14.50	15.30	14.13	13.50	13.89	13.94	13.00	13.71	18.27	53.00	33.00	26.75	47.85	19.59
Sep.	14.50	16.13	14.00	13.50	14.49	14.00	13.00	14.50	18.58	47.68	33.20	26.75	50.00	20.86
Oct.	14.50	17.12	13.95	13.41	16.09	13.83	12.89	14.58	20.56	33.00	34.00	26.90	46.62	21.00
Nov.	15.39	17.19	13.75	13.25	16.84	13.57	12.75	15.82	25.60	33.00	34.00	30.76	40.72	20.78
Dec.	15.50	17.00	13.75	13.05	17.60	13.38	12.75	17.98	29.84	33.00	34.00	35.46	35.77	20.00
Av.	15.05	15.50	14.95	13.60	14.26	14.87	13.02	13.81	20.16	39.89	33.27	28.63	43.25	23.30

ROBERT C. LEA & CO.

21 SOUTH 12th STREET

PHILADELPHIA.

Low Phosphorus,

Bessemer and Foundry

PIG IRON

Iron Ore,

Pyrites Cinder,

Limestone

COAL **COKE**

Ferro-Alloys

FOUNDRY PIG IRON NO. 2X, PHILADELPHIA.

Averaged from daily quotations, delivered.

	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.	1921.
Jan.	18.25	17.25	19.00	15.50	14.75	18.49	14.69	14.45	19.71	31.48	34.25	36.15	43.85	33.04
Feb.	18.25	17.06	18.70	15.50	14.75	18.23	14.88	14.50	19.75	31.96	34.25	36.15	45.48	30.73
Mar.	18.13	16.36	18.00	15.50	14.84	17.81	15.00	14.35	19.77	37.01	34.25	33.61	45.35	28.03
Apr.	17.63	16.20	17.75	15.50	15.50	17.49	15.00	14.05	20.20	41.71	34.25	30.80	46.70	26.38
May	16.94	16.00	17.00	15.49	15.16	16.77	14.91	14.25	20.25	43.67	34.25	30.80	47.01	24.96
June	16.63	16.23	16.65	15.18	15.58	16.26	14.51	14.25	20.04	46.87	34.28	29.48	46.95	24.21
July	16.50	16.56	16.25	15.00	15.61	15.66	14.40	14.28	19.75	52.75	34.40	28.71	47.20	23.00
Aug.	16.50	17.17	16.00	15.00	15.84	15.56	14.28	14.91	19.58	52.75	34.40	29.15	50.60	20.42
Sept.	16.63	18.04	16.00	15.00	16.35	15.97	14.68	15.91	19.50	48.71	35.29	30.51	52.51	20.84
Oct.	16.75	18.67	15.85	15.00	17.39	15.94	14.29	16.25	20.58	34.14	38.85	31.93	52.17	21.40
Nov.	17.00	19.00	15.75	14.95	18.19	15.61	14.24	16.95	25.00	34.25	39.15	35.43	46.80	21.93
Dec.	17.25	19.00	15.50	14.75	18.29	14.98	14.25	18.81	30.27	34.25	39.15	40.31	36.29	21.88
Av.	17.21	17.30	16.87	15.20	16.02	16.56	14.59	15.25	21.20	40.80	35.56	32.75	46.74	24.74

ESTABLISHED 1883

F. R. Phillips & Sons Co.

HEAD OFFICE:
Pennsylvania Building, Philadelphia

Branch Offices:
New York
Pittsburgh
Milan, Italy
London, England

Import and Export Iron and Steel Products of Every Description

BASIC PIG IRON, PHILADELPHIA.

Basic pig iron, delivered Philadelphia.

	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.	1921.
Jan.	17.10	16.75	18.65	14.40	14.25	18.00	14.25	13.50	19.24	30.00	33.75	33.90	39.54	31.54
Feb.	17.25	16.56	18.45	14.50	14.25	17.75	14.00	13.50	19.50	30.45	33.75	33.90	40.50	29.28
Mar.	17.25	15.75	18.30	15.10	14.35	17.50	14.10	13.50	19.60	33.93	33.60	31.36	42.00	26.54
Apr.	17.25	15.00	17.60	15.20	14.75	17.00	14.25	13.40	20.50	39.40	32.75	29.65	43.00	25.47
May	16.37	15.12	16.60	14.69	15.20	16.50	14.10	13.25	20.50	40.75	32.75	29.65	43.00	23.70
June	15.50	15.50	16.15	14.50	15.25	16.50	14.00	13.42	19.90	46.50	32.78	25.50	43.40	23.54
July	15.10	15.80	15.65	14.44	15.50	15.90	14.00	13.83	19.15	53.15	32.90	26.00	43.88	22.40
Aug.	15.00	17.06	15.15	14.61	15.80	15.25	14.00	14.83	19.00	51.25	32.90	26.60	46.75	19.70
Sep.	15.44	18.10	15.00	14.70	16.25	15.25	14.00	16.70	19.50	45.75	33.64	26.60	50.26	19.14
Oct.	15.80	18.37	15.00	14.50	16.73	15.25	14.00	17.25	20.52	33.75	36.60	28.43	48.85	20.50
Nov.	16.19	18.81	14.75	14.50	18.00	15.13	14.00	17.40	24.68	33.75	36.90	31.70	42.92	20.50
Dec.	16.70	18.75	14.75	14.50	18.00	14.75	13.50	18.01	29.48	33.75	36.90	36.98	34.64	20.45
Av.	16.25	16.80	16.34	14.64	15.69	16.23	14.02	14.88	20.96	39.37	34.10	30.02	43.26	23.56

JOHN A. SAVAGE & CO.

IRON ORE AND PIG IRON

DULUTH

—

IRON ORE

PIG IRON

—

Address Pig Iron
Inquiries to

JOHN A. SAVAGE & CO.
821 DIXIE TERMINAL
CINCINNATI

FOUNDRY PIG IRON—BUFFALO.

No. 2X foundry, f.o.b. Buffalo furnaces.

	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916	1917.	1918.	1919.	1920.	1921.
Jan.	16.25	17.25	14.25	13.62	17.25	12.51	13.00	18.00	35.00	33.50	32.25	42.17	31.25
Feb.	16.10	17.15	13.90	13.75	16.97	12.77	13.00	18.00	35.00	33.50	32.25	44.17	30.17
Mar.	15.60	17.00	14.25	13.75	16.54	13.13	12.49	18.52	35.56	33.50	30.78	44.25	29.01
April	15.25	16.50	14.00	14.00	15.71	13.50	12.44	19.00	39.84	33.50	28.00	46.25	27.17
May	14.75	16.00	13.80	14.00	15.33	13.32	12.92	18.90	43.08	33.50	28.00	46.25	25.40
June	14.60	15.50	13.75	14.00	14.18	12.76	12.83	18.50	46.65	33.50	27.00	46.25	22.45
July	15.00	14.75	13.63	14.11	13.76	12.75	12.58	18.50	50.64	33.50	27.81	46.25	20.68
Aug.	15.75	14.50	13.75	14.50	13.95	12.93	13.58	18.50	50.00	33.50	28.35	48.79	19.48
Sept.	16.10	14.50	13.75	15.50	14.00	13.00	15.18	18.79	48.76	33.85	29.00	51.25	20.08
Oct.	16.50	14.50	13.75	16.64	14.00	12.46	15.50	20.23	33.39	35.25	30.06	49.52	20.50
Nov.	16.75	14.50	13.69	17.19	13.71	12.08	16.48	27.06	33.50	35.25	33.63	42.93	19.82
Dec.	17.00	14.50	13.50	17.61	13.07	12.88	17.77	33.56	33.50	35.25	39.19	34.71	19 38
Average ..	15.80	15.55	13.84	14.89	14.87	12.84	13.98	20.63	40.41	33.97	30.53	45.23	23.78

CLEVELAND CLIFFS

IRON ORE PIG IRON COAL COKE

The Cleveland-Cliffs Iron Co.

ESTABLISHED 1850 CLEVELAND, OHIO

FOUNDRY PIG IRON—CLEVELAND.

No. 2 foundry, delivered Cleveland.

	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.	1921.
Jan.	16.75	17.80	14.25	13.25	17.75	13.30	13.25	18.80	30.95	33.30	31.40	39.55	33.24
Feb.	16.25	17.45	14.15	13.25	17.44	13.56	13.25	18.80	31.78	33.30	31.40	41.15	30.15
Mar.	15.55	16.80	14.00	13.25	16.75	13.75	13.25	18.86	36.21	33.30	30.28	42.96	27.70
April	14.60	16.65	14.25	13.25	15.41	14.21	13.25	19.00	39.30	33.30	27.34	43.40	26.77
May	15.15	16.30	14.25	13.25	15.56	14.25	13.25	19.08	41.49	33.30	27.15	43.40	25.56
June	15.30	15.45	14.25	13.45	14.95	14.25	13.25	19.30	48.99	33.32	27.15	44.40	24.17
July	15.60	15.15	14.21	13.75	14.68	13.81	13.20	18.80	54.30	33.40	27.15	44.94	21.66
Aug.	16.30	14.55	13.99	13.94	14.50	13.75	14.08	18.57	54.30	33.40	27.15	47.30	20.56
Sept.	17.15	14.50	13.75	15.15	14.55	13.75	15.04	18.67	50.10	33.60	27.15	50.56	20.56
Oct.	18.25	14.25	13.75	16.53	14.73	13.73	15.25	19.87	33.30	34.40	27.53	47.47	20.56
Nov.	18.25	14.15	13.27	17.35	14.35	13.50	16.47	24.58	33.30	34.40	30.95	42.80	20.56
Dec.	18.10	14.25	13.25	17.75	13.76	13.30	18.13	30.48	33.30	34.40	35.02	36.02	20.56
Av.	16.44	15.61	13.95	14.51	15.37	13.76	14.31	20.40	40.61	33.62	29.14	43.66	24.34

Note. Switching charge included above, 25c at first; November 4, 1915, 30c; June 25, 1919, 40c; August 23, 1920, 56c.

Pickands, Brown & Co.

Chicago, Illinois

PIG IRON

FOUNDRY MALLEABLE BASIC BESSEMER

Domestic Spiegel
Ferro Manganese

SOLVAY COKE

"The Fuel Without A Fault"

Furnace Foundry
Domestic

FOUNDRY PIG IRON—CHICAGO.

No. 2 local foundry pig iron, delivered Chicago; averaged from daily quotations.

	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.	1921.
Jan. ...	18.10	17.00	19.00	15.50	14.50	18.48	14.35	13.45	19.00	30.50	33.50	31.50	40.50	33.18
Feb. ...	17.80	17.00	19.00	15.50	14.50	17.87	14.46	13.50	19.00	31.42	33.50	31.50	42.00	30.87
Mar. ...	17.50	16.75	18.35	15.50	14.50	17.75	14.75	13.39	19.24	35.65	33.50	30.03	43.50	27.07
April ..	17.37	16.54	17.50	15.50	14.50	17.60	14.75	13.50	19.50	39.34	33.50	27.25	43.50	25.32
May ...	17.25	16.31	17.05	15.50	14.96	16.67	14.68	13.50	19.50	43.15	33.50	27.25	43.50	23.70
June ...	17.35	16.50	16.75	15.50	15.00	16.25	14.21	13.50	19.50	50.04	33.50	27.25	43.50	22.08
July ...	17.20	16.75	16.60	15.32	15.10	15.38	14.38	13.50	19.50	55.50	33.50	27.25	44.58	19.98
Aug. ...	17.00	17.19	16.50	15.00	15.78	15.44	14.44	13.88	19.17	55.50	33.50	27.25	46.54	19.64
Sept. ..	16.75	18.69	16.40	15.00	16.58	15.50	13.85	14.30	18.75	51.10	33.70	27.25	46.70	22.18
Oct. ...	16.50	19.00	16.10	14.85	17.50	15.50	13.48	15.08	19.79	33.50	34.50	27.63	46.01	22.35
Nov. ...	17.25	19.00	16.00	14.57	17.78	15.43	13.10	17.50	25.70	33.50	34.50	31.05	41.42	21.70
Dec. ...	17.00	19.00	16.00	14.50	18.50	14.83	13.40	18.48	29.34	33.50	34.50	37.27	37.24	20.53
Average	17.26	17.48	17.10	15.19	15.77	16.39	14.15	14.46	20.67	41.06	33.77	29.37	43.25	24.05

Note. Estimated switching charge, included above, 50c to August 26, 1920, then 70c.

THE ALABAMA CO.

BIRMINGHAM, ALA.

Manufacturers of Machine Cast Foundry Pig Iron Free from Sand and Slag

"CLIFTON" BRAND

Silicon	1 to 4 per cent.
Sulphur	uniformly low.
Phosphorus	.40 to .70 per cent.
Manganese	1 to 2 per cent.

An ideal iron for carwheels, cylinder castings and all high class work.

"ETOWAH" BRAND

Silicon	1 to 4 per cent.
Sulphur	uniformly low.
Phosphorus	.70 to 1 per cent.
Manganese	.40 to .70 per cent.

A dependable iron for all classes of foundry work.

Producers of Foundry Coke and Smithing Coal

BROOKWOOD BRANDS

COKE

High Carbon, low Ash and low Sulphur, good structure and uniform quality.

SMITHING COAL

Washed and sized, low Sulphur and low Ash. For heavy forge work it has no equal.

Let us have your inquiries.

FOUNDRY PIG IRON, BIRMINGHAM.

Averaged from daily quotations, f.o.b. Birmingham furnaces.

	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.	1921.
Jan.	13.00	13.00	13.50	11.00	9.87	13.72	10.63	9.50	14.92	24.27	33.00	31.00	37.77	31.14
Feb.	12.75	12.75	13.00	11.00	10.00	13.46	10.52	9.50	14.64	24.13	33.00	31.00	40.00	27.50
Mar.	12.50	11.72	12.25	11.00	10.11	13.04	10.75	9.42	15.00	29.67	33.00	28.44	40.00	25.52
Apr.	12.00	11.00	11.60	10.75	10.54	12.60	10.52	9.25	15.00	33.80	33.00	26.75	40.00	23.77
May	11.58	11.25	11.30	10.69	10.90	11.74	10.50	9.47	15.00	36.62	33.00	25.28	42.00	21.80
June	12.00	11.40	11.25	10.24	11.06	10.89	10.29	9.50	14.63	40.92	33.00	24.14	42.00	20.18
July	11.75	11.94	11.40	10.00	11.65	10.50	10.06	9.61	14.00	45.36	33.00	26.01	42.00	20.18
Aug.	12.00	12.63	11.00	10.00	12.00	10.85	10.00	10.77	14.00	45.00	33.00	27.18	42.00	18.70
Sept.	12.38	14.19	11.00	10.00	12.65	11.20	10.00	11.22	14.38	42.60	33.20	27.50	42.00	19.06
Oct.	12.50	15.00	11.00	10.00	13.68	11.48	10.00	11.71	15.35	33.00	34.00	27.78	42.00	19.00
Nov.	12.75	14.74	11.00	9.98	14.00	10.80	10.00	13.14	19.72	33.00	34.00	30.21	39.02	18.56
Dec.	13.00	14.08	11.00	9.75	14.00	10.50	9.67	14.00	23.38	33.00	33.16	34.81	36.42	17.31
Av.	12.35	12.81	11.61	10.37	11.71	11.73	10.25	10.59	15.84	35.11	33.20	28.34	40.43	21.92

IRON ORE
NORAL
VIRGIN
ALUMINUM
PIG IRON
COKE
"Every Possible Kind for Every Possible Purpose"
FERRO PHOS
FLUOR SPAR
SMITHING COAL
MANGANESE & CHROME ORES
FERRO SILICON
SPIEGELEISEN
BESSEMER FERRO SILICON
MAGNESITE
FERRO MANGANESE
ROGERS, BROWN & CO.
PIG IRON · COKE
CINCINNATI
CHICAGO
BOSTON
PITTSBURGH
BUFFALO
NEW YORK
CLEVELAND
ST. LOUIS
PHILADELPHIA

PIG IRON

Annual averages of quotations, delivered.

	No. 1 Fdy. Phila.	Bess. Pitts.	So. Fdy. Cin'ti.	Fdy. Chi'go.	L.S.Chl Chi'go.
1891	17.52	15.87	13.75	14.95	.....
1892	15.75	14.28	12.65	13.88	.....
1893	14.52	12.68	11.35	12.80	16.12
1894	12.66	11.06	9.40	10.56	14.75
1895	13.10	12.73	11.25	11.80	13.75
1896	12.95	12.00	10.29	11.65	13.62
1897	12.10	9.98	9.33	10.68	13.00
1898	11.66	10.31	9.46	10.97	11.60
1899	19.36	18.89	16.58	17.65	19.80
1900	19.98	18.84	17.04	19.12	22.00
1901	15.87	15.73	13.61	15.03	17.50
1902	22.19	20.07	20.00	20.52	23.50
1903	19.92	18.64	17.08	18.90	22.13
1904	15.57	13.66	12.73	14.02	15.50
1905	17.88	16.33	15.57	17.30	18.00
1906	20.98	19.33	18.37	20.08	20.72
1907	23.89	22.64	23.10	24.15	26.56
1908.	*17.33	17.03	15.83	17.25	20.25
1909.	*17.30	17.46	16.06	17.48	19.50
1910.	*16.87	17.16	14.85	17.10	18.69
1911.	*15.20	15.74	13.62	15.19	17.00
1912.	*15.98	15.04	14.96	15.77	16.75
1913.	*16.56	17.16	14.98	16.39	16.55
1914.	*14.59	14.90	13.41	14.15	15.61
1915.	*15.25	15.85	13.49	14.46	16.13
1916.	*21.20	24.00	18.74	20.67	21.00
1917.	*40.80	43.61	38.01	41.06	44.25
1918.	*35.56	36.65	36.46	33.77	37.85
1919.	*32.75	31.02	31.94	29.37	35.25
1920.	*46.74	44.44	44.34	43.25	55.75
1921.	*24.74	25.45	26.42	24.05	35.87

* No. 2X.

COLD ROLLED STEEL BARS
(Round, Square, Hex., Flats)

COLD ROLLED STRIPS

COLD ROLLED SHEETS

MACHINERY STEEL BARS
(Rounds only)

SANCO
MACHINERY STEEL BARS
(35-45 Carbon O. H.)

MONARCH TOOL STEELS

DRILL RODS

MUSIC WIRE

SOLUBLE CUTTING OIL

Stock Lists Sent on Request

BESSEMER STEEL BILLETS, PITTSBURGH.

Averaged from daily quotations, Pittsburgh.

	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.*	1920	1921.
Jan.	28.00	25.00	27.00	23.00	19.75	28.40	20.00	19.25	32.50	63.50	47.50	43.50	48.00	45.00
Feb.	28.00	25.00	27.00	23.00	19.50	29.00	21.00	19.25	34.00	65.00	47.50	43.50	48.00	42.00
Mar.	28.00	23.00	27.00	23.00	19.75	29.00	21.00	19.30	41.00	68.00	47.50	41.77	62.50	39.00
Apr.	28.00	23.00	26.75	23.00	20.25	27.50	20.75	19.50	45.00	75.00	47.50	38.50	65.00	37.00
May	28.00	23.00	25.85	22.92	21.00	27.00	20.00	19.50	43.00	88.00	47.50	38.50	65.00	37.00
June	25.92	23.00	25.00	21.00	21.25	26.50	19.50	20.00	42.00	95.00	47.50	38.50	65.00	35.00
July	25.00	23.50	25.00	21.00	21.50	26.50	19.50	21.40	42.50	95.00	47.50	38.50	62.50	32.00
Aug.	25.00	24.16	24.60	21.00	22.15	25.75	20.17	23.50	46.00	84.00	47.50	38.50	62.50	30.25
Sept.	25.00	25.00	24.25	20.60	23.75	24.50	20.75	25.50	47.00	70.00	47.50	38.50	60.00	30.00
Oct.	25.00	26.00	23.65	20.00	25.75	22.50	20.00	26.00	48.00	55.25	47.50	38.50	57.00	30.00
Nov.	25.00	27.15	23.25	19.00	26.75	20.50	19.25	26.20	52.75	47.50	47.50*	41.00	53.00	29.00
Dec.	25.00	27.20	23.00	19.25	27.00	20.00	19.00	30.73	56.96	47.50	45.10*	47.00	45.00	29.00
Av.	26.33	24.58	25.20	21.40	22.37	25.60	20.08	22.51	44.23	71.15	47.30	40.52	57.79	34.60

* Independents' market; Steel Corporation price remained 38.50 until about Sept. 1. 1920, when it became 43.50.

Ten-year pre-war average, 1904-1913, 24.83.

FROM 0.0005 POUND TO 400,000 POUNDS

A FINE wire nail weighing 1-2000 pound and a gigantic steel casting weighing 200 tons represent two extremes which clearly convey an idea of the wide range of steel products manufactured by us.

PARTIAL LIST OF PRODUCTS.

Alloy and Tool Steels, Agricultural Steels, Axles, Bar Steel of Every Description, Boiler Plates, Manholes and Handholes, Boiler Tube Safe Ends, Charcoal Iron Boiler Tubes, Cold Rolled and Cold Drawn Steel, Crank Pins and Piston Rods, Forgings of all kinds, Flanged and Dished Heads, Locomotive and Car Wheel Tires, Plow Steel, Pressed Steel Seats for Agricultural Implements, Rifle Barrel Steel, Steel-Tired and Rolled Steel Wheels, Structural Shapes, Steel Cars, Steel Rails, Steel Discs, Wire Rods, Wire and Wire Products.

MIDVALE STEEL & ORDNANCE CO.
CAMBRIA STEEL CO.

GENERAL SALES OFFICES

Widener Building, Philadelphia

DISTRICT SALES OFFICES

Atlanta	*Cleveland	Pittsburgh
*Boston	Detroit	*San Francisco
*Chicago	*New York	Salt Lake City
Cincinnati	*Philadelphia	Seattle
St. Louis		Washington, D. C.

*Stocks of Alloy and Tool Steel at these points.

Sole Export Representative, Consolidated Steel Corporation, 25 Broadway, New York. All export inquiries should be sent to this address

OPEN-HEARTH BILLETS, PITTSBURGH.

Averaged from daily quotations, Pittsburgh.

	1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	*1920.	1921.
Jan. ...	28.00	23.00	19.75	28.50	20.00	19.00	35.50	63.50	47.50	43.50	48.00	45.00
Feb. ...	28.00	23.00	19.50	29.00	21.00	19.25	37.00	65.00	47.50	43.50	48.00	42.00
Mar. ...	28.50	23.00	19.40	29.00	21.00	19.30	41.50	68.00	47.20	41.77	62.50	39.00
April ..	28.75	23.00	20.25	27.50	20.75	19.50	45.00	75.00	47.50	38.50	65.00	37.00
May ...	27.75	22.00	21.00	27.00	20.00	19.50	43.00	88.00	47.50	38.50	65.00	37.00
June ..	27.00	21.00	21.25	26.50	19.50	20.25	42.50	95.00	47.50	38.50	65.00	35.00
July ...	26.50	21.00	21.75	26.50	19.50	22.40	44.50	95.00	47.50	38.50	62.50	32.00
Aug. ...	26.00	21.00	22.75	25.75	20.17	24.50	46.50	84.00	47.50	38.50	62.50	30.25
Sept. ..	25.00	20.25	24.75	24.00	20.75	26.75	47.00	70.00	47.50	38.50	60.00	30.00
Oct. ...	24.00	19.50	26.75	22.50	20.00	27.00	48.00	55.25	47.50	38.50	57.00	30.00
Nov. ...	23.25	19.75	27.75	20.50	19.25	27.20	52.75	47.50	47.50	*41.00	53.00	29.00
Dec. ...	23.00	19.25	28.00	20.00	19.00	33.00	57.00	47.50	45.10	*47.00	45.00	29.00
Av.	26.31	21.31	22.74	25.56	20.08	23.14	45.02	71.15	47.30	40.52	57.79	34.60

* Independents' market; Steel Corporation price remained 38.50 until about September 1, 1920, when it became 43.50.

Steel
and
Allied Products

Agricultural Section
Alloy Steels—
  Chrome
  Chrome-Vanadium
  Nickel
  Nickel-Chrome
  Vanadium
Angles
Arch bars
Armor Plate
Auto Sections
Axles
Bands
Beams
Billets
Blooms
Bulb Sections
Car Wheels
Channels
Checkered Plates
Coal Products—
  Ammon. Sulphate
  Benzol
  Napthaline
  Solvent Naptha
  Tar
  Toluol
Concrete Bars
Connecting Rods
Corrugated Plates
Cotton Ties
Crane Wheels
Crank Shafts
Cross Ties
Crushed Slag
Duquesne Joints
Ferro-Manganese
Forgings
Gear Blanks
Granulated Slag
Hand Rail Tees
Hoop
Industrial Wheels
Ingots
Merchant Bars—
  Flat and Square
  Oval and Round
Mine Timbers
Oil Derricks
Pig Iron
Plates
Rails
Rivet Rods
Saw Blades
Sheet Bar
Sheet Piling
Skelp
Slabs
Slack Barrel Hoop
Spiegeleisen
Splice Bars
Spring Steel
Structural Shapes
Tees
Threading Steel
Tin Bar
Tire
Track Accessories
Trough Plates
Twisted Squares
Vault Plates
Welding Steel
Wheel Blanks
Window Sections
Zees

Carnegie Steel Company

General Offices—Pittsburgh, Pa. 943

SHEET BARS.

Averaged from daily quotations, Pittsburgh.

	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	‡1920.	1921.
Jan.	24.00	20.75	*29.25	†20.25	†19.50	*35.50	63.50	51.00	47.00	50.00	47.00
Feb.	24.00	20.50	30.00	22.00	19.75	*37.00	65.00	51.00	47.00	58.00	42.00
Mar.	24.00	†19.75	30.00	22.00	19.80	*41.50	68.00	51.00	45.27	70.00	39.00
April	24.00	21.00	28.25	21.75	20.00	45.00	75.00	51.00	42.00	75.00	38.50
May	†23.00	21.50	27.50	21.00	20.00	43.00	94.00	51.00	42.00	75.00	39.00
June	22.00	21.75	27.00	20.35	*20.75	*42.50	105.00	51.00	42.00	72.50	36.00
July	22.00	*22.25	27.50	20.00	*22.80	*44.50	105.00	51.00	42.00	70.00	33.00
Aug.	22.00	*23.35	26.25	21.08	*24.65	*46.50	94.00	51.00	42.00	70.00	30.50
Sep.	†21.25	*25.25	25.00	21.75	*26.75	45.00	80.00	51.00	42.00	66.00	30.00
Oct.	†20.00	*27.25	23.00	20.70	*27.00	48.00	59.00	51.00	42.00	65.00	30.00
Nov.	19.75	*28.25	21.50	19.75	*27.50	54.00	51.00	51.00	‡43.00	59.00	30.00
Dec.	*20.00	*28.50	21.00	19.50	*33.00	58.75	51.00	48.60	‡49.00	47.00	29.00
Av.	†22.17	*23.34	*26.35	†20.84	*23.46	*43.10	75.87	50.80	43.77	65.21	35.33

* Bessemer lower. † Bessemer higher.

‡ Independents' market; Steel Corporation price remained 42.00 until about September 1, 1920, when it became 47.00.

RAILS AND BILLETS.

Iron rails, Eastern Pennsylvania mill:

1847 ..	69.34	1859 ..	49.37	1871 ..	70.37
1848 ..	62.25	1860 ..	48.00	1872 ..	85.12
1849 ..	53.87	1861 ..	42.37	1873 ..	76.67
1850 ..	47.87	1862 ..	41.75	1874 ..	58.75
1851 ..	45.62	1863 ..	76.87	1875 ..	47.75
1852 ..	48.37	1864 ..	126.00	1876 ..	41.25
1853 ..	77.25	1865 ..	98.62	1877 ..	35.25
1854 ..	80.12	1866 ..	86.75	1878 ..	33.75
1855 ..	62.87	1867 ..	83.12	1879 ..	41.25
1856 ..	64.37	1868 ..	78.87	1880 ..	49.25
1857 ..	64.25	1869 ..	77.25	1881 ..	47.12
1858 ..	50.00	1870 ..	72.25	1882 ..	45.50

Steel rails, Pennsylvania mill:

1870 ..	106.79	1877 ..	45.58	1884 ..	30.75
1871 ..	102.52	1878 ..	42.21	1885 ..	28.52
1872 ..	111.94	1879 ..	48.21	1886 ..	34.52
1873 ..	120.58	1880 ..	67.52	1887 ..	37.08
1874 ..	94.28	1881 ..	61.08	1888 ..	29.83
1875 ..	68.75	1882 ..	48.50	1889 ..	29.25
1876 ..	59.25	1883 ..	37.75	1890 ..	31.78

Bessemer steel billets, Pittsburgh.

Quarters:	1st.	2nd.	3rd.	4th.	Year.
1890	34.06	28.44	30.27	27.31	30.02
1891	25.95	25.37	25.27	24.42	25.25
1892	24.12	22.73	23.65	23.62	23.53
1893	21.93	21.94	20.27	17.37	20.38
1894	15.81	17.27	17.45	15.56	16.52
1895	14.90	16.79	22.17	19.33	18.30
1896	17.09	19.38	19.12	19.08	18.67
1897	15.37	14.16	14.53	15.64	14.93
1898	15.08	14.85	15.45	15.47	15.21
1899	19.64	27.37	35.63	36.33	29.75
1900	34.12	29.38	18.71	18.40	25.15
1901	20.98	24.13	24.36	27.07	24.13
1902	29.37	32.02	30.77	29.11	30.32
1903	30.03	29.83	27.20	24.67	27.93
1904	23.00	23.00	22.00	20.32	22.08
1905	23.41	23.17	23.67	25.87	24.03
1906	26.48	26.68	27.68	28.79	27.41
1907	29.30	30.01	29.54	28.07	29.23

RODS.

Bessemer steel rods, Pittsburgh, per gross ton, averaged from daily quotations.

	1916.	1917.	1918.	1919.	‡1920.	1921.
Jan.	42.00	75.00	57.00	57.00	63.00	57.00
Feb.	48.00	77.00	57.00	57.00	68.00	57.00
Mar.	56.00	79.00	57.00	55.27	70.00	47.00
Apr.	60.00	85.00	57.00	52.00	72.50	47.50
May	59.00	93.00	57.00	52.00	75.00	48.00
June	58.00	95.00	57.00	52.00	75.00	48.00
July	58.00	95.00	57.00	52.00	75.00	43.00
Aug.	58.00	92.00	57.00	52.00	75.00	42.00
Sep.	58.00	90.00	57.00	52.00	72.50	40.50
Oct.	59.00	67.75	57.00	52.00	70.00	40.00
Nov.	65.00	57.00	57.00	52.00	67.00	40.00
Dec.	70.00	57.00	57.00	52.00	57.00	38.00
Av.	57.58	80.23	57.00	53.11	70.00	45.67

* Independent market; Steel Corporation price 52.00 until about August 15; 57.00 thereafter.

1887	44.25	1903	34.50
1888	41.50	1904	28.75
1889	32.00	1905	32.00
1890	42.00	1906	34.50
1891	34.50	1907	36.50
1892	32.00	1908	34.00
1893	28.25	1909	31.45
1894	23.13	1910	30.25
1895	24.75	1911	27.35
1896	24.25	1912	26.15
1897	21.00	1913	28.39
1898	21.50	1914	25.50
1899	32.50	1915	28.28
1900	29.75	1916	57.58
1901	32.50	1917	80.23
1902	36.00	1918	57.00

Ten-year average, 1904-1913 .. 30.93

REPUBLIC

SHEETS

One Pass Cold Rolled and Annealed
Blue Annealed Galvanized

OPEN HEARTH & BESSEMER STEEL

Blooms, Slabs, Sheet and Tin Bars

WROUGHT PIPE

Standard Black and Galvanized
Line and Drive Pipe, Tubing and Casing

BARS

OPEN HEARTH & BESSEMER STEEL
Bars — Angles — Channels — Etc.
Special Sections
Old Rail and Bar Iron

PIG IRON

Northern Foundry, Sand and Chilled
Bessemer and Basic Southern
"Pioneer" Foundry
Bolts, Nuts and Washers, Turnbuckles,
Tie Rods, Etc.

SPIKES

Standard, Small R. R. and Boat Spikes.

Republic Iron & Steel Company

General Offices:

Republic Bldg., Youngstown, Ohio

Sales Offices:

Birmingham, Cincinnati, Cleveland, Chicago, New York, Buffalo, St. Louis, Boston, Philadelphia, Dallas, Detroit, Pittsburgh, San Francisco.

SOLE EXPORTER OF OUR COMMERCIAL PRODUCTS CONSTECO CONSOLIDATED STEEL CORPORATION

STEEL BARS.

(Base price, Pittsburgh.)

Averaged from daily quotations:

	1915.	1916.	1917.	1918.	1919.†	1920.	1921.
Jan.	1.10	1.87	3.00	2.90	2.70	2.65	2.35
Feb	1.10	2.06	3.00	2.90	2.70	2.98	2.13
Mar.	1.15	2.36	3.27	2.90	2.58	3.33	2.00
Apr.	1.20	2.50	3.39	2.90	2.35	3.33	2.06
May	1.20	2.50	3.64	2.90	2.35	3.10	2.10
June	1.20	2.50	4.00	2.90	2.35	3.02	2.08
July	1.27	2.50	4.50	2.90	2.35	3.02	1.88
Aug.	1.30	2.56	4.50	2.90	2.35	3.12	1.75
Sept.	1.35	2.60	3.88	2.90	2.35	3.11	1.67
Oct.	1.43	2.62	2.90	2.90	2.35	3.00	1.60
Nov.	1.63	2.76	2.90	2.90	*2.35	2.90	1.56
Dec.	*1.75	2.93	2.90	2.78	*2.35	2.35	1.53
Av.	1.31	2.48	3.49	2.89	2.43	2.99	1.89

† Independent market; Steel Corporation price remained 2.35.

Quarterly averages of quotations:

	1st.	2nd.	3rd.	4th.	Year.
1897	1.05	.98	.92	.99	.99
1898	.95	.92	.95	.98	.95
1899	1.12	1.85	2.40	2.37	1.95
1900	2.25	1.87	1.12	1.18	1.61
1901	1.34	1.45	1.45	1.50	1.44
1902*	1.53	1.60	1.60	1.60	1.58
1903	1.60	1.60	1.60	1.45	1.56
1904	1.31	1.35	1.34	1.31	1.33
1905	1.43	1.50	1.50	1.50	1.48
1906	1.50	1.50	1.50	1.55	1.51
1907	1.60	1.60	1.60	1.60	1.60
1908	1.60	1.53	1.40	1.40	1.48
1909	1.31	1.17	1.32	1.43	1.31
1910	1.46	1.44	1.42	1.40	1.43
1911	1.40	1.34	1.21	1.11	1.26
1912	1.12	1.19	1.29	1.40*	1.25
1913	1.40	1.40	1.40	1.30	1.38
1914	1.21	1.14	1.16	1.10	1.15
1915	1.12	1.20	1.31	1.60	1.31

Ten-year average, 1904-1913 .. 1.403

* Premiums for prompt delivery.

ALLEGHENY STEEL COMPANY

PITTSBURGH, PA.

Works - - - - Brackenridge, Pa.

SHEETS

Special Pickled Grades for
Automobile and Metallic Furniture
Construction
High Grade Electrical for
Transformers, Dynamos and Motors

Allegheny Iron and Steel Sheets
Black, Blue Annealed and Galvanized

Steel and Allegheny Iron Plates
Tank, Ship, Flange Qualities

"ALLEGHENY" LAP WELDED STEEL BOILER TUBES

STEEL CASTINGS

SALES AGENTS:
J. Allan Armstrong, 1436 Dime Bank Bldg., Detroit,
Steel Sales Corp., Jefferson & Adams Sts., Chicago.
Chandler & Floyd, 501 Fifth Ave., New York.

STEEL PLATES.

Tank quality, Pittsburgh.

Annual Averages.

1892	1.83	1897	1.05
1893	1.56	1898	1.08
1894	1.20	1899	2.20
1895	1.42	1900	1.55
1896	1.24	1901	1.55

Quarterly Averages.

	1st.	2nd.	3rd.	4th.	Year.
1902*	1.60	1.60	1.60	1.60	1.60
1903	1.60	1.60	1.60	1.60	1.60
1904	1.60	1.60	1.55	1.42	1.54
1905	1.55	1.60	1.60	1.60	1.59
1906	1.60	1.60	1.60	1.64	1.61
1907	1.70	1.70	1.70	1.70	1.70
1908	1.70	1.67	1.60	1.60	1.64
1909	1.47	1.26	1.39	1.53	1.41
1910	1.55	1.49	1.39	1.38	1.45
1911	1.40	1.38	1.31	1.14	1.31
1912	1.12	1.24	1.36	1.49	1.30
1913	1.47	1.45	1.43	1.28	1.41
1914	1.20	1.13	1.16	1.09	1.14

	1915.	1916.	1917.	1918.	1919.†	1920.	1921.
Jan	1.10	1.90	3.61	3.25	3.00	3.00	2.65
Feb.	1.10	2.16	3.75	3.25	3.00	3.37	2.35
Mar.	1.15	2.53	4.33	3.25	2.88	3.50	2.10
April	1.20	2.75	4.50	3.25	2.65	3.50	2.16
May	1.17	2.83	4.50	3.25	2.65	3.42	2.20
June	1.15	2.90	7.10	3.25	2.65	3.33	2.06
July	1.22	2.90	9.00	3.25	2.65	3.29	1.93
Aug.	1.26	2.94	8.96	3.25	2.65	3.25	1.84
Sept.	1.33	3.00	7.05	3.25	2.50	3.25	1.67
Oct.	1.42	3.07	3.25	3.25	2.56	3.00	1.59
Nov.	1.63	3.33	3.25	3.25	2.65	2.83	1.51
Dec.	*1.75	3.53	3.25	3.10	2.65	2.65	1.50
Av.	1.29	2.82	5.21	3.24	2.71	3.20	1.96

* Premiums for prompt shipment.

† Independent market; Steel Corporation price remained 2.65.

Ten-year average, 1904-1913 ..... 1.496

Open Hearth

Structural Steel

Standard Structural Shapes

Beams, Angles,

Tees and Zees

Channels

Ship Sections

Fabricators, Bridge Builders

Erectors

THE PHOENIX BRIDGE CO.

ESTABLISHED 1855.

THE PHOENIX IRON CO.

PHILADELPHIA, PA.

Works: Phoenixville, Pa.

Branch Offices:

New York, Boston, Washington, Rochester, N. Y.

STRUCTURAL SHAPES.

Beams and channels, 3-inch to 15-inch, Pittsburgh; averaged from daily quotations.

Annual Averages.

1894	1.23	1898	1.17
1895	1.40	1899	1.83
1896	1.49	1900	1.91
1897	1.24	1901	1.58

Quarterly Averages.

	1st.	2nd.	3rd.	4th.	Year.
1902. ...	1.60	1.60	1.60	1.60	1.60
1903 ...	1.60	1.60	1.60	1.60	1.60
1904 ...	1.60	1.60	1.55	1.41	1.54
1905 ...	1.55	1.60	1.63	1.70	1.62
1906 ...	1.70	1.70	1.70	1.70	1.70
1907 ...	1.70	1.70	1.70	1.70	1.70
1908 ...	1.70	1.68	1.60	1.60	1.64
1909 ...	1.43	1.25	1.40	1.53	1.40
1910 ...	1.55	1.49	1.41	1.40	1.46
1911 ...	1.40	1.38	1.34	1.17	1.32
1912 ...	1.13	1.24	1.36	1.49	1.30
1913 ...	1.47	1.45	1.43	1.32	1.42
1914 ...	1.22	1.15	1.17	1.11	1.16

	1915.	1916.	1917.	1918.	1919.	*1920.	1921.
Jan.	1.10	1.87	3.11	3.00	2.80	2.55	2.45
Feb.	1.10	2.06	3.25	3.00	2.80	2.82	2.30
Mar.	1.15	2.36	3.52	3.00	2.68	3.32	2.10
Apr.	1.20	2.50	3.70	3.00	2.45	3.32	2.16
May	1.20	2.50	4.00	3.00	2.45	3.17	2.20
June	1.20	2.50	4.25	3.00	2.45	3.08	2.15
July	1.25	2.50	4.50	3.00	2.45	3.00	1.96
Aug.	1.30	2.54	4.50	3.00	2.45	3.10	1.84
Sept.	1.33	2.60	4.06	3.00	2.45	3.10	1.68
Oct.	1.44	2.63	3.00	3.00	2.45	3.03	1.60
Nov.	1.63	2.86	3.00	3.00	2.45	2.90	1.60
Dec.	1.75	3.03	3.00	2.88	2.45	2.45	1.57
Av.	1.30	2.50	3.66	2.99	2.53	2.99	1.97

* Independent market; Steel Corporation price remained 2.45.

Ten-year average, 1904-1913 .. 1.510
Five-year average, 1909-1913 .. 1.380

West Leechburg Steel Co.

Cold Rolled Strip Steel

For Difficult Drawing
and Forming

Hot Rolled Strip Steel

Pickled and Annealed for
Special Purposes

Hoops and Bands

SPECIALTY:

Hot and Cold Rolled Strip Steel made to required analyses for special requirements.

GENERAL OFFICES:

Pittsburgh .....Farmers' Bank Building

DISTRICT SALES OFFICES:

New York .....50 Church Street
Chicago .....957 Peoples Gas Building
Detroit .....1016 Dime Bank Building
Toledo .....906 Ohio Building
Cincinnati .....906 Union Central Building
Cleveland .....819 Finance Building

HOOPS, BANDS AND COTTON TIES.

Hoops, averaged from daily quotations.

	1915.	1916.	1917.	1918.	1919	*1920	1921.
Jan.	1.24	2.04	3.50	3.50	3.30	3.30	3.05
Feb.	1.25	2.40	3.75	3.50	3.30	3.60	2.91
Mar.	1.25	2.57	4.00	3.50	3.21	4.00	2.82
April	1.25	2.70	4.00	3.50	3.05	4.75	2.71
May	1.25	2.88	4.00	3.50	3.05	5.00	2.75
June	1.25	2.75	4.75	3.50	3.05	5.40	2.59
July	1.30	2.75	5.50	3.50	3.05	5.50	2.47
Aug.	1.33	2.87	5.48	3.50	3.05	5.50	2.32
Sept.	1.43	3.00	5.00	3.50	3.05	5.50	2.20
Oct.	1.55	3.03	5.00	3.50	3.05	5.00	2.10
Nov.	1.77	3.25	4.04	3.50	3.05	4.20	2.05
Dec.	1.95	3.33	3.50	3.38	3.05	3.05	2.00
Av.	1.40	2.80	4.38	3.49	3.11	4.57	2.50

* Independent market; Steel Corporation price remained 3.05.

Annual averages bands and hoops, season prices cotton ties per bundle, 45 lbs., all Pittsburgh.

	Bands.	Hoops.	Ties.
1903	1.53	1.84	.85
1904	1.31	1.48	.75
1905	1.48	1.65	.85
1906	1.50	1.88	.85
1907	1.60	2.00	.95
1908	1 50	1.90	.85
1909	1.30	1.56	.70
1910	1.42	1.54	.75
1911	1.28	1.40	.75
1912	1.25	1.36	.70
1913	1.38	1.55	.80
1914	1.15	1.27	.65
1915	1.31	1.40	.85
1916	2.48	2.80	1.35
1917	3.49	4.38	2.10
1918	3.14*	3.49	2.10
1919	3.11	3.11	1.70
1920	4.57	4.57	2.00
1921	2.50	2.50	1.30

* Computed on card ruling to May 21, 1918.

Fuller Brothers & Company

139 Greenwich Street, Cor. Cedar Street
NEW YORK, N. Y.
Telephone Rector 2777

STEEL MILL PRODUCTS

Steel Sheets, Black and Galvanized, Plain and Corrugated
Strip Steel, Hot and Cold Rolled
Wire Nails, Bright and Coated, Galvanized
Plain Wire, Black Annealed, Barbed Wire
Steel Tubing, Straight or Bent to any Design
Bar Iron, Double Refined

WIRE NAIL CARDS.

	Apr. 13, *1886.	Apr. 11, 1892.	July 19, 1895.	Dec. 1, 1896.	Present.†
60	Base	Base	.50	Base	Base
50	Base	.10	.50	Base	Base
30-40	Base	.25	.50	Base	Base
20	Base	.35	.50	Base	Base
16	Base	.45	.50	.05	.10
12	Base	.45	.50	.05	.15
10	Base	.50	.50	.05	.20
8-9	.35	.60	.60	.10	.30
7	.75	.75	.75	.20	.55
6	.75	.75	.75	.20	.60
5	1.10	.90	.90	.30	.75
4	1.10	.90	.90	.30	.80
3	2.25	1.20	1.20	.45	1.15
2	4.00	1.60	1.60	.70	1.45

* First wire nail card; base price $4.25.

† Issued by independents Feb. 16, 1920; by American Steel & Wire Co. August, 1920.

NAIL PRODUCTION.

(Kegs, 100 pounds.)

	Cut nails.	Wire nails.	Total.
1886	8,160,973	600,000	8,760,973
1890	5,640,946	3,135,911	8,776,857
1895	2,129,894	5,841,403	7,971,297
1900	1,573,494	7,233,979	8,807,473
1905	1,357,549	10,854,892	12,212,441
1908	956,182	10,662,972	11,619,154
1910	1,005,233	12,704,902	13,710,135
1911	967,636	13,437,778	14,405,414
1912	978,415	14,659,700	15,638,115
1913	842,038	13,559,727	14,401,765
1914	769,665	13,132,814	13,902,479
1915	775,327	14,583,026	15,358,353
1916	764,835	17,147,665	17,912,500
1917	461,674	17,040,666	17,502,340
1918	418,811	12,279,800	12,698,611
1919	394,477	13,094,221	13,488,698
1920	844,583	16,449,506	17,294,089
Maximum cut nails, 1886			8,160,973
Maximum wire nails, 1916			17,147,665

"Pittsburgh Perfect"

Steel and Wire Products

Pig Iron Blooms Billets
Wire Rods
Bright, Annealed and Galvanized Wire
Barbed Wire
Galvanized Hard Spring Coil Wire
Two-Strand Twisted Cable Wire
Straightened and Cut Wire
Single Loop Bale Ties
Poultry Netting Staples, Wire Fence Staples
Standard Steel Wire Nails
Galvanized Steel Wire Nails
Smooth Foundry and Plaster Board Nails
Large Head Felt Roofing Nails
Cement Coated Wire Nails, Blued Wire Nails
Steel Hoops Steel Bands Cotton Ties
Automobile, Motor Cycle and Aeroplane
Rim Stock Hot Rolled Strip Steel
Reinforcing Fabric
"Pittsburgh Perfect"
Electrically Welded Wire Fencing
For Field, Farm, Ranch, Poultry
and Garden purposes
Ornamental and Plain Top Lawn Fencing
"Columbia" Hinge-Joint Farm Fencing

All "Pittsburgh Perfect" Brands of steel and wire products are manufactured from Basic Open Hearth material exclusively, and are produced entirely in our own Furnaces and Mills, from the Ore in our Mines to the Finished Product.

Pittsburgh Steel Co.

Pittsburgh, Pa.

New York Chicago San Francisco
Memphis Dallas

WIRE PRODUCTS, Pittsburgh.

	Plain wire.		Wire nails.		Painted Barb wire.		Galvanized Barb wire.	
	High.	Low.	High.	Low.	High.	Low.	High.	Low
1893..	1.70	1.35	1.55	1.05	2.05	1.70	2.45	2.10
1894..	1.40	1.20	1.15	.85	1.75	1.40	2.15	1.85
1895..	1.75	1.10	2.25a	.85b	2.30	1.45	2.70	1.80
1896..	1.35	1.15	2.55c	1.45d	1.75	1.40	2.05	1.70
1897..	1.20	1.10	1.50	1.25	1.50	1.30	1.80	1.60
1898..	1.25	1.10	1.50	1.25	1.50	1.35	1.80	1.65
1899..	2.80	1.20	2.95	1.35	3.40	1.45	3.55	1.80
1900..	3.05	2.15	3.20	2.20	3.65	2.50	3.80	2.80
1901..	2.25	1.85	2.30	1.90	2.60	2.50	2.90	2.80
1902..	2.00	1.75	2.05	1.85	2.60	2.15	2.90	2.45
1903..	1.90	1.75	2.00	1.85	2.30	2.15	2.60	2.45
1904..	1.85	1.45	1.90	1.60	2.25	1.75	2.55	2.05
1905..	1.65	1.60	1.80	1.70	1.95	1.90	2.25	2.20
1906..	1.85	1.65	2.00	1.75	2.15	1.95	2.45	2.25
1907..	1.90	1.85	2.05	2.00	2.20	2.15	2.50	2.45
1908..	1.90	1.80	2.05	1.95	2.20	2.10	2.50	2.40
1909..	1.80	1.40	1.95	1.60	2.10	1.60	2.40	1.90
1910..	1.65	1.50	1.85	1.70	1.85	1.70	2.15	2.00
1911..	1.60	1.30	1.80	1.50	1.80	1.50	2.10	1.80
1912..	1.55	1.35	1.75	1.55	1.75	1.55	2.15	1.85
1913..	1.60	1.30	1.80	1.50	1.80	1.50	2.20	1.90
1914..	1.40	1.30	1.60	1.50	1.60	1.50	2.00	1.90
1915..	1.95	1.30	2.10	1.50	2.25	1.50	2.95	1.90
1916..	2.95	1.95	3.00	2.10	3.15	2.25	3.85	2.95
1917..	3.95	2.95	4.00	3.00	4.15	3.15	4.85	3.85
1918..	3.25	3.25	3.50	3.50	3.65	3.65	4.35	4.35
1919..	3.25	3.00	3.50	3.25	3.65	3.40	4.35	4.10
1920..	4.00	3.00	4.50	3.25	4.45	3.40	5.10	4.10
1921..	3.25	2.50	3.25	2.75	3.40	2.90	4.10	3.40

(a) On temporary high card, equal to 2.75 on either old or present card; (b) On old card, equal to .35 on temporary card; (Actual range in year, 1.90); (c) On temporary high card; (d) in December, on present card. Low on temporary high card, 2.25, in January. See cards on another page.

Notes—Oct. 12, 1912, differential for galvanizing smooth and barb wire changed from 30c to 40c per 100 lbs.; in 1915 changed as follows: Mar. 1, 50c; Mar. 17, 60c; June 1, 80c; Aug. 16, 60c; Aug. 23, 70c.; June 17, 1921, reduced to 50c.

July 1, 1915 to May 1, 1916, painted barb wire 30c over plain wire instead of 20c. Nov. 6, 1917, 40c over plain wire, remaining 15c over nails.

CENTRAL
Iron & Steel Co.

HARRISBURG, PENN'A.

ESTABLISHED 1853

Sheared and Universal

ROLLED PLATES

SKELP - SHEETS

For All Purposes

Our range is No. 12 Gauge to 3" thick, 8" to 115" wide

FLANGED AND DISHED HEADS

District Sales Offices:

Boston, Mass
131 State St.

Philadelphia, Pa.
Stock Exchange Bldg.

San Francisco, Cal.
C. W. Pike Company

New York, N. Y.
66 Broadway

Baltimore, Md.
Continental Bldg.

Montreal, Canada
Jas. W. Pyke & Co. Ltd.

STEEL PLATES

GROOVED STEEL SKELP, PITTSBURGH.

Annual averages.

1894	1.08	1908	1.66
1895	1.15	1909	1.34
1896	1.08	1910	1.43
1897	.94	1911	1.23
1898	.98	1912	1.24
1899	1.80	1913	1.39
1900	1.54	1914	1.17
1901	1.68	1915	1.27
1902	2.06	1916	2.34
1903	1.74	1917	3.95
1904	1.51	1918	2.89
1905	1.51	1919	2.51
1906	1.58	1920	3.00
1907	1.81	1921	1.96

Monthly averages.

	1915.	1916.	1917.	1918.	1919	*1920.	1921.
Jan.	1.13	1.75	2.85	2.90	2.70	2.45	2.45
Feb.	1.13	1.94	2.85	2.90	2.70	2.60	2.30
Mar.	1.13	2.24	3.50	2.90	2.61	2.75	2.20
Apr.	1.13	2.35	3.50	2.90	2.45	2.75	2.15
May	1.14	2.35	3.75	2.90	2.45	3.00	2.20
June	1.15	2.35	5.00	2.90	2.45	3.50	2.10
July	1.18	2.35	6.00	2.90	2.45	3.25	1.90
Aug.	1.25	2.35	5.50	2.90	2.45	3.25	1.75
Sept.	1.28	2.35	5.00	2.90	2.45	3.25	1.67
Oct.	1.40	2.40	3.68	2.90	2.45	3.25	1.65
Nov.	1.56	2.75	2.90	2.90	2.45	3.10	1.60
Dec.	1.70	2.85	2.90	2.78	2.45	2.85	1.52
Av.	1.27	2.34	3.95	2.89	2.51	3.00	1.96

* Independent market; Steel Corporation not a seller.

A large part of the welded pipe produced in this country is made on our mills and marked with the name "Youngstown".

It has earned its reputation in performance and maintains that reputation by QUALITY.

Among our other finished products are Plates, Sheets, Bars, Shapes and Angles, Wire and Wire Products, together with "BUCKEYE" Conduit and "REALFLEX" Armored Conductor.

Making them from the ore itself, we are able to say of all that no better can be produced commercially.

The

YOUNGSTOWN SHEET AND TUBE COMPANY

YOUNGSTOWN, OHIO

WROUGHT PIPE PRODUCTION.

Wrought pipe production, gross tons:

1913—	Iron.	Steel.	Total.
Black std. pipe	120,619	709,853	830,472
Galv. std. pipe	25,320	241,617	266,940
Oil country goods	84,778	756,311	841,089
O. D. pipe, etc.	2,159	177,052	179,211
Boiler tubes	43,188	84,632	127,820
Total welded	276,067	1,969,465	2,245,532
1916—			
Black std. pipe	110,694	1,021,949	1,132,643
Galv. std. pipe	28,540	262,473	291,013
Oil country goods	85,805	854,686	940,491
O. D. pipe, etc.	136	138,627	138,763
Boiler tubes	52,942	95,206	148,148
Total welded	278,117	2,372,941	2,651,058
1917—			
Black std. pipe	90,119	969,628	1,059,747
Galv. std. pipe	25,949	249,356	275,305
Oil country goods	102,337	785,566	887,903
O. D. pipe, etc.	90	115,600	115,690
Boiler tubes	55,395	92,937	148,332
Total welded	273,890	2,213,087	2,486,977
1918—			
Black std. pipe	74,871	940,914	1,015,785
Galv. std. pipe	20,209	244,473	264,682
Oil country goods	67,136	727,633	794,769
O. D. pipe, etc.	.....	91,157	91,157
Boiler tubes	40,742	83,344	124,086
Total welded	202,958	2,087,521	2,290,479
1919—			
Black std. pipe	51,682	775,400	827,082
Galv. std. pipe	14,661	253,495	268,156
Oil country goods	73,522	995,392	1,068,914
O. D. pipe, etc.	.....	120,670	120,670
Boiler tubes	22,491	67,618	90,109
Total welded	162,356	2,212,575	2,374,931
1920—			
Black std. pipe	75,066	1,093,702	1,168,768
Galv. std. pipe	19,560	297,759	317,319
Oil country goods	71,610	1,190,168	1,261,778
O. D. pipe etc.	.....	135,924	135,924
Boiler tubes	33,437	85,499	118,936
Total welded	199,673	2,803,052	3,002,725

Seamless tubes, gross tons:

	1913.	1917.	1918.	1919.	1920.
Hot finished.	42,740	87,615	142,308	75,864	132,091
Cold drawn	65,827	139,060	150,586	121,505	159,479
Total seamless	108,567	226,675	292,894	197,369	291,570

Note.—No statistics similar to the above were gathered for years prior to 1913.

HOLLOW FORGINGS

FINISHED OR SEMI-FINISHED

Harrisburg is well equipped to make Finished or Semi-Finished Hollow Forgings according to your own requirements. These can be made either from your own specifications or from our "Always Reliable" basic open hearth carbon or alloy steel.

It will pay you to investigate. Our prices will interest you.

HARRISBURG

PIPE & PIPE BENDING CO.

HARRISBURG, PA.

STANDARD STEEL PIPE.

The list adopted January 1, 1913; weights of full standard weight per foot, plain ends; list prices per foot, full standard weight, extra strong and double extra strong.

Nominal Inside Diam.	Actual Outside Diam.	Weight per foot, Pounds.	LIST PRICES PER FOOT. Standard Weight.	Extra Strong.	XX Strong.
⅛..	.405	.244	$.05½	$.12	....
¼..	.540	.424	.06	.07½	....
⅜..	.675	.567	.06	.07½	....
½..	.840	.850	.08½	.11	$.32
¾..	1.050	1.130	.11½	.15	.35
1....	1.315	1.678	.17	.22	.37
1¼..	1.660	2.272	.23	.30	.52½
1½..	1.900	2.717	.27½	.36½	.65
2....	2.375	3.652	.37	.50½	.91
2½..	2.875	5.793	.58½	.77	1.37
3....	3.500	7.575	.76½	1.03	1.86
3½..	4.000	9.109	.92	1.25	2.30
4....	4.500	10.790	1.09	1.50	2.76
4½..	5.000	12.538	1.27	1.80	3.26
5....	5.563	14.617	1.48	2.08	3.86
6....	6.625	18.974	1.92	2.86	5.32
7....	7.625	23.544	2.38	3.81	6.35
8....	8.625	24.696	2.50	4.34	7.25
8....	8.625	28.554	2.88	....	....
9....	9.625	33.907	3.45	4.90	....
10....	10.750	31.201	3.20	5.48	....
10....	10.750	34.240	3.50	....	....
10....	10.750	40.483	4.12	....	....
11....	11.750	45.557	4.63	6.10	....
12....	12.750	43.773	4.50	6.55	....
12....	12.750	49.562	5.07	....	....
13....	14.000	54.568	5.60	....	....
14....	15.000	58.573	6.10	....	....
15....	16.000	62.579	6.50	....	....

"NATIONAL" PIPE

FOR EVERY WROUGHT PIPE PURPOSE

Uniform, strong, ductile.
Spellerized against corrosion (sizes 4-in. and under).
Clean and smooth of finish (butt-weld sizes ½ to 3" made welding-scale free).
Good threading, bending and welding qualities.
Resistant to shock, vibration, and unusual pressures.
A wide range of sizes.
Different types of joints for specific purposes.
Full standard weight only.
Thoroughly tested and inspected.

THE RECOGNIZED STANDARD OF WROUGHT PIPE QUALITY

Ask for a copy of "National" Bulletin No. 11 — History, Characteristics and The Advantages of "NATIONAL" Pipe.

NATIONAL TUBE COMPANY

Frick Building, Pittsburgh, Pa.
District Sales Offices in The Larger Cities

STANDARD STEEL PIPE.

Full standard weight steel pipe, basing (card) discounts on "jobbers' carloads". Dates with no change indicate new cards with other discounts changed. Such data omitted prior to Oct. 12, 1906.

Feb. 21, 1900	59
May 1, 1900	67
July 1, 1900	70
Aug. 1, 1900	72
Sept. 1, 1900	70
Mar. 1, 1902	69
Mar. 15, 1902	67
Nov. 12, 1902	75
Dec. 31, 1903	77
Feb. 1, 1904	76
Mar. 1, 1904	75
June 1, 1904	76
July 1, 1904	78½
Sept. 3, 1904	79
Oct. 19, 1904	78
Nov. 1, 1904	77
Jan. 2, 1905	76½
Feb. 1, 1905	76
Mar. 1, 1905	75½
Apr. 20, 1905	75
Oct. 2, 1905.	79
Oct. 12, 1906	77
Dec. 4, 1906	76
Dec. 20, 1906	75
Jan. 24, 1907	74
Feb. 4, 1907	74
May 14, 1907	72
June 10, 1908	74
Feb. 19, 1909	79
Sept. 1, 1909	79
Oct. 1, 1909	78
Jan. 1, 1910	78
Oct. 1, 1910	80
Oct. 2, 1911	81
Dec. 1, 1911	82
Dec. 15, 1911	82
June 1, 1912	81
July 1, 1912	81
July 24, 1912	80
Sept. 10, 1912	79
Jan. 1, 1913	80
Apr. 12, 1913	79½
May 27, 1913	79
Aug. 8, 1913	80
Oct. 27, 1913	80*
Feb. 2, 1914	79½
Apr. 20, 1914	80
Nov. 2, 1914	81†
Feb. 11, 1915	80
May 1, 1915	79
Nov. 1, 1915	78
Jan. 4, 1916	77*
Jan. 20, 1916	76
Feb. 15, 1916	75
Feb. 29, 1916	74
Mar. 15, 1916	73
Mar. 29, 1916	72
Apr. 21, 1916	70
July 24, 1916	70
Sept. 7, 1916	69
Nov. 1, 1916	69
Nov. 15, 1916	68
Dec. 4, 1916	66
Dec. 30, 1916	64
Feb. 14, 1917	62
Mar. 5, 1917	60
Apr. 2, 1917	55
May 1, 1917 (a)	49
June 19, 1917 (b)	42
Nov. 6, 1917 (c)	51
Dec. 13, 1918	54
Mar. 21, 1919	57½
Jan. 1920 (d)	54
Dec. 31, 1920 (d)	57½
Apr. 13, 1921	62½
July 7, 1921	64½
Sept. 16, 1921	68½
Dec. 16, 1921	71

* Extra 2½ per cent established; † removed.

a Except National and Republic. b Except National, Republic and Youngstown. c Government price. d Independents.

November 12, 1902, merchant weight pipe became one point lower price than full weight, a smaller concession having been previously given. January 1, 1913, the manufacture of merchant weight pipe practically ceased. March 16, 1903, cards began to show merchant weight only, with notation that card weight carried one point less discount. The January 1, 1913, card naturally showed full standard (card) weight.

MARK
Wrought Pipe

Mark pipe is noted for its strength; ductility and physical and chemical uniformity.

Casing; Tubing; Line, Drive and Drill Pipe

Standard black and galvanized Steam, gas and water pipe

MARK MANUFACTURING COMPANY
THE STEEL & TUBE COMPANY OF AMERICA

General Offices:
Conway Bldg. *Chicago, Ill.*
Cable Address, MARKTUBE, Chicago

District Sales Offices:

New York, N. Y. ..... Equitable Bldg.
Pittsburgh, Pa. ..... Oliver Bldg.
Los Angeles, Calif. ..... 3000 Sante Fe Ave.
Minneapolis, Minn ..... Andrus Bldg.
Kansas City, Mo. ..... Commerce Bldg.
New Orleans, La. ..... Maison Blanche Annex

PIPE

STEEL PIPE CARDS.

Typical discount cards, jobbers' carloads.

	Black.	Galv.
September 3, 1904, merchant weight.		
⅛, ¼	71	55
⅜	75	63
½	75	63
¾ to 6	79	69
7 to 12	74	59
December 15, 1911, merchant weight.		
⅛, ¼	75	55
⅜	76	66
½	79	69
¾ to 1½	82	74
2 to 3 (butt)	83	76
2 (lap)	80	73
2½ to 4	82	75
4½ to 6	81	73
7 to 12 (card wt.)	78	68
January 1, 1913, standard weight.		
⅛, ¼, ⅜	73	52½
½	77	66½
¾ to 3 (butt)	80	71½
2 (lap)	77	68½
2½ to 6	79	70½
7 to 12	76	65½
December 15, 1921, standard weight.		
⅛	54½	28
¼, ⅜	60	33½
½	65	50½
¾	69	56½
1 to 3 (butt)	71	58½
2 (lap)	64	51½
2½ to 6	68	55½
7 to 8	65	51½
9 to 12	64	50½

CAST IRON PIPE

It is a well-known fact that cast iron is corrosion resisting to a very marked degree and though it will quickly become covered with rust, cast iron will remain practically unchanged in weight and strength, under conditions that would prove fatal to other forms of iron or steel in ten to twenty years.

This is true because cast iron possesses a structure of the same granular form as the iron ore from which it was made. Therefore the oxide which penetrates between the crystals is held together with natural metallic bonds and does not flake off.

Recently the field for cast iron pipe has been broadening until now it is used in practically every industry.

Write for Booklet.

United States Cast Iron Pipe & Foundry Company

General Office:

BURLINGTON : : NEW JERSEY

CAST IRON PIPE PRICES.

Six-inch and heavier, delivered New York, per ton of 2,000 pounds.

	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.	1921.
Jan. .	27.00	24.50	25.50	22.00	22.00	25.00	22.00	20.00	29.00	41.50	55.35	65.70	66.30	63.20
Feb. .	26.75	24.25	25.50	21.50	22.00	24.75	21.75	20.25	29.50	41.50	55.35	62.70	70.30	63.20
Mar. .	26.25	25.25	25.50	21.00	22.00	23.75	21.00	21.00	29.75	43.10	55.35	62.70	71.30	61.72
Apr. .	26.25	25.00	25.50	21.00	21.50	23.50	20.75	21.75	30.50	50.88	55.35	57.70	74.45	58.20
May .	26.25	25.25	25.50	21.00	21.50	23.00	20.50	22.25	30.50	55.50	56.60	54.45	76.30	56.80
June .	25.75	26.00	25.25	21.00	21.50	23.00	20.50	22.50	30.50	60.75	61.44	52.03	76.30	51.08
July .	25.75	26.25	24.00	21.00	22.00	23.00	20.25	22.75	30.50	65.50	61.75	50.46	76.30	48.20
Aug. .	25.25	26.00	23.50	21.00	22.25	23.00	20.00	23.50	30.50	65.50	61.75	52.33	76.47	48.20
Sept. .	25.75	25.75	23.50	21.00	23.25	23.00	19.75	24.50	31.00	65.50	61.75	54.30	77.21	48.20
Oct. .	25.75	25.50	23.00	21.00	24.50	23.00	19.50	25.50	31.50	61.00	67.70	55.30	77.20	42.00
Nov. .	25.00	25.75	22.00	21.75	24.50	23.00	19.50	26.50	35.85	56.50	67.70	58.30	74.80	41.20
Dec. .	25.50	25.50	22.00	22.00	24.75	22.00	19.50	27.50	40.65	56.50	67.70	61.30	68.58	41.20
Av. ..	25.94	25.42	24.23	21.27	22.65	23.33	20.42	23.17	31.65	55.31	60.65	57.27	73.79	51.93

Interstate

Interstate *Refined* ALLOY STEELS

Bars, billets, slabs, blooms, wire rods and wire to S. A. E. and customers' special analyses, in chrome, chrome vanadium, chrome nickel, chrome molybdenum, ¼ of 1%, 3½ and 5% nickel and silico manganese steels.

Merchant Bar Iron and Steel

Refined stay bolt and engine bolt iron, Railroad tie plates—iron or steel.

Market wire, wire nails, rivets, tacks—full line of wire products.

Interstate Iron & Steel Co.
104 So. Michigan Ave.,
CHICAGO

Alloy Steels

IRON BARS, CHICAGO.

Common iron bars, Chicago, averaged from daily quotations.

	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.	1921.
Jan. ...	1.65	1.50	1.55	1.30	1.15	1.60	1.11	.97	1.79	3.00	3.50	3.12	3.12	2.68
Feb. ...	1.65	1.45	1.55	1.28	1.15	1.59	1.14	1.03	1.92	3.00	3.50	2.97	3.37	2.62
Mar. ...	1.65	1.35	1.55	1.25	1.15	1.58	1.15	1.10	2.17	3.00	3.50	2.70	3.65	2.60
April ..	1.65	1.28	1.50	1.23	1.15	1.58	1.14	1.14	2.35	3.25	3.50	2.53	3.75	2.45
May ...	1.63	1.27	1.48	1.20	1.22	1.55	1.10	1.15	2.35	3.40	3.50	2.50	3.75	2.38
June ...	1.50	1.32	1.45	1.20	1.26	1.50	1.08	1.17	2.35	4.15	3.50	2.50	3.85	2.25
July ...	1.50	1.35	1.40	1.20	1.31	1.50	1.06	1.20	2.35	4.50	3.50	2.50	3.90	1.94
Aug. ...	1.50	1.39	1.38	1.20	1.38	1.44	1.07	1.22	2.35	4.50	3.50	2.62	3.80	1.75
Sept. ..	1.50	1.44	1.36	1.20	1.44	1.37	1.07	1.30	2.35	4.50	3.50	2.62	3.75	1.75
Oct. ...	1.50	1.54	1.35	1.19	1.50	1.27	1.01	1.38	2.35	4.50	3.50	2.66	3.75	1.75
Nov. ...	1.50	1.57	1.35	1.16	1.55	1.15	.96	1.51	2.50	4.00	3.50	2.73	3.75	1.70
Dec. ...	1.50	1.57	1.32	1.15	1.55	1.12	.94	1.69	2.89	3.50	3.50	2.82	3.39	1.63
Average	1.56	1.42	1.44	1.21	1.32	1.45	1.07	1.24	2.31	3.78	3.50	2.69	3.65	2.13

YOU SHOULD USE

"THAT GOOD IRON"

made by

OHIO FALLS IRON COMPANY

NEW ALBANY, IND.

For Railroads, Car Works Wagon Works, etc.

Flats from ½ x ⅛ up to 12" x 2"

Squares from ¼" to 4½"

Rounds from ¼" to 4"

Also

Half Rounds, Ovals, Half Ovals,

Bevels, Angles, Channels, Etc.

Twisted and Deformed Steel Concrete Bars

IRON BARS, PHILADELPHIA AND PITTSBURGH.

Averaged from daily quotations.

	Philadelphia								Pittsburgh							
	1914	1915	1916	1917	1918	1919	1920	1·21	1914	1915	1916	1917	1918	1919	1920	1921
Jan.	1.24	1.12	2.24	3.16	3.68	3.74	3.70	2.85	1.35	1.20	2.02	3.25	3.50	3.50	3.75	3.06
Feb.	1.28	1.12	2.41	3.16	3.68	3.25	4.13	2.70	1.35	1.20	2.25	3.25	3.50	3.30	3.88	2.70
Mar.	1.28	1.13	2.56	3.41	3.68	2.95	4.22	2.56	1.35	1.20	2.40	3.46	3.50	2.80	4.00	2.60
April	1.23	1.18	2.62	3.41	3.68	2.60	4.22	2.35	1.31	1.20	2.50	3.62	3.50	2.35	4.05	2.45
May	1.23	1.18	2.66	4.16	3.68	2.60	4.35	2.35	1.29	1.20	2.60	3.90	3.50	2.40	4.10	2.35
June	1.23	1.20	2.66	4.75	3.69	2.60	4.50	2.20	1.25	1.20	2.60	4.51	3.50	2.45	4.25	2.25
July	1.19	1.32	2.66	4.80	3.73	2.62	4.75	2.07	1.25	1.20	2.60	5.03	3.50	2.50	4.25	2.20
Aug.	1.18	1.43	2.66	4.92	3.73	2.74	4.77	2.00	1.25	1.25	2.60	5.00	3.50	2.50	4.60	2.08
Sept.	1.18	1.49	2.66	4.94	3.73	2.74	4.73	1.97	1.20	1.35	2.70	4.75	3.50	2.50	4.75	2.00
Oct.	1.14	1.57	2.66	4.46	3.73	2.75	4.71	1.92	1.20	1.45	2.75	4.75	3.50	2.75	4.40	2.00
Nov.	1.13	1.72	2.66	3.90	3.74	3.13	4.25	1.90	1.20	1.54	2.85	4.10	3.50	3.13	4.00	1.97
Dec.	1.12	1.99	3.02	3.68	3.74	3.51	3.85	1.85	1.20	1.83	3.19	3.50	3.50	3.40	3.50	1.95
Av.	1.20	1.37	2.57	4.06	3.71	2.94	4.35	2.23	1.27	1.32	2.59	4.09	3.50	2.80	4.13	2.30

EGLESTON BROS. & CO.

ESTABLISHED 1829

IMMEDIATE SHIPMENT

FROM STOCK

OF

BARS

PLATES - SHEETS

SHAPES

IRON and STEEL

BURDEN IRON

NORWAY AND SWEDISH IRON

TOOL STEEL

COLD DRAWN STEEL

166 South St., NEW YORK CITY

COMMON IRON BARS.

Annual averages of quotations, base.

Pittsburgh.

1845 .. 4.3	1859 .. 3.7	1873 .. 3.6
1846 .. 4.1	1860 .. 3.6	1874 .. 2.8
1847 .. 3.8	1861 .. 2.3	1875 .. 2.5
1848 .. 3.5	1862 .. 3.5	1876 .. 2.5
1849 .. 3.0	1863 .. 4.5	1877 .. 2.0
1850 .. 2.7	1864 . *6.7	1878 . 2.0
1851 .. 2.4	1865 .. 5.3	1879 .. 2.5
1852 .. 2.6	1866 .. 5.0	1880 .. 2.75
1853 .. 4.0	1867 .. 4.5	1881 .. 2.32
1854 .. 3.5	1868 .. 3.7	1882 .. 2.41
1855 .. 3.0	1869 .. 3.5	1883 .. 1.99
1856 .. 3.0	1870 .. 3.3	1884 .. 1.77
1857 .. 4.3	1871 .. 3.4	1885 .. 1.65
1858 .. 4.3	1872 .. 4.6	1886 .. 1.72

1887 .. 1.96	
1888 .. 1.80	
1889 .. 1.77	
1890 .. 1.85	
1891 .. 1.70	
1892 . 1.61	
1893 .. 1.55	
1894 .. 1.13	
1895 .. 1.16	
1896 .. 1.11	
1897 .. 1.00	
1898 .. .95	
1899 .. 1.71	
1900 .. 1.64	

* Record high, December 7.50; gold in 1864 262.

	Pittsburgh.	Philadelphia.	Chicago.
1898	.95	1.08	1.05
1899	1.71	1.77	1.80
1900	1.64	1.66	1.75
1901	1.46	1.52	1.58
1902	1.74	1.88	1.71
1903	1.64	1.71	1.65
1904	1.32	1.44	1.41
1905	1.65	1.71	1.65
1906	1.65	1.73	1.71
1907	1.73	1.84	1.78
1908	1.47	1.50	1.56
1909	1.49	1.49	1.42
1910	1.53	1.45	1.44
1911	1.30	1.28	1.21
1912	1.38	1.38	1.32
1913	1.59	1.51	1.45
1914	1.27	1.20	1.07
1915	1.32	1.37	1.24
1916	2.59	2.57	2.31
1917	4.09	4.06	3.78
1918	3.50	3.69	3.50
1919	2.80	2.94	2.69
1920	4.13	4.35	3.65
1921	2.30	2.23	2.13

BAR IRON.

Average realized prices on base sizes common bar iron shipped during months named f. o. b. valley and Cleveland mills to January 1, 1911; certain western mills included thereafter; sworn returns of manufacturers used in Amalgamated Association wage adjustments; where second decimal place is omitted the figure represents the tenth next below actual price. * Represents base of scale; realized average may have been lower, After July 1, 1917, 60-day period ends 20th of month.

	1898.	1899.	1900.	1901.	1902.	903.	1904.	1905.	1906.	1907.	1908.	1909.
Jan.-Feb.	1.05	1.1	1.8	1.3	1.5	1.7	1.3	1.4	1.62	1.60	1.49	1.36
Mar.-April	1.05	1.2	2.0	1.3	1.5	1.7	1.3	1.5	1.63	1.66	1.45	1.32
May-June	*1.	*1.4	1.75	1.4	1.6	1.7	1.3	1.4	1.60	1.65	1.35	1.30
July-Aug.	1.03	1.6	1.4	1.4	1.6	1.6	*1.2	1.4	1.55	1.65	1.33	1.36
Sept.-Oct.	1.07	1.65	*1.2	1.4	1.6	1.5	*1.2	1.4	1.55	1.63	1.35	1.40
Nov.-Dec.	1.06	1.8	1.3	1.5	1.7	1.3	1.3	1.572	1.57	1.58	1.34	1.42

	1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.	1921.
Jan.-Feb.	1.48	1.31	1.19	1.48	1.15	1.02	1.40	2.35	3.10	3.10	2.70	2.80
Mar.-April	1.48	1.29	1.19	1.54	1.18	1.09	1.60	2.45	3.30	2.75	3.00	2.55
May-June	1.46	1.26	1.22	1.53	1.13	1.10	1.85	2.65	3.35	2.50	3.25	2.30
July-Aug.	1.47	1.24	1.25	1.50	1.09	1.15	1.95	2.75	3.40	2.50	3.40	1.85
Sept.-Oct.	1.39	1.24	1.34	1.39	1.08	1.20	2.00	2.85	3.45	2.50	3.55	1.70
Nov.-Dec.	1.36	1.21	1.42	1.20	1.04	1.30	2.15	2.95	3.45	2.55	3.50	1.65
Average	1.44	1.26	1.27	1.44	1.11	1.14	1.83	2.67	3.34	2.65	3.23	2.14

BAR IRON.

Best refined bar iron from store, Philadelphia; annual averages; taken from sales books prior to 1887; from quotations since. Compiled by American Iron and Steel Association through 1912. In recent years furnished to American Iron and Steel Institute by Iron Merchants' Association, Philadelphia.

1844.	3.82	1864.	6.50	1884.	1.97	1904.	1.72
1845.	4.19	1865.	4.75	1885.	1.80	1905.	1.92
1846.	4.10	1866.	4.38	1886.	1.92	1906.	1.98
1847.	3.84	1867.	3.89	1887.	2.20	1907.	2.11
1848.	3.55	1868.	3.82	1888.	2.01	1908.	1.70
1849.	3.01	1869.	3.65	1889.	1.94	1909.	1.76
1850.	2.66	1870.	3.52	1890.	2.05	1910.	1.85
1851.	2.44	1871.	3.51	1891.	1.90	1911.	1.64
1852.	2.62	1872.	4.36	1892.	1.87	1912.	1.75
1853.	3.73	1873.	3.87	1893.	1.70	1913.	1.92
1854.	4.09	1874.	3.03	1894.	1.34	1914.	1.59
1855.	3.33	1875.	2.72	1895.	1.44	1915.	1.74
1856.	3.30	1876.	2.32	1896.	1.40	1916.	3.27
1857.	3.17	1877.	2.03	1897.	1.31	1917.	4.58
1858.	2.78	1878.	1.97	1898.	1.28	1918.	4.55
1859.	2.72	1879.	2.31	1899.	2.07	1919.	3.74
1860.	2.62	1880.	2.70	1900.	1.96	1920.	4.76
1861.	2.72	1881.	2.59	1901.	1.84	1921.	2.97
1862.	3.14	1882.	2.74	1902.	2.13		
1863.	4.06	1883.	2.25	1903.	2.00		

Monthly averages:

	1915.	1916.	1917.	1918.	1919.	1920.	1921.
Jan.	1.52	2.70	3.92	4.41	5.05	3.81	3.56
Feb.	1.52	2.84	3.92	4.41	4.90	4.21	3.56
Mar.	1.52	3.07	4.21	4.41	3.55	4.68	3.41
April	1.55	3.19	4.41	4.41	3.35	4.95	3.17
May	1.57	3.19	4.41	4.41	3.35	4.95	3.17
June	1.58	3.19	4.56	4.41	3.35	4.95	2.97
July	1.62	3.19	5.10	4.64	3.35	4.95	2.77
Aug.	1.73	3.33	5.10	4.64	3.60	4.95	2.72
Sept.	1.89	3.33	5.10	4.64	3.60	4.95	2.47
Oct.	1.97	3.53	5.10	4.68	3.60	5.20	2.62
Nov.	2.14	3.72	4.75	4.74	3.60	4.95	2.62
Dec.	2.33	3.92	4.41	4.74	3.60	4.55	2.62
Av.	1.74	3.27	4.58	4.55	3.74	4.76	2.97

The Eastern Rolling Mill Co.

BALTIMORE, MD.

PRODUCERS OF HIGH GRADE

Automobile
Metallic Furniture
Blued Stove Pipe
Enameling
Pickled
and
Black
STEEL SHEETS

BOTH SHEET AND TIN MILL SIZES

PLATE AND SHEET PRODUCTION.

	1894.	1895.	1896.	1897.
Plates,				
8-heavier	375,117	508,343	458,136	597,549
Sheets,				
9—19....	80,099	112,537	113,826	107,891
20—25...	73,968	91,449	89,760	96,930
26-lighter	153,716	279,130	304,054	404,916
Total sheets	307,783	483,116	507,640	609,737

	1898.
Plates, No. 8 and heavier	638,861
Sheets, Nos. 9 to 17	117,505
Sheets, No. 18 and lighter	691,935
Total sheets, No. 9 and lighter ..	809,440

	Plates, 12 down.	Sheets, 13 up.	Black plates.	Total sheets and black plates.
1905.	2,041,206	983,437	507,587	1,491,024
1906.	2,531,552	1,074,525	576,079	1,650,604
1907.	2,660,060	1,084,700	504,072	1,588,772
1908.	1,271,021	864,901	513,771	1,378,672
1909.	2,379,098	1,248,766	606,482	1,855,248
1910.	2,807,728	1,435,619	712,137	2,147,756
1911.	2,334,341	1,358,110	795,598	2,153,708
1912.	3,035,200	1,857,683	982,197	2,839,880
1913*	3,255,107	1,464,631	1,031,299†	2,495,930
1914	2,237,693	1,302,355	1,179,198†	2,481,553
1915	3,038,260	1,676,577	1,362,857†	3,039,434
1916*	3,949,193	1,977,788	1,526,999†	3,504,787
1917*	4,158,238	2,367,752	1,741,626†	4,109,378
1918*	5,525,471	1,668,076	1,605,588†	3,273,664
1919*	4,172,179	1,818,982	1,381,653†	3,200,635
1920*	5,122,462	2,519,072	1,696,146†	4,215,218

* Details on following page.

† Includes tin mill black not tinned.

Note.—Gross tons throughout. No separate statistics were collected prior to 1894, or between 1898 and 1905; above statistics 1894-8 include black plates; for a series of years the total plate, sheet and black plate production shown under "rolled iron and steel".

THE BRIER HILL STEEL CO.

YOUNGSTOWN, OHIO.

COKE - ORE

Bessemer and Basic Pig Iron
Low Phosphorus Pig Iron
WASHED METAL

Slabs — Billets
Sheet and Tin Bar
SHEARED PLATES
Black and Galvanized Sheets
Kindred Products

DISTRICT OFFICES IN ALL PRINCIPAL CITIES

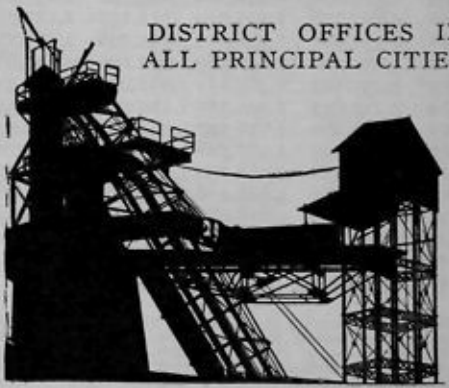

PLATE AND SHEET PRODUCTION—Gross Tons.

	1913. Total.	1916. Total	1917. Total.	1918. Total	1919 Total	1920 Iron	1920 Steel	1920 Total
Universal plates:								
¼ inch thick and over	1,110,074	1,170,965	1,148,914	1,203,664	938,474	3,640	1,123,405	1,127,045
Under ¼ inch thick	48,342	53,269	46,285	31,118	53,580	.....	122,724	122,724
Total universal plates	1,158,416	1,224,234	1,195,199	1,234,782	992,054	3,640	1,246,129	1,249,769
Sheared: (single stand)								
¼ inch thick and over	1,181,224	1,754,047	2,189,749	2,949,732	2,208,208	844	2,621,287	2,622,131
Under ¼ inch thick	214,403	228,816	206,616	175,317	165,488	76	221,629	221,705
Total	1,395,627	1,982,863	2,396,365	3,125,049	2,373,696	920	2,842,916	2,843,836
Sheared: (separate stands)								
¼ inch thick and over	251,030	111,595	272,189	495,552	259,448	...	282,496	282,496
Under ¼ inch thick	197,697	358,692	294,485	264,525	266,123	...	379,032	379,032
Total	448,727	470,287	566,674	760,077	525,571	...	661,528	661,528
Total sheared plates	1,844,354	2,453,150	2,963,039	3,885,126	2,899,267	920	3,504,444	3,505,364
Total plates	3,002,770	3,677,384	4,158,238	5,119,908	3,891,321	4,560	4,750,573	4,755,133
Black sheets: (sheet or jobbing mill)								
No. 12 ga. and thicker	252,337	271,809	355,339	405,563	280,858	959	366,370	367,329
No. 13 ga. and thinner	1,465,301	1,977,788	2,012,413	1,668,076	1,818,982	26,831	2,492,241	2,519,072
Total black sheets	1,717,638	2,249,597	2,367,752	2,073,639	2,099,840	27,790	2,858,611	2,886,401
Black plates: (tin mills)								
Black plates for tinning	1,030,629	1,283,802	1,513,772	1,502,690	1,165,436	.....	1,449,330	1,449,330
Black plate specialties	*	243,197	227,854	102,898	216,217	1,761	245,055	246,816
Total black plates	1,030,629	1,526,999	1,741,626	1,605,588	1,381,653	1,761	1,694,385	1,696,146
Grand total of plates and sheets	5,751,037	7,453,980	8,267,616	8,799,135	7,372,814	34,111	9,303,569	9,337,680

* Included above

AUTOMOBILE SHEETS

Deep Drawing Qualities

SENECA SHEETS

ENAMELING AND JAPANNING STEEL

DIRECT EXPORTERS

BLACK SHEETS

Seneca Iron & Steel Company

Buffalo, N. Y.

NEW YORK CITY
Woolworth Bldg.

CHICAGO
McCormick Bldg.

DETROIT
General Motors Bldg.

BLUE ANNEALED SHEETS.

Averaged from daily quotations, Pittsburgh, 10 gauge.

	1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	†1920.	1921.
Jan.	1.75	1.62	1.40	1.70	1.40	1.30	2.55	4.25	4.25	3.90	3.70	3.55
Feb.	1.81	1.65	1.37	1.75	1.40	1.30	2.65	4.50	4.25	3.90	4.25	3.30
Mar.	1.90	1.65	1.35	1.75	1.40	1.30	2.85	4.70	4.25	3.78	4.75	3.00
April	1.90	1.65	1.36	1.75	1.40	1.33	2.95	5.40	4.25	3.55	5.50	3.05
May	1.90	1.63	1.40	1.75	1.37	1.35	3.00	6.70	4.25	3.55	5.75	3.10
June	1.82	1.50	1.44	1.75	1.35	1.33	3.00	8.00	4.25	3.55	5.50	2.95
July	1.75	1.50	1.45	1.75	1.35	1.32	2.90	8.25	4.25	3.55	6.00	2.55
Aug.	1.73	1.45	1.48	1.69	1.36	1.37	2.90	8.00	4.25	3.55	6.00	2.30
Sept.	1.65	1.44	1.52	1.63	1.40	1.51	2.90	8.00	4.25	3.55	5.50	2.33
Oct.	1.60	1.40	1.58	1.57	1.43	1.60	3.15	7.50	4.25	3.55	5.35	2.25
Nov.	1.60	1.40	1.65	1.52	1.40	1.90	3.37	4.43	4.25	3.55	4.75	2.25
Dec.	1.60	1.36	1.65	1.50	1.33	2.26	3.65	4.25	4.04	*3.55	3.63	2.25
Average	1.75	1.52	1.47	1.68	1.38	1.49	2.99	6.15	4.23	3.63	5.06	2.74

* Premiums for prompt shipment. † Independent market; Steel Corporation price remained 3.55.

APOLLO STEEL COMPANY

BLUE ANNEALED-BLACK AND GALVANIZED SHEETS

GENERAL OFFICES: APOLLO, PA.

SALES OFFICES

PHILADELPHIA:	LINCOLN BLDG.
CLEVELAND:	CITIZENS BLDG.
CHICAGO:	McCORMICK BLDG.
SAN FRANCISCO:	CALL BLDG.
NEW ORLEANS:	205 S. PETERS ST.
NEW YORK:	50 CHURCH ST.
SEATTLE:	L. C. SMITH BLDG.
LOS ANGELES:	L. A. RY. BLDG.

SHEETS.

Black sheets, Pittsburgh; 24 gauge, iron for 1890 and 1891; iron or steel for 1892; 28 gauge steel for subsequent years.

	High.	Low.		High.	Low.
1890	3.10	2.80	1906	2.60	2.30
1891	2.85	2.60	1907	2.60	2.45
1892	2.80	2.55	1908	2.60	2.45
1893	2.95	2.65	1909	2.40	2.15
1894	2.65	2.35	1910	2.40	2.15
1895	2.80	2.30	1911	2.20	1.75
1896	2.45	2.15	1912	2.25	1.80
1897	2.15	1.95	1913	2.35	1.80
1898	2.05	1.80	1914	1.95	1.80
1899	3.35	2.00	1915	2.60	1.70
1900	3.25	2.90	1916	4.50*	2.60
1901	3.85	3.00	1917	9.00*	4.50
1902	3.10	2.75	1918	5.00	4.70
1903	2.70	2.35	1919	4.70	4.35
1904	2.30	2.00	1920	7.00*	4.35
1905	2.40	2.15	1921	4.35	2.75

* Premiums for prompt delivery.

GALVANIZED SHEET PRODUCTION.

Galvanized flat, also formed in black and then galvanized; gross tons.

	Flat.	Formed.	Total.
1913	824,046	57,674	881,720
1914	806,994	58,752	865,746
1915	706,058	50,086	756,144
1916	601,306	58,170	659,476
1917	568,740	51,296	620,036
1918	517,758	54,067	571,825
1919	669,900	62,721	732,621
1920	835,429	64,239	899,668

SHEETS
TIN PLATE

Black,
Galvanized,
Blue Annealed,
Single Pickled,
Uniform
Blue
Coke Tin Plate
All Qualities

The Falcon Steel Co.
The Falcon Tin Plate Co.

Works: NILES, O., CANTON, O.

General Offices: NILES, OHIO

BLACK SHEETS.

No. 28 gauge black sheets, Pittsburgh; averaged from daily quotations.

	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	†1920	1921
Jan.	2·37	2·60	2·50	2·45	2·40	2·20	1·90	2·32	1·86	1·80	2·60	4·50	5·00	4·70	4·60	4·35
Feb.	2·40	2·60	2·50	2·35	2·40	2·20	1·85	2·35	1·95	1·80	2·60	4·63	5·00	4·70	5·05	4·22
Mar.	2·40	2·60	2·45	2·20	2·40	2·20	1·80	2·35	1·95	1·80	2·73	4·90	5·00	4·58	5·65	3·95
April	2·40	2·60	2·45	2·20	2·40	2·20	1·85	2·35	1·90	1·80	2·89	5·88	5·00	4·35	5·70	3·90
May	2·40	2·60	2·45	2·15	2·40	2·20	1·90	2·35	1·85	1·80	2·90	6·73	5·00	4·35	5·90	4·00
June	2·48	2·60	2·45	2·15	2·35	2·00	1·90	2·29	1·81	1·76	2·90	7·50	5·00	4·35	5·75	3·86
July	2·50	2·60	2·43	2·15	2·25	2·00	1·96	2·25	1·80	1·74	2·90	8·00	5·00	4·35	6·50	3·46
Aug.	2·50	2·60	2·40	2·18	2·20	1·91	2·03	2·20	1·88	1·85	2·90	8·00	5·00	4·35	6·80	2·94
Sept.	2·50	2·60	2·40	2·21	2·15	1·90	2·12	2·12	1·98	1·91	2·91	8·00	5·00	4·35	7·00	2·83
Oct.	2·52	2·60	2·42	2·30	2·18	1·85	2·20	2·04	1·96	2·03	3·23	7·32	5·00	4·35	7·00	3·00
Nov.	2·60	2·60	2·45	2·36	2·15	1·84	2·25	1·98	1·88	2·30	3·72	5·06	5·00	*4·35	5·83	2·92
Dec.	2·60	2·60	2·45	2·40	2·18	1·85	2·25	1·85	1·83	2·53	4·40	5·00	4·82	*4·35	4·43	3·00
Av.	2·47	2·60	2·45	2·26	2·29	2·03	2·00	2·20	1·89	1·93	3·06	6·29	4·98	4·43	5·85	3·54

* Premiums for prompt shipment.

† Independent market; Steel Corporation price remained 4·35.

Average, 1904-1913, 2·28.

APOLLO-KEYSTONE

Copper Steel Galvanized

Sheets

Quality—

—Service

WE ALSO MANUFACTURE

Black Sheets of Every Description
Keystone Copper Steel Terne Plates
Keystone Copper Steel Sheets
Wellsville Polished Steel Sheets
Special Sheets for Stamping
Automobile Sheets
Bright Tin Plates
Formed Roofing Products, Etc.

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AMERICAN SHEET AND TIN PLATE COMPANY

Gen'l Offices: Frick Bldg., Pittsburgh, Pa.

DISTRICT SALES OFFICES

Chicago, Cincinnati, Denver, Detroit, New Orleans, New York, Philadelphia, Pittsburgh, St. Louis

Pacific Coast Representatives: U. S. Steel Products Company, San Francisco, Los Angeles, Portland, Seattle. Export Representatives: U. S. Steel Products Company, New York City.

GALVANIZED SHEETS.

No. 28 gauge galvanized sheets, Pittsburgh; averaged from daily quotations.

	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	†1920	1921
Jan. ..	3·43	3·67	3·55	3·50	3·50	3·20	2·90	3·47	2·86	2·80	4·75	6·50	6·25	6·05	6·10	5·70
Feb. ..	3·45	3·75	3·55	3·40	3·50	3·20	2·86	3·50	2·95	3·09	4·80	6·75	6·25	6·05	6·90	5·45
Mar. ..	3·45	3·75	3·50	3·25	3·50	3·20	2·80	3·50	2·95	3·40	4·93	7·00	6·25	5·93	7·25	4·98
Apr. ..	3·45	3·75	3·50	3·25	3·50	3·20	2·87	3·45	2·89	3·40	5·00	7·40	6·25	5·70	7·30	4·85
May ..	3·45	3·75	3·50	3·15	3·50	3·20	2·94	3·40	2·79	3·60	5·00	9·00	6·25	5·70	7·60	5·00
June .	3·54	3·75	3·48	3·15	3·45	3·00	2·95	3·38	2·75	4·80	4·80	9·75	6·25	5·70	7·40	4·80
July ..	3·55	3·75	3·43	3·15	3·30	3·00	3·01	3·31	2·75	4·65	4·40	10·50	6·25	5·70	7·90	4·40
Aug. ..	3·55	3·75	3·40	3·20	3·25	2·93	3·12	3·25	2·87	4·40	4·20	10·35	6·25	5·70	8·15	3·94
Sept. .	3·55	3·75	3·42	3·25	3·20	2·90	3·25	3·17	2·97	3·68	4·20	9·75	6·25	5·70	8·50	3·83
Oct. ..	3·57	3·75	3·45	3·35	3·20	2·87	3·35	3·08	2·96	3·57	4·50	8·90	6·25	5·70	8·50	4·00
Nov. ..	3·65	3·75	3·50	3·44	3·18	2·84	3·40	2·98	2·88	4·07	5·34	6·37	6·25	5·70	7·30	3·92
Dec. ..	3·65	3·75	3·50	3·45	3·20	2·85	3·40	2·85	2·80	4·75	6·27	6·25	6·13	*5·70	5·80	4·00
Av. ..	3·52	3·74	3·48	3·30	3·37	3·03	3·07	3·28	2·87	3·85	4·85	8.21	6·24	5·78	7·39	4·57

* Premiums for prompt shipment.

† Independent market; Steel Corporation price remained 5.70.

Average, 1904-1913, 3.33; average of zinc, St. Louis, 5.64.

Standard Quality – Low Prices
Immediate Shipment From Stock

STEEL SHEETS

"GALBROOK" GALVANIZED CORRUGATED SHEETS. GALVANIZED FLAT SHEETS. FLAT BLACK SHEETS and BLUE ANNEALED SHEETS in all gauges and in any standard size.

TIN PLATE

"GALBROOK" brand PRIME COKES and CHARCOALS in all standard sizes, weights and packings. "GALBROOK" brand TERNE or ROOFING PLATES.

WIRE

"GALBROOK" brand GALVANIZED BARBED WIRE, GALVANIZED ROUND or OVAL FENCE WIRE, PLAIN ANNEALED WIRE and NAIL WIRE, packed in bundles of any size or weight.

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"GALBROOK" brand WIRE NAILS, plain or galvanized, in all sizes, shapes and weights. CUT NAILS, GALVANIZED FENCE STAPLES, etc.

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"GALBROOK" MERCHANT BARS in all the standard shapes, sizes and lengths carried in stock. Also SPECIAL ALLOY STEELS, TOOL STEELS, ETC.

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"GALBROOK" METAL CEILINGS AND SIDINGS, BEADED CEILING, BRICK, ROCK-FACE or WEATHERBOARD SIDING. GALVANIZED RIDGE ROLL, GALVANIZED GUTTER, GALVANIZED CONDUCTOR PIPE, ETC.

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"GALBROOK" STEEL HOOPS, BANDS and TIES in all standard sizes. Special sizes made promptly to order. COTTON BALE TIES. FLAT ROLLED STEEL, ETC. Always specify

GALBROOK
BRAND

Brooklyn Galvanizing & Mfg. Co., Inc.

120 Liberty Street, New York City

Cable Address: "BROOKGALV," N. Y. Code Used. A B C 5th Ed., Improved

SHEETS—CORRUGATED ROOFING, PAINTED.

Averaged from daily quotations; 28 gauge, f.o.b. mill, Pittsburgh.

	1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	§1920.	1921.
Jan.	1.70	1.55	1.33	2.52	2.06	2.00	2.80	4.70	5.30	5.00	4.90	4.65
Feb.	1.70	1.55	1.33	2.55	2.15	2.00	2.80	4.83	5.30	5.00	5.35	4.52
Mar.	1.70	1.55	1.33	2.55	2.15	2.00	2.93	5.10	5.30	4.88	5.95	4.25
April	1.70	1.55	1.34	2.55	2.10	2.00	3.09	6.08	5.30	4.65	6.00	4.20
May	1.70	1.55	*1.35	2.50	2.05	2.00	3.10	6.93	5.30	4.65	6.20	4.30
June	1.65	1.40	†2.10	2.45	2.01	1.94	3.10	7.70	5.30	4.65	6.05	4.16
July	1.60	1.40	2.16	2.45	2.00	1.90	3.10	8.20	5.30	4.65	6.80	3.76
Aug.	1.60	1.34	2.20	2.40	2.08	2.00	3.10	8.20	5.30	4.65	7.10	3.24
Sept.	1.55	1.33	2.32	2.30	2.18	2.06	3.11	8.20	5.30	4.65	7.30	3.13
Oct.	1.55	1.30	2.35	2.22	2.16	2.22	3.43	7.52	5.30	4.65	7.30	3.30
Nov.	1.55	1.29	2.43	2.15	2.08	2.48	3.92	5.29	5.30	4.65	6.13	3.22
Dec.	1.55	1.30	2.45	2.05	2.03	2.70	4.60	5.30	5.12	‡4.65	4.73	3.30
Average	1.63	1.43	a1.46	2.39	2.09	2.11	3.26	6.50	5.29	4.73	6.15	3.84

* Quotations per square end. † Quotations per pound begin; April 19, 1912, American Sheet & Tin Plate Company began selling exclusively per pound at following differentials over flat sheets; forming painted or galvanized, 5c per 100 lbs.; painting gauges 12—18, 5c; 19—24, 10c; 25—28, 15c. This basis adopted immediately by some independents, within a few weeks by others. November 21, 1917, Institute announced set differentials for painting, approved by Government, 15c, 20c, 25c, respectively. (a) Per square. ‡ Premiums for early deliveries. § Independent market; Steel Corp. price remained 4.65.

REEVES

The Sheet Metal People

Black, Blue and Galvanized Sheets, and a complete line of sheet metal building supplies including roofing and siding, steel ceilings, eaves trough and conductor pipe, ridge roll and valleys, metal tile, stove pipe and elbows, etc.

There are no better shipping facilities in the trade than ours

Write for catalog

THE REEVES MFG. CO.

The Sheet Metal People

Dover, O.

SHEETS—CORRUGATED ROOFING, GALVANIZED.

Averaged from daily quotations, 28 gauge, f.o.b. mill, Pittsburgh.

	1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	§1920.	1921.
January	3.00	2.75	2.46	3.52	2.91	2.85	4.80	6.55	6.30	6.10	6.15	5.75
February ...	3.00	2.75	2.47	3.55	3.00	3.14	4.85	6.80	6.30	6.10	6.95	5.50
March	3.00	2.75	2.47	3.55	3.00	3.45	4.98	7.05	6.30	5.98	7.30	5.03
April	3.00	2.75	2.50	3.50	2.94	3.45	5.05	7.40	6.30	5.75	7.35	4.90
May	3.00	2.75	*2.55	3.45	2.84	3.65	5.05	9.05	6.30	5.75	7.65	5.05
June	2.90	2.55	†3.05	3.40	2.80	4.85	4.85	9.80	6.30	5.75	7.45	4.85
July	2.85	2.55	3.06	3.35	2.80	4.70	4.45	10.55	6.30	5.75	7.95	4.45
August	2.80	2.49	3.17	3.30	2.92	4.45	4.25	10.40	6.30	5.75	8.20	3.99
September ..	2.75	2.46	3.30	3.20	3.02	3.73	4.25	9.80	6.30	5.75	8.55	3.88
October	2.75	2.44	3.40	3.10	3.01	3.62	4.55	8.95	6.30	5.75	8.55	4.05
November ..	2.75	2.41	3.45	3.00	2.93	4.12	5.39	6.42	6.30	5.75	7.35	3.97
December ..	2.75	2.42	3.45	2.92	2.85	4.80	6.32	6.30	6.18	‡5.75	5.85	4.05
Average	2.88	2.59	a2.66	3.32	2.92	3.90	4.90	8.26	6.29	5.83	7.44	4.62

* Quotations per square end. † Quotations per pound begin; April 19, 1912, American Sheet & Tin Plate Company began selling exclusively per pound at 5c. per 100 lbs. (for forming) over flat sheets. (a) Per square. ‡ Premiums for early deliveries. § Independent market; Steel Corporation price remained 5.75.

STANDARD
TIN PLATE CO.

Canonsburg, - - - Pa.

TIN PLATES
BLACK PLATES

1,750,000 Base Boxes Per Annum

Our Brands are standard and our customers are our best references.

Direct and personal supervision of the management ensures prompt and accurate attention to the trade.

ENQUIRIES SOLICITED

TIN PLATE PRODUCTION.

Col. Ayer's reports through 1896; American Iron and Steel Association reports for subsequent years; separate tin and terne plate statistics not available prior to 1906. Gross tons throughout.

	Tin and Terne Plate.		Tin and Terne Plate.
1891	999	1899	360,875
1892	18,803	1900	302,665
1893	55,182	1901	399,291
1894	74,260	1902	360,000
1895	113,666	1903	480,000
1896	160,362	1904	458,000
1897	256,598	1905	493,500
1898	326,915		

	Terne Plate.	Tin Plate.	Total.
1906	86,325	491,238	577,563
1907	69,842	444,933	514,775
1908	68,830	468,257	537,087
1909	85,237	526,722	611,956
1910	75,082	647,688	722,770
1911	70,733	713,227	783,960
1912	85,445	877,526	962,971
1913	61,136	762,583	823,719
1914	65,266	865,975	931,241
1915	72,978	982,958	1,055,936
1916	95,615	1,139,386	1,235,001
1917	68,702	1,443,444	1,512,146
1918	38,114	1,435,825	1,473,939
1919	76,274	1,074,624	1,150,898
1920	61,707	1,374,979	1,436,686
1921*	50,000	850,000	900,000

* Estimated.

Fuel Conservation

A year ago when the slackening of industry finally became unmistakable, to even the most optimistic manufacturers, there was an opinion among a great many that the depression was only temporary and would pass away in a very short time.

Subsequent events, however, made it apparent to all that rigid economy and high quality production would be the only thing to carry them through the period of competition upon which we have entered, and have made them realize that while hard times have not necessarily come soft times have certainly gone. For this reason the development of equipment along these lines, which was suddenly arrested with the springing up of war demands, is now being resumed.

In the Steel Industries where the quantity of fuel used is of such magnitude as to be one of the prime factors in the location of a new project, the extensive installation of fuel economizing devices will undoubtedly be one of the features of the coming year, together with the installation of better furnace equipment, especially along the lines of continuous heating and annealing furnaces.

The George J. Hagan Company of Pittsburgh, Pennsylvania, has for years recognized the inevitable trend in this direction and offers engineering and construction service of exceptional scope. They build industrial furnaces for all purposes and supply equipment for economically utilizing fuel in any form, together with the engineering service which is necessary to securing the highest quality of production at the lowest net cost.

TIN PLATE MILLS AND PRODUCTION.

Actually operative tin plate mills at close of year:

	Corporation.	Independent.	Total.
1902	264	71	335
1903	264	71	335
1904	242	83	325
1905	248	95	343
1906	255	96	351
1907	242	96	338
1908	242	86	328
1909	242	94	336
1910	235	134	369
1911	235	145	380
1912	235	149	384
1913	202	156	358
1914	202	176	378
1915	196	190	386
1916	196	241	437
1917	240	248	488
1918	240	260	500
1919	245	300	545
1920	264	303	567
1921	264	302*	566

* Exclusive of 33 "tin" mills in sheet plants. Corporation count includes most of its mills making black plate specialties.

Production by United States Steel Corporation and independents, tin and terne plate, gross tons.

	Corporation.	Independents.	Per cent. of Corp.
1908	386,718	150,369	72.0
1909	378,767	233,192	61.9
1910	440,694	282,076	61.0
1911	476,036	307,924	60.7
1912	581,346	381,625	60.4
1913	483,002	340,717	58.6
1914	498,863	432,378	53.6
1915	569,879	486,057	54.0
1916	620,732	614,268	50.3
1917	735,571	776,575	48.6
1918	711,985	761,954	48.3
1919	557,468	593,430	48.4
1920	648,148	788,538	45.1

McKeesport Tin Plate Company

MAIN OFFICE AND WORKS

McKEESPORT, PA.

Sales Office:

257 Broadway, New York

COKE TIN PLATE
BLACK PLATE

Forty-Four Tin Mills

Annual capacity

4,400,000 base boxes

SHIPPING ADDRESS

McKEESPORT, P. & L E. R. R.

TIN PLATE PRICE CHANGES.

The more important changes and season announcements; 100-lb. tin plate, Pittsburgh; pig tin New York; sheet bars, Pittsburgh.

	Tin Plates.	Tin.	Sheet Bars
Jan. 6, 1899	..3.00	20.75	17.50
Aug. 6, 1899	4.65	31.25	36.00
Sept. 24, 1900 ...	4.00	28.62½	22.00
Nov. 3, 1902	3.60*	26.75	31.75
Mar. 3, 1903	3.80*	30.80	31.50
Nov. 16, 1903	3.60*	25.40	24.00
Jan. 25, 1904	3.45*	28.20	24.00
July 25, 1904 .. (a)	3.30*	27.10	24.00
Nov. 15, 1904	3.45*	29.15	22.50
Oct. 3, 1905	3.35*	32.60	26.00
Jan. 8, 1906	3.50*	36.25	26.00
Oct. 25, 1906	3.90*	43.25	30.00
Jan. 6. 1908	3.70*	27.35	29.00
Mar. 10, 1909	3.40	28.70	25.00
Sept. 28, 1909 ...	3.50	30.85	27.50
Nov. 12, 1909 ...	3.60	30.50	28.50
Feb. 3, 1911	3.70	41.40	24.00
Aug. 12, 1911	3.60	43.00	22.00
Oct. 16, 1911	3.40	41.70	20.00
July 9, 1912	3.50	44.40	22.00(b)
Sept. 4, 1912	3.60	47.20	23.75(b)
Nov. 3, 1913	3.40	39.90	21.50
Dec. 3, 1914	3.20	33.50	19.50
Nov. 11, 1915 ...	3.60	39.00	26.50(b)
Oct. 12, 1916	5.75	42.25	45.00
Mar. 31, 1917...(b)	7.50	54.50	70.00
Nov. 5, 1917	7.75	68.00	51.00(c)
Dec. 13, 1918....	7.35	72.50	47.00
Mar. 21, 1919	7.00	71.50	42.00
Nov. 15, 1919	7.00	54.25	42.00
Dec. 2, 1920	7.00	34.00	47.00
Apr. 13, 1921	6.25	29.25	39.00
June 14, 1921	5.75	29.37½	39.00
July 29, 1921	5.25	26.62½	32.00
Nov. 3, 1921	4.75	28.00	30.00

* Subject to 5-cent rebate.
(a) Cash discount changed from 1 to 2 per cent.
(b) Premium for open-hearth.
(c) Government price.

WASHINGTON TIN PLATE COMPANY

Manufacturers of

" QUALITY COKES "

TIN PLATES OF CHARACTER

Annual Capacity
600,000 BASE BOXES

Main Office and Works
WASHINGTON, PA.

TIN PLATE PRICES.

Average yearly price of J. B. grade coke tin plates, 14x20 I. C., 108 pounds, delivered at New York:

1880	$6.75	1885	$4.40
1881	5.45	1886	4.30
1882	5.30	1887	4.60
1883	5.10	1888	4.55
1884	4.70	1889	4.55

Imported Bessemer cokes 14x20, 108 lbs.

1890	4.80	1893	5.37
1891	5.34	1894	4.89
1892	5.30	1895	3.87

American Bessemer cokes, 14x20, 107 lbs.

1896	3.63
1897	3.26
1898	2.99
1899	4.41
1900	4.82
1901	4.35
1902	4.28
1903	4.09
1904	3.76
1905	3.85
1906	4.04
1907	4.25
1908	4.05
1909	3.83
1910	3.93
1911	3.98
1912	3.78
1913	3.80
1914	3.62
1915	3.53
1916	5.68
1917	*8.20
1918	8.13
1919	7.53
1920	†8.73
1921	6.44

* Premiums $2 to $8, June to September.
† Early deliveries.

THE TRUMBULL STEEL CO.

PRODUCERS OF

STRIP STEEL
COKE TIN PLATE
SHEETS

Mills & Gen. Offices
WARREN, OHIO.

DISTRICT OFFICES

New York	St. Louis	Cleveland
Chicago	Seattle	San Francisco
Philadelphia	Salt Lake City	Dallas
Detroit	Nashville	Memphis

Export Representatives:
CONSOLIDATED STEEL CORPORATION,
25 Broadway, New York

TIN PLATE.—Gross tons.

Exports of United States:

	1917.	1918.	1919.	1920.	1921.
Jan.	23,408	19,950	29,398	20,580	34,545
Feb.	14,632	18,565	19,872	19,199	26,375
Mar.	21,680	16,336	24,777	21,575	5,732
April	19,958	24,235	14,637	23,058	3,406
May	23,283	36,011	14,186	19,471	1,593
June	25,461	30,558	19,719	18,605	2,727
July	16,710	28,812	9,596	17,553	2,924
Aug.	15,953	17,624	9,251	16,469	2,647
Sept.	11,596	19,555	16,838	13,235	4,724
Oct.	14,425	14,424	11,939	20,288	5,504
Nov.	21,276	17,828	18,935	15,424	8,382
Dec.	24,417	14,641	15,373	20,955	9,170
Total	232,799	258,538	204,521	226,410	107,728

Calendar year exports of United States:

1901..	439	1908..	11,878	1915..	154,642
1902..	1,566	1909..	9,327	1916..	227,391
1903..	292	1910..	12,445	1917..	232,799
1904..	7,898	1911..	61,381	1918..	258,538
1905..	7,941	1912..	81,694	1919..	204,521
1906..	12,082	1913..	57,812	1920..	226,410
1907..	10,203	1914..	59,549	1921..	107,728

Calendar year imports of United States:

1871.	82,969	1888.	298,238	1905.	65,740
1872.	85,629	1889.	331,311	1906.	56,983
1873.	97,177	1890.	329,435	1907.	57,773
1874.	79,778	1891.	327,882	1908.	58,490
1875.	91,054	1892.	268,472	1909.	62,593
1876.	89,946	1893.	253,155	1910.	66,640
1877.	112,479	1894.	215,068	1911.	14,099
1878.	107,864	1895.	219,545	1912.	2,053
1879.	154,250	1896.	119,171	1913.	20,680
1880.	158,049	1897.	83,851	1914.	15,411
1881.	183,005	1898.	66,775	1915.	2,350
1882.	213,987	1899.	58,915	1916.	1,008
1883.	221,233	1900.	60,386	1917.	124
1884.	216,181	1901.	77,395	1918.	32
1885.	228,596	1902.	60,115	1919.	242
1886.	257,822	1903.	47,360	1920.	400
1887.	283,836	1904.	70,652	1921.	450

PHONES: SPRING 1143-1144

ELLENWOOD & DOYLE, Inc.

29 GREAT JONES ST., NEW YORK

Eldo
TRADE MARK

Ingot Copper - Pig Lead
Slab Zinc - Solder
Tin-Antimony-Aluminum

TIN PLATE

GALVANIZED & BLACK SHEETS

SHEET COPPER

ZINC - BRASS - ALUMINUM

BROOKLYN WAREHOUSE:
BUSH TERMINAL BLDG. No. 105

WAGE SCALE RETURNS.

Sworn averages of prices realized for shipments in months named from selected mills, used in adjusting sliding scale wages in Amalgamated Association mills.

Sheets.

26, 27 and 28 gauge black.

	1916.	1917.	1918.	1919.	1920.	1921.
Jan.-Feb.	2.25	3.40	5.35	4.90	4.65	4.30
Mar.-April	2.50	3.90	5.10	4.50	5.05	3.95
May-June	2.60	4.45	5.15	4.35	5.75	3.85
July-Aug.	2.70	5.00	5.15	4.35	5.70	3.10
Sept.-Oct.	2.75	5.35	5.00	4.35	5.80	2.75
Nov.-Dec.	2.80	5.50	5.15	4.35	5.15	2.80
Average	2.60	4.60	5.15	4.47	5.35	3.46

Tin Plate.

100-pound cokes.

	1916.	1917.	1918.	1919.	1920.	1921.
Jan.-Feb.	3.50	4.95	8.40	7.45	7.40	7.15
Mar.-April	3.70	5.75	8.00	7.15	7.40	6.50
May-June	3.90	6.85	8.00	6.90	7.40	5.95
July-Aug.	4.05	7.75	8.00	6.90	7.40	5.00
Sept.-Oct.	4.10	8.35	7.85	6.90	7.75	5.00
Nov.-Dec.	4.25	8.60	7.85	6.90	7.75	4.80
Average	3.92	7.04	8.02	7.03	7.52	5.73

AMERICAN CAN COMPANY

TIN and FIBRE CANS

OF ALL KINDS

PLAIN or DECORATED

Galvanized Ware — Retinned Ware — Sheet Metal Specialties — Decorated and Embossed Sheets

General Offices:

120 Broadway, New York.

District Offices:

NEW YORK CHICAGO
SAN FRANCISCO
PORTLAND, ORE. HAMILTON, ONT.

Local Sales Offices:

Atlanta	Indianapolis	Richmond
Baltimore	Kansas City	Rochester
Buffalo	Los Angeles	Seattle
Cincinnati	Milwaukee	St. Louis
Cleveland	Montreal	St. Paul
Dallas	New Orleans	Toledo
Denver	Philadelphia	Vancouver
Detroit	Pittsburgh	Winnipeg

FLUCTUATIONS IN CAN PRICES.

Schedule of changes in can prices of the American Can Company is given below:

HOLE AND CAP.

Published Date	1's.	2's.	3's.	10's.
February 2, 1909	$10.00	$13.75	$18.25	$44.00
March 10, 1909	9.50	13.00	17.00	41.75
April 9, 1909	9.50	12.00	16.00	40.00
December 8, 1909	8.75	11.50	15.50	40.00
December 27, 1910	9.25	12.50	16.75	42.00
December 7, 1911	9.00	12.00	16.25	42.00
January 6, 1913	9.50	12.75	17.25	44.00
January 5, 1914	9.25	12.25	17.00	43.50
January 4, 1915	9.00	11.75	16.50	42.00
January 2, 1916	9.50	12.75	18.00	45.00
April 20, 1916	10.60	14.25	20.25	49.50
June 1, 1916	11.25	15.25	21.75	52.50
July 1, 1916	12.00	16.50	23.00	55.50
September 26, 1916	13.00	18.00	25.00	59.00
December 12, 1916	—Prices Withdrawn—			
January 2, 1917	15.75	22.25	31.25	71.00
April 16, 1917	16.75	23.50	33.25	75.00
January 2, 1918	18.00	25.50	36.00	80.00
July 1, 1918	18.50	26.00	36.75	82.50
October 10, 1918	—Prices Withdrawn—			
January 2, 1919	17.50	24.75	34.75	77.50
September 26, 1919	—Prices Withdrawn—			
January 5, 1920	17.50	24.75	34.75	77.50
May 20, 1920	—Prices Withdrawn—			
January 18, 1921	18.50	26.00	36.50	81.50
April 20, 1921	18.00	25.00	35.00	79.50
October 3, 1921	15.50	21.75	30.25	68.00
SANITARY.				
January 6, 1913	11.00	15.00	20.00	45.00
January 5, 1914	10.75	14.50	19.50	44.00
January 4, 1915	10.50	14.00	18.75	42.50
January 2, 1916	11.15	15.00	20.25	45.50
April 20, 1916	12.25	16.50	22.50	50.00
June 1, 1916	13.00	17.50	24.00	53.00
July 1, 1916	13.50	18.75	25.25	56.00
September 26, 1916	14.50	20.25	27.25	60.00
December 12, 1916	—Prices Withdrawn—			
January 2, 1917	17.25	24.25	33.25	71.50
April 16, 1917	18.25	25.75	35.25	75.50
January 2, 1918	19.50	27.50	37.50	79.50
July 1, 1918	20.00	28.00	38.25	82.00
October 10, 1918.	—Prices Withdrawn—			
January 2, 1919	19.00	26.75	36.25	77.00
September 26, 1919	—Prices Withdrawn—			
January 5, 1920	19.00	26.75	36.25	77.00
May 20, 1920	—Prices Withdrawn—			
September 11, 1920	20.25	28.50	38.50	83.00
January 18, 1921	20.00	28.00	38.00	81.00
April 20, 1921	19.50	27.00	36.50	79.00
October 3, 1921	16.50	22.75	31.00	66.50
November 28, 1921	15.75	21.50	28.75	62.50

THE NEWTON STEEL CO.

Producers of "Quality"

Automobile
Metallic Furniture
Full Pickled
Single Pickled
Enameling
Bow Socket
and
Black
STEEL SHEETS

General Offices: **Youngstown, O.**

District Offices:

New York Cleveland Detroit Chicago

COLD FINISHED STEEL BARS.

Formerly called "shafting", and sold by discount off list; delivered in base territory through March 15, 1915, f.o.b. Pittsburgh thereafter; difference, about two points; in August, 1919, sale began at pound price subject to list of extras.

	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.	1921.
January	67	58½	64½	68	46¾	20	17	21	3.60	3.60
February	68	58	64	68	43⅛	20	17	21	3.85	3.45
March	67	58	64	69	28⅛	18½	17	23⅜	4.50	3.06
April	67	58	65	70	21¼	15	17	28	4.25	3.10
May	67	59	66	70	15	15	17	28	4.50	3.10
June	65	60	66	69⅛	16⅝	11	17	28	4.60	3.00
July	65	61	68	66½	20	6	17	28	4.50	2.70
August	64	62	67	65½	20	5	17	28	4.25	2.47
September	62	62	66	63⅞	20	10	17	3.60	4.25	2.35
October	60	62	66	60	20	10	17	3.60	4.17	2.35
November	60	63	67	55	20	15⅞	17	3.60	4.00	2.15
December	60	64	68	50½	20	17	19⅜	3.60	3.60	2.15
Average	64¼	60½	66	65*	24¼	13⅝	17¼	3.68	4.17	2.79

* Basis f.o.b. Pittsburgh for year.

RIVETS.

Button head structural rivets, Pittsburgh, averaged from daily quotations; cone head boiler rivets, .10 higher.

	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.	1921.
January	1.45	2.20	1.65	1.35	2.60	4.25	4.65	4.30	4.10	4.10
February	1.40	2.20	1.65	1.35	2.80	4.25	4.65	4.25	4.35	3.93
March	1.40	2.10	1.65	1.35	3.10	4.55	4.65	4.15	4.40	3.79
April	1.45	2.10	1.65	1.35	3.40	4.75	4.65	3.70	4.50	3.57
May	1.50	2.10	1.60	1.40	3.85	4.75	4.57	3.70	4.50	3.17
June	1.55	2.00	1.57	1.50	4.00	4.98	4.40	3.70	4.50	2.90
July	1.60	2.00	1.50	1.50	4.00	5.25	4.40	3.70	4.50	2.75
August	1.74	1.90	1.53	1.53	4.00	5.25	4.40	3.90	4.50	2.49
September	1.90	1.90	1.52	1.60	4.00	5.25	4.40	3.90	4.50	2.30
October	1.97	1.85	1.47	1.72	4.00	5.25	4.40	3.90	4.70	2.25
November	2.06	1.78	1.42	2.30	4.10	4.91	4.40	3.90	4.50	2.25
December	2.17	1.72	1.35	2.48	4.25	4.65	4.40	3.95	4.30	2.25
Average	1.68	1.99	1.55	1.62	3.68	4.84	4.50	3.92	4.45	2.98

RAILROAD SPIKES.

Standard railroad spikes, Pittsburgh, averaged from daily quotations.

	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.	1921.
Jan.	1.70	1.75	1.55	1.40	1.85	1.45	1.35	2.25	3.40	3.90	3.68	3.50	3.65
Feb.	1.70	1.72	1.55	1.38	1.85	1.45	1.35	2.35	3.40	3.90	3.65	3.60	3.65
Mar.	1.70	1.70	1.55	1.35	1.85	1.45	1.35	2.55	3.50	3.90	3.51	4.00	3.35
April	1.65	1.65	1.60	1.37	1.82	1.42	1.35	2.65	3.75	3.90	3.35	4.00	3.35
May	1.60	1.62	1.60	1.41	1.80	1.40	1.35	2.65	3.85	3.90	3.35	4.00	3.30
June	1.60	1.56	1.55	1.45	1.74	1.40	1.38	2.65	4.00	3.90	3.35	4.00	3.25
July	1.65	1.55	1.53	1.55	1.70	1.38	1.40	2.65	4.80	3.90	3.35	4.00	3.00
Aug.	1.65	1.55	1.50	1.65	1.70	1.43	1.44	2.65	5.00	3.90	3.35	4.10	2.62
Sept.	1.70	1.55	1.47	1.77	1.68	1.45	1.60	2.65	5.00	3.90	3.35	4.10	2.40
Oct.	1.75	1.55	1.45	1.80	1.60	1.45	1.61	2.65	5.00	3.90	3.35	4.00	2.32
Nov.	1.77	1.55	1.40	1.83	1.55	1.39	1.88	2.75	5.00	3.90	3.35	4.00	2.25
Dec.	1.75	1.55	1.40	1.85	1.50	1.35	2.10	3.35	4.75	3.78	3.35	3.70	2.25
Average	1.68	1.61	1.51	1.57	1.72	1.42	1.51	2.65	4.29	3.89	3.42	3.92	2.95

Small
Drop
Forgings
to Order

THE
SCRANTON FORGING
COMPANY

Scranton, Pa.

IRON AND STEEL CAPACITY.

Reported as of January 1, 1921, to the American Iron and Steel Institute by the manufacturers. Actual or potential capacity probably slightly less. Capacity in gross tons.

Coke blast furnaces (420)	51,124,800
Charcoal blast furnaces (32)	616,350
Total blast furnaces (452)	51,741,150
Coke furnaces building (6)	784,000
Charcoal furnaces building (1)	15,000
Total prospective (459)	52,540,150
Basic open-hearth ingots	40,063,165
Basic open-hearth castings	841,550
Total basic open-hearth	40,904,715
Acid open-hearth ingots	1,593,215
Acid open-hearth castings	1,092,410
Total acid open-hearth	2,685,625
Total open hearth ingots	41,656,380
Total open-hearth castings	1,933,960
Total open-hearth	43,590,340
Standard Bessemer ingots	12,076,550
Standard Bessemer castings	250
Other Bessemer ingots	2,250
Other Bessemer castings	250,040
Total Bessemer ingots	12,078,800
Total Bessemer castings	253,190
Total Bessemer	12,329,990
Crucible ingots	191,665
Crucible castings	7,470
Total crucible	199,135
Electric ingots	874,080
Electric castings	514,665
Total electric	1,389,645
Miscellaneous ingots	400
Miscellaneous castings	7,300
Total miscellaneous	7,700
Grand total ingots	54,802,225
Grand total castings	2,714,585
Total steel ingots and castings	57,516,810

Bessemer vessels used for duplexing not included with Bessemer. Open-hearth furnaces used for preparing stock for electric furnaces not included with open-hearth. Electric does not include furnaces for melting alloys or making pig iron. Rolled steel production runs about 76% of ingot production.

AMERICAN STEEL FOUNDRIES

CAR AND LOCOMOTIVE

CASTINGS

STEEL CASTINGS

OF EVERY DESCRIPTION FOR

ROLLING MILLS

AND

STEEL WORKS

NEW YORK CHICAGO PITTSBURG

PRODUCTION OF STEEL INGOTS and CASTINGS—Gross Tons.

	Basic O. H.	Acid O. H.	Total O. H.	Bessemer.	Crucible.	Uncl.	Total steel.
1867	.....	.....	.....	2,679	.....	16,964	19,643
1870	.....	.....	1,339	37,500	.....	29,911	68,750
1880	.....	.....	100,851	1,074,262	64,664	7,558	1,247,335
1890	.....	.....	513,232	3,688,871	71,175	3,793	4,277,071
1895	.....	.....	1,137,182	4,909,128	67,666	858	6,114,834
1900	2,545,091	853,044	3,398,135	6,684,770	100,562	4,862	10,188,329
1905	7,815,728	1,155,648	8,971,376	10,941,375	102,233	8,963	20,023,947
1908	7,140,425	696,304	7,836,729	6,116,755	63,631	Electric	14,023,247
1909	13,417,472	1,076,464	14,493,936	9,330,783	107,355	13,762	23,955,021
1910	15,292,329	1,212,180	16,504,509	9,412,772	122,303	52,141	26,094,919
1911	14,685,932	912,718	15,598,650	7,947,854	97,653	29,105	23,676,106
1912	19,641,502	1,139,221	20,780,723	10,327,901	121,517	18,309	31,251,303
1913	20,344,626	1,255,305	21,599,931	9,545,706	121,226	30,180	31,300,874
1914	16,271,129	903,555	17,174,684	6,220,846	89,869	24,009	23,513,030
1915	22,308,725	1,370,377	23,679,102	8,287,213	113,782	69,412	32,151,036
1916	29,616,658	1,798,769	31,415,427	11,059,039	129,692	168,918	42,773,680
1917	32,087,507	2,061,386	34,148,893	10,479,960	126,716	305,038	45,060,607
1918	32,476,571	1,982,820	34,459,391	9,376,236	115,112	511,364	44,462,432
1919	25,719,312	1,229,382	26,948,694	7,271,562	63,572	384,452	34,671,232
1920	31,375,723	1,296,172	32,671,895	8,883,087	72,265	502,152	42,132,934

STRUCTURAL STEEL LETTINGS.

Reports of the Bridge Builders' and Structural Society, lettings of structural steel contracts in percentage of fabricating capacity. Average capacity in 1921, 180,000 tons monthly.

	1914.	1915.	1916.	1917.	1918.	1919.	1920.	1921.
January	62	25	69	61½	53	12	75	18
February	63	30	75	59	55½	12½	95	14
March	76	64	102	68	47	17½	83½	29
April	88	62½	72½	61	64	24½	68	31
May	57	61	80	56½	60	49	61½	28
June	56½	80	58	47½	56	65	50	37
July	68	86	47½	41½	116½	74	50	33½
August	27½	85	64	38	57	78½	40	33
September	38½	67	52½	29	60	78½	43	48
October	35	78	77	61½	43	77½	25½	54
November	20	105	78	77	27	69	27½	55½
December	35	121	86	114	29	85	26	40
Average	52¼	72	71¾	59½	59	53½	53¾	35

PRODUCTION OF STEEL INGOTS—Gross Tons.

	Basic Open-Hearth.	Acid Open-Hearth.	Total Open-Hearth.	Bessemer.	Crucible.	Miscellaneous.	Total.
1898 ...	1,540,952	568,753	2,109,705	6,605,478	85,512	225	8,800,920
1900 ...	2,502,447	718,197	3,220,644	6,678,303	96,573	6	9,995,526
1905 ...	7,609,569	835,267	8,444,836	10,919,272	96,500	2,572	19,463,180
1906 ...	9,345,212	915,310	10,260,522	12,243,229	117,170	3,510	22,624,431
1907 ...	9,912,839	890,372	10,803,211	11,634,276	121,001	989	22,559,477
1908 ...	6,985,420	539,532	7,524,952	6,096,196	55,360	Electric	13,677,027
1909 ...	13,111,467	781,429	13,892,896	9,296,969	94,672	13,456	23,298,779
1910 ...	14,858,353	782,805	15,641,158	9,354,437	107,671	50,821	25,154,087
1911 ...	14,419,306	608,153	15,027,459	7,890,753	83,623	27,227	23,029,479
1912 ...	19,197,504	712,371	19,909,875	10,259,151	100,967	14,147	30,284,682
1913 ...	19,884,465	805,250	20,689,715	9,465,200	103,655	20,973	30,280,130
1914 ...	15,936,985	633,382	16,570,367	6,154,964	78,683	15,458	22,819,784
1915 ...	21,975,622	968,148	22,943,770	8,194,737	99,026	46,348	31,284,212
1916 ...	29,011,146	1,227,832	30,238,978	10,916,248	120,341	126,048	41,401,917
1917 ...	31,528,939	1,406,798	32,935,737	10,320,688	122,882	239,632	43,619,200
1918 ...	31,970,691	1,347,870	33,318,561	9,215,392	113,782	403,068	43,051,022
1919 ...	25,405,347	780,827	26,186,174	7,172,743	62,563	272,942	33,694,795
1920 ...	30,926,393	759,102	31,685,495	8,778,107	70,536	346,956	40,881,392

Note.—Steel ingots and castings not separated prior to 1898.

VALLEY STEEL WORKS

operated by

The McConway and Torley Company

PITTSBURGH, PA.

Acid Open Hearth Carbon and Alloy Steels in

Round, Flat, Square, Hexagon or Special Sections

Billets and Forging Ingots

PRODUCTION OF STEEL CASTINGS—Gross Tons.

	Basic. Open-Hearth.	Acid Open-Hearth.	Total Open-Hearth.	Bessemer.	Crucible.	Electric.	Miscellaneous.	Total.
1898	28,460	92,127	120,587	3,539	4,235	.....	3,576	131,937
1900	42,644	134,847	177,491	6,467	3,989	.....	4,856	192,803
1905	206,159	320,381	526,540	22,103	5,733	.....	6,391	560,767
1906	313,548	406,343	719,891	32,601	10,343	.....	10,870	773,705
1907	366,476	380,049	746,525	33,273	10,233	.....	13,086	803,117
1908	155,005	156,772	311,777	20,559	8,271	.....	5,613	346,220
1909	306,005	295,035	601,040	33,814	12,683	306	8,399	656,242
1910	433,976	429,375	863,351	58,335	14,632	1,320	3,194	940,832
1911	266,626	304,565	571,191	57,101	14,030	1,878	2,427	646,627
1912	443,998	426,850	870,848	68,750	20,550	4,162	2,311	966,621
1913	460,161	450,055	910,216	80,506	17,571	9,207	3,244	1,020,744
1914	334,144	270,173	604,317	65,882	11,186	8,551	3,310	693,246
1915	333,103	402,229	735,332	92,476	14,756	23,064	1,196	866,824
1916	605,512	570,937	1,176,449	142,791	9,351	42,870	302	1,371,763
1917	558,568	654,588	1,213,156	159,272	3,834	64,911	234	1,441,407
1918	505,880	634,950	1,140,830	160,844	1,330	108,296	110	1,411,410
1919	313,965	448,555	762,520	98,819	1,009	111,510	2,579	976,437
1920	449,330	537,070	986,400	104,980	1,729	155,196	3,237	1,251,542

Note.—Steel ingots and castings not separated prior to 1898.

AMERICAN BRIDGE COMPANY

HUDSON TERMINAL, 30 CHURCH ST. NEW YORK

Steel Structures of all classes particularly

BRIDGES & BUILDINGS

Viaducts Crane Runways Forgings
Turntables Barges Car Floats
Transmission Towers
Heroult Electric Furnaces

Offices in Principal Cities:

Pacific Coast Representative:
U. S. Steel Products Co.,
Pacific Coast Dept.
SAN FRANCISCO, CAL.

Foreign Representative:
U. S. Steel Products Co.,
30 Church Street,
NEW YORK, U. S. A.

LONDON, (E. C.) ENGLAND
36-38 New Broad Street,

FORGING.

The following figures, gross tons, show the amount of forging work, by hammers, presses, etc., done by rolling mills and steel works, whether or not from iron and steel elsewhere reported as finished rolled material. Forgings produced by other manufacturers not included. Product involves such items as anchors, armor plate, axles, eye bars, gun carriages, etc. Statistics not gathered prior to 1906.

	Iron.	Steel.	Total.
1906	19,148	333,488	352,636
1907	23,772	357,033	380,805
1908	13,646	117,497	131,143
1909	25,523	223,741	249,264
1910	20,410	299,452	319,862
1911	4,034	214,202	218,236
1912	9,155	383,365	392,520
1913	27,892	380,091	407,983
1914	3,675	337,746	341,421
1915	2,814	520,909	523,723
1916	3,352	920,415	923,767
1917	8,772	1,069,993	1,078,765
1918	24,458	1,271,108	1,295,566
1919	23,822	510,524	534,346
1920	38,063	502,041	540,104

FORGING BILLETS.

Gross tons, blooms and billets rolled for forging purposes, whether for use at producing works or for sale. Statistics not gathered prior to 1905.

	Iron.	Steel.	Total.
1906	462	205,648	206,110
1907	691	227,091	227,782
1908	282	121,039	121,321
1909	376	341,397	341,773
1910	202	459,731	459,933
1911	363	230,752	231,115
1912	303	462,173	462,476
1913	403	536,807	537,210
1914	500	331,024	331,524
1915	570	649,975	650,545
1916	549	2,015,411	2,015,960
1917	221	1,801,487	1,801,708
1918	...	1,659,118	1,659,118
1919	412	359,170	359,582
1920	258	447,076	447,334

The Mansfield Sheet & Tin Plate COMPANY

MANSFIELD, OHIO

Manufacturers of

Regular and Special Finish

Black Sheets

Deep Drawing and Spinning Steel

SPECIALTIES

Automobile Stock for Hoods, Fenders and Bodies, Regular, Deep and Extra Deep Drawing Base.

Stove and Pipe Manufacturers' requirements. Uniform Color Stove Pipe Blue and different grades of Polished Blue Sheets.

PRODUCTION OF ROLLED IRON AND STEEL—Gross Tons.

Rolled iron. (Rolled steel not reported.)

1856	516,255	1871	1,292,396	1879	1,828,111
1864	778,863	1872	1,649,930	1880	2,082,739
1865	764,589	1873	1,640,563	1881	2,360,649
1866	916,151	1874	1,513,050	1882	2,226,635
1867	928,032	1875	1,428,139	1883	2,097,208
1868	980,157	1876	1,347,562	1884	1,747,596
1869	1,094,961	1877	1,318,535	1885	1,611,184
1870	1,152,679	1878	1,388,907	1886	2,038,948

	Rolled iron.	Rolled steel.	Total rolled.
1887	2,311,161	2,924,545	5,235,706
1888	2,153,263	2,464,086	4,617,349
1889	2,309,272	2,927,656	5,236,928
1890	2,518,194	3,504,681	6,022,875

Rolled iron and steel. (Rolled iron not reported separately.)

1891	5,390,963	1898	8,513,370
1892	6,165,814	1899	10,294,419
1893	4,975,685	1900	9,487,443
1894	4,642,211	1901	12,349,327
1895	6,189,574	1902	13,944,116
1896	5,515,841	1903	13,207,697
1897	7,001,728		

	Rolled iron.	Rolled steel.	Total rolled.
1904 ..	1,760,084	10,253,297	12,013,381
1905 ..	2,059,990	14,780,025	16,840,015
1906 ..	2,186,557	17,401,911	19,588,468
1907 ..	2,200,086	17,664,736	19,864,822
1908 ..	1,238,449	10,589,744	11,828,193
1909 ..	1,709,431	17,935,259	19,644,690
1910 ..	1,740,156	19,881,123	21,621,279
1911 ..	1,460,615	17,578,566	19,039,171
1912 ..	1,637,582	23,019,259	24,656,841
1913 ..	1,678,257	23,112,986	24,791,243
1914 ..	1,167,776	17,202,420	18,370,196
1915 ..	1,294,833	23,098,091	24,392,924
1916 ..	1,822,571	30,557,818	32,380,389
1917 ..	1,867,757	31,199,943	33,067,700
1918 ..	1,573,976	29,581,778	31,155,754
1919 ..	1,059,451	24,042,093	25,101,544
1920 ..	1,377,566	30,970,297	32,347,863

BETHLEHEM STEEL COMPANY

Iron and Steel Products

Pig Iron

Works:

Bethlehem Lebanon Reading
Steelton, Pa. Baltimore
Sparrow's Point, Md.

General Offices: **BETHLEHEM, PA.**

Sales Offices:

New York Boston Philadelphia Baltimore
Washington Atlanta Pittsburgh
Cleveland Detroit Chicago
St. Louis San Francisco

SOLE EXPORTERS OF CONSTECO CONSOLIDATED STEEL CORPORATION

PRODUCTION OF ROLLED IRON AND STEEL—Gross Tons.

Year.	Iron and steel rails.	Plates and sheets.	Wire rods.	Structural shapes.	Nail plate.	Bars, Skelp and all other.	Total*
1890 ..	1,885,307	809,981	457,099	.....	251,828	2,618,660	6,022,875
1895 ..	1,306,135	991,459	791,130	517,920	95,085	2,487,845	6,189,574
1900 ..	2,385,682	1,794,528	846,291	815,161	Skelp.	Merchant bars.	9,487,443
1905 ..	3,375,929	3,532,230	1,808,688	1,660,519	1,435,995	3,593,601	16,840,015
1907 ..	3,633,654	4,248,832	2,017,583	1,940,352	1,802,627	3,970,988	19,864,822
1908 ..	1,921,015	2,649,693	1,816,949	1,083,181	1,150,583	1,986,638	11,828,193
1909 ..	3,023,845	4,234,346	2,335,685	2,275,562	2,033,381	3,263,531	19,644,690
1910 ..	3,636,031	4,955,484	2,241,830	2,266,890	1,828,194	3,785,731	21,621,279
1911 ..	2,822,790	4,488,049	2,450,453	1,912,367	1,980,673	3,047,362	19,039,171
1912 ..	3,327,915	5,875,080	2,653,553	2,846,487	2,446,816	3,697,114	24,656,841
1913 ..	3,502,780	5,751,037	2,464,807	3,004,972	2,501,964	3,957,609	24,791,243
1914 ..	1,945,095	4,719,246	2,431,714	2,031,124	1,982,431	2,523,631	18,370,196
1915 ..	2,204,203	6,077,694	3,095,907	2,437,003	2,299,464	4,131,242	24,392,924
1916 ..	2,854,518	7,453,980	3,518,746	3,029,964	2,927,674	6,230,302	32,380,389
1917 ..	2,944,161	8,267,616	3,137,138	3,110,000	2,674,231	6,209,957	33,067,700
1918 ..	2,540,892	8,799,135	2,562,390	2,849,969	2,564,011	6,242,749	31,155,754
1919 ..	2,203,843	7,372,814	2,538,476	2,614,036	2,555,678	4,391,624	25,101,544
1920 ..	2,604,116	9,337,680	3,136,907	3,306,748	3,220,289	6,130,240	32,347,863

* Includes hoops, splice bars, reinforcing bars, rolled sheet piling, etc.

RAIL PRODUCTION—Gross Tons.

	Iron.	Steel.	Total.
1867	410,319	2,277	412,596
1870	523,214	30,357	553,571
1872	*808,866	83,991	892,857
1875	447,901	259,699	707,600
1876	†417,114	†368,269	785,383
1877	†296,911	†385,865	682,776
1880	440,859	864,353	1,305,212
1885	13,228	963,750	976,978
1887	20,591	2,119,049	‡2,139,640
1890	13,882	1,871,425	1,885,307
1895	5,810	1,300,325	1,306,135
1900	695	2,384,987	2,385,682
1905	318	3,375,611	3,375,929
1906	15	3,977,872	§3,977,887
1907	925	3,632,729	3,633,654
1908	71	1,920,944	1,921,015
1909	0	3,023,845	3,023,845
1910	230	3,635,801	3,636,031
1911	234	2,822,556	2,822,790
1912	0	3,327,915	3,327,915
1913	0	3,502,780	3,502,780
1914	0	1,945,095	1,945,095
1915	0	2,204,203	2,204,203
1916	0	2,854,518	2,854,518
1917	0	2,944,161	2,944,161
1918	0	2,540,892	2,540,892
1919	0	2,203,843	2,203,843
1920	0	2,604,116	**2,604,116

* Maximum iron rail production.

† Steel rails passing iron rails.

‡ Maximum production until 1899, 12 years; imports in 1887, 137,830 tons; exports, 549 tons; apparent consumption, 2,276,921 tons.

§ Maximum production: imports, 4,943 tons; exports, 328,036 tons; apparent consumption, 3,654,794 tons.

** Imports, 45,684 tons; exports, 594,634 tons; apparent consumption, 2,055,166 tons.

ROLLED IRON AND STEEL.—Gross Tons.

	1919			1920		
	Iron	Steel	Total	Iron	Steel	Total
Rails	.....	2,203,843	2,203,843	.....	2,604,116	2,604,116
Structural shapes..	770	2,613,266	2,614,036	488	3,306,260	3,306,748
Plates	5,772	3,885,549	3,891,321	4,560	4,750,573	4,755,133
Sheets and black plate	34,856	3,446,637	3,481,493	29,551	4,552,996	4,582,547
Merchant bars	446,549	3,945,075	4,391,624	663,032	5,467,208	6,130,240
Concrete reinforcing bars	2,295	416,726	419,021	698	571,747	572,445
Rolled sheet piling	.....	17,811	17,811	.....	20,716	20,716
Railroad ties	.....	16,645	16,645	.....	26,310	26,310
Hoops	.....	233,336	233,336	.....	333,440	333,440
Bands and cotton ties	389	351,783	352,172	3,345	385,517	388,862
Splice bars, tie plates	57,568	376,440	434,008	53,636	522,194	575,830
Wire rods	1,956	2,536,520	2,538,476	4,721	3,132,186	3,136,907
Skelp, flue, etc.	192,146	2,363,632	2,555,778	252,403	2,967,886	3,220,289
Nail and spike plate	738	12,094	12,832	.....	20,577	20,577
Forging blooms, billets	412	359,170	359,582	258	447,076	447,334
Billets, etc., for export	44	92,099	92,143	.....	136,457	136,457
All other finish'd rolled	315,956	1,171,467	1,487,423	364,874	1,725,038	2,089,912
Totals	1,059,451	24,042,093	25,101,544	1,377,566	30,970,297	32,347,863

H. N. TRIMBLE

IRON and STEEL SCRAP

General Offices:
OLIVER BUILDING
PITTSBURGH

HEAVY MELTING STEEL SCRAP, PITTSBURGH.

Averaged from daily quotations; delivered Pittsburgh points.

	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.*	1918.	1919.	1920.	1921.
Jan.	12.25	16.50	17.85	13.75	12.75	15.00	11.25	11.40	17.75	23.50	30.00	19.00	26.50	15.66
Feb.	13.50	16.00	17.10	14.37	12.58	14.35	12.00	11.70	17.20	22.50	30.00	15.35	28.00	15.00
Mar.	13.25	14.50	17.00	14.35	12.72	14.35	12.25	11.80	18.40	24.00	30.00	15.25	27.35	14.42
Apr.	12.75	14.25	16.70	13.15	12.90	14.25	12.25	11.65	18.00	27.75	29.85	15.63	25.35	13.00
May	12.60	15.00	15.60	12.80	13.25	13.50	11.75	11.65	17.00	29.25	29.00	15.80	25.60	13.50
June	13.25	15.90	15.25	12.87	13.45	13.20	11.75	11.75	16.25	40.75	29.00	17.46	25.85	12.75
July	14.10	15.95	14.50	13.06	13.57	12.50	11.75	12.62	16.70	38.75	29.00	20.00	25.85	12.00
Aug.	14.85	16.50	14.30	13.35	13.60	12.40	11.50	14.05	16.25	34.00	29.00	20.60	28.25	12.75
Sept.	14.35	17.40	14.35	12.93	14.10	12.60	11.25	14.25	16.61	34.00	29.00	19.75	29.00	14.60
Oct.	14.80	18.00	14.40	12.15	15.75	12.25	10.75	14.50	18.25	29.35	29.00	20.00	27.90	14.30
Nov.	15.75	18.00	14.25	12.13	15.35	11.40	10.10	16.12	22.50	29.00	28.00	22.00	22.00	14.60
Dec.	16.50	18.10	13.80	12.65	15.10	11.00	10.50	17.65	25.50	30.00	25.00	24.40	15.35	14.50
Av.	14.00	16.34	15.42	13.13	13.76	13.07	11.42	13.26	18.37	30.24	28.82	18.77	25.58	13.92

* Commission, 3½% allowed May 2; generally paid until about November 1.

Frank Samuel S. M. Tomlinson S. A. Cochran

Frank Samuel

HARRISON BUILDING

PHILADELPHIA, PA., U. S. A.

Importers - Exporters

IRON, STEEL ORES, ALLOYS

Ferro-Manganese Ferro-Silicon
Spiegeleisen Ferro-Chrome
Ferro Alloys

ORES, Manganese and Iron
Chrome Ore, Lump and
Ground to Special Sizes

SPECIAL LOW PHOSPHORUS MELTING BARS for crucible steel—guaranteed phosphorus and sulphur.

SCRAP IRON, of all classes, for Rolling Mills
STEEL SCRAP, ordinary and guaranteed, for melting purposes.

STEEL SCRAP, PHILADELPHIA.

No. 1 steel scrap, delivered Eastern Pennsylvania, averaged from daily quotations; gross tons.

	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.	1921.
Jan.	12.00	17.25	17.25	12.75	12.50	14.50	10.50	10.30	16.30	22.75	28.50	17.25	24.50	15.00
Feb.	14.50	15.75	16.75	13.20	12.00	13.25	11.50	10.70	16.25	21.15	27.50	14.50	26.00	14.65
Mar.	13.25	13.75	16.60	13.65	12.20	13.60	11.50	10.85	17.15	23.00	29.85	15.00	25.50	12.85
Apr.	13.00	13.75	16.25	13.25	13.25	13.75	10.80	11.10	18.00	25.50	29.00	16.00	24.40	11.15
May	14.00	14.50	15.00	12.80	13.50	12.25	10.60	11.25	17.00	26.50	29.00	15.50	23.00	11.12
June	13.50	15.75	14.75	13.00	13.50	11.50	10.50	11.25	15.45	34.50	29.00	16.63	22.75	10.75
July	14.00	16.00	14.25	13.03	13.60	11.15	10.60	11.85	15.00	36.00	29.00	18.90	22.90	10.30
Aug.	14.75	16.75	14.00	13.35	14.25	11.85	10.75	13.70	15.00	31.50	29.00	19.00	25.00	10.67
Sept.	15.50	17.75	14.00	12.72	15.25	12.25	10.75	14.70	15.00	32.00	29.00	18.75	26.00	11.10
Oct.	15.25	18.25	13.75	12.20	15.75	11.20	10.00	14.50	15.65	27.00	29.00	19.25	23.00	11.35
Nov.	16.25	18.00	13.65	11.90	15.30	10.30	9.25	14.65	18.25	26.75	28.00	20.50	19.50	11.85
Dec.	17.00	17.50	13.00	12.35	14.75	9.75	9.65	15.60	23.95	27.50	24.00	23.50	16.00	11.25
Av.	14.42	16.25	14.94	12.85	13.82	12.12	10.53	12.54	16.92	27.85	28.40	17.90	23.21	11.84

SCRAP, PITTSBURGH.

(Delivered; Quarterly Averages.)

	1st.	2nd.	3rd.	4th.	Year.
No. 1 R. R. Wrought:					
1910 ..	18.53	16.75	14.87	14.80	16.24
1911 ..	14.12	13.83	13.63	12.62	13.55
1912 ..	13.23	13.32	14.25	15.85	14.16
1913 ..	15.35	14.92	13.20	12.17	13.91
1914 ..	12.62	11.83	11.25	10.33	11.51
1915 ..	10.75	10.75	12.13	15.40	12.26
1916 ..	18.63	19.30	18.43	22.57	19.73
1917 ..	24.08	34.67	37.33	33.42	32.38
1918 ..	34.95	34.00	34.00	33.33	34.57
1919 ..	20.87	18.75	22.83	24.58	21.76
1920 ..	31.58	31.30	32.13	25.58	30.15
1921 ..	16.33	13.33	11.45	11.63	13.19
Bundled Sheet.					
1910 ..	15.13	12.90	10.83	10.62	12.37
1911 ..	10.83	10.88	11.43	10.26	10.85
1912 ..	10.81	11.52	12.28	13.07	11.92
1913 ..	12.23	9.92	8.33	6.85	9.33
1914 ..	8.08	9.07	8.57	8.37	8.52
1915 ..	9.27	9.37	10.97	12.57	10.54
1916 ..	13.93	13.80	11.95	13.83	13.38
1917 ..	16.08	20.17	24.25	22.28	20.70
1918 ..	24.17	27.00	28.17	25.83	26.29
1919 ..	13.88	12.03	15.62	16.33	14.47
1920 ..	18.67	14.60	15.75	14.70	15.93
1921 ..	11.00	9.83	8.70	10.45	10.00
No. 1 Cast.					
1910 ..	16.60	15.52	14.50	14.13	15.19
1911 ..	13.87	13.38	13.30	12.44	13.25
1912 ..	12.41	12.60	13.37	14.72	13.28
1913 ..	14.63	14.08	12.43	12.00	13.29
1914 ..	12.30	12.22	11.33	11.00	11.71
1915 ..	11.37	11.85	12.65	14.07	12.48
1916 ..	15.40	15.83	15.10	18.30	16.16
1917 ..	20.83	27.17	31.67	27.42	26.77
1918 ..	31.89	34.00	34.00	33.00	33.22
1919 ..	21.67	19.83	23.33	27.25	23.02
1920 ..	36.92	38.77	42.03	31.75	37.37
1921 ..	21.25	18.08	16.08	16.87	18.07

SCRAP, CHICAGO.

	Heavy cast. Net.	No. 1 R.R. wrought. Net.	Old rails.* Gross.	Heavy melting. Gross.
1900..	11.00	8.00	17.90	12.80
1901..	11.25	10.80	19.50	12.90
1902..	15.03	13.81	23.91	17.37
1903..	14.74	16.07	20.29	15.50
1904..	10.95	12.45	16.56	10.72
1905..	13.49	16.14	20.18	13.96
1906..	14.55	15.62	23.04	14.74
1907..	17.26	14.63	22.47	15.08
1908..	12.69	12.45	16.60	12.45
1909..	13.79	13.76	18.31	14.63
1910..	13.46	13.00	17.85	13.78
1911..	11.00	11.25	14.70	11.21
1912..	12.31**	12.50	14.18*	12.30
1913..	11.41**	10.90	13.32*	11.21
1914..	9.87**	8.65	11.21*	9.55
1915..	9.92**	10.30	12.13*	10.99
1916..	13.28**	17.33	18.68*	16.90
1917..	21.84**	31.35	35.51*	29.14
1918..	27.61**	30.00	33.76*	28.47
1919..	23.75**	18.75	24.40*	18.34
1920..	36.79**	23.76	31.98*	23.06
1921..	14.27**	11.28	13.75*	12.22

* Old iron rails through 1911; steel rerollers thereafter ** No. 1 cast.

	No. 1 cast, net.			Rerolling rails, gross.		
	1919.	1920.	1921.	1919.	1920.	1921.
Jan.	22.50	35.00	17.75	22.00	34.50	16.50
Feb.	20.00	38.00	18.50	16.40	34.50	16.00
Mar.	21.50	38.00	15.75	16.50	32.00	13.55
Apr.	21.25	38.00	14.25	17.60	31.00	11.90
May	20.00	38.00	14.00	18.00	32.00	13.95
June	21.00	37.50	13.40	19.00	32.50	13.35
July	23.50	36.00	12.25	25.50	33.25	12.75
Aug.	24.50	35.50	12.20	30.00	37.50	13.30
Sept.	24.25	34.50	12.90	26.75	38.25	13.25
Oct.	25.50	30.00	13.75	28.50	35.25	13.75
Nov.	28.50	24.50	13.70	31.50	25.00	13.75
Dec.	32.50	20.50	12.75	42.00	18.00	13.00
Av.	23.75	36.79	14.27	24.40	31.98	13.75

Follansbee Brothers Co.

MANUFACTURERS

HAMMERED OPEN HEARTH

TIN PLATE, TERNE PLATE SHEET STEEL

Automobile Sheets
Follansbee Polished Sheets
Follansbee Blue Sheets
Follansbee Improved Electric Sheets
Follansbee Special Dynamo Sheets
Follansbee High Silicon Transformer Sheets
Deep Drawing and Stamping Qualities
"Security H.O.H." Rust Resisting Galvanized Sheets
Long Terne Sheets
"Security H.O.H." Black Sheets
Roofing Terne Plates
"Scott's Extra Coated" 40-lb.
"Follansbee Banfield Process" guaranteed 15 years
30 to 8-lb. inclusive in other brands
Charcoal Finish Bright Tin Plates
Coke Finish Bright Tin Plates
Deep Drawing and Stamping Qualities
Lustro Coated Sheets (Nickel Finish and Copper Finish Sheet Steel)
Sheet Metal Workers' Machines, Tools, Supplies

MILLS:
Follansbee, W. Va., & Toronto, O.

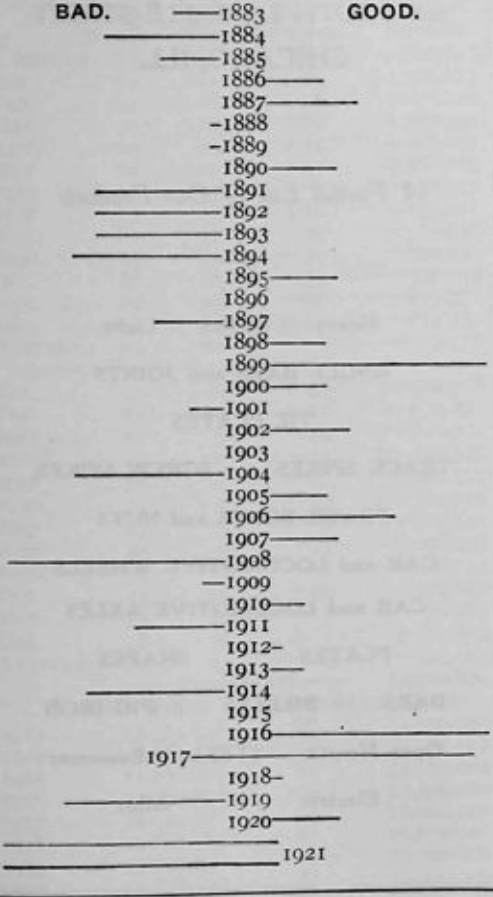
General Offices and Warehouses:
PITTSBURGH

Branch Offices and Warehouses:

Boston	Buffalo	Milwaukee
New York	Indianapolis	Louisville
Rochester	Detroit	Memphis
Nyack		Nashville

GOOD AND BAD YEARS IN IRON.

Computed for each year by comparing production and price of pig iron with average of two preceding years, allowing for normal rate of gain.



Illinois Steel Co.

208 SOUTH LA SALLE STREET

CHICAGO, ILL.

■

A Partial List of Our Products

■

Heavy — RAILS — Light

ANGLE BARS and JOINTS

TIE PLATES

TRACK SPIKES — SCREW SPIKES

TRACK BOLTS and NUTS

CAR and LOCOMOTIVE WHEELS

CAR and LOCOMOTIVE AXLES

PLATES SHAPES

BARS BILLETS PIG IRON

Open Hearth — STEEL — Bessemer

Electric Alloy

U. S. STEEL CORPORATION.

Changes in unfilled tonnage with shipments and bookings estimated in percentage of capacity.

	Shipments.	Bookings.	Difference.	Difference.
1920—	%	%	%	Tons.
Jan.	84	162	+78	+1,020,075
Feb.	90	108	+18	+216,640
Mar.	96	124	+28	+389,994
April	60	94	+34	+467,672
May	68	112	+44	+580,719
June	70	73	+ 3	+ 38,351
July	75	85	+10	+139,651
Aug.	80	57	—23	—313,430
Sept.	85	53	—32	—430,234
Oct.	87	48	—39	—537,952
Nov.	89	28	—61	—815,371
Dec.	94	30	—64	—873,359
Average .	82	81	— 1	— 9,770
1921—				
Jan.	90	46	—44	—574,958
Feb.	75	24	—51	—639,297
Mar.	51	5	—46	—649,102
April	42	10	—32	—439,541
May	38	11	—27	—362,737
June	32	5	—27	—364,619
July	25	3	—22	—287,544
Aug.	30	9	—21	—298,398
Sept.	34	36	+ 2	+ 28,744
Oct.	44	24	—20	—273,841
Nov.	52	49	— 3	— 36,287
Dec.	48	49	+ 1	+ 17,872
Average..	47	23	—24	—323,309

	Production		Capacity.
	Tons.	Per cent.	Tons.
1913	12,374,838	88	14,000,000
1914	9,014,512	62	14,500,000
1915	11,762,639	81	14,500,000
1916	15,460,792	100	15,500,000
1917	14,942,911	93	16,000,000
1918	13,849,483	87	16,000,000
1919	11,997,935	74½	16,100,000
1920	14,228,502	88	16,100,000

THE PARKESBURG IRON CO.

Founded 1872

"PARKESBURG"

Charcoal Iron

Boiler Tubes

The Best and ultimately the Cheapest for Locomotive, Marine and Stationary Boilers

PARKESBURG, PA.

U. S. STEEL CORPORATION.

Unfilled orders at end of quarter:

	First.	Second.	Third.	Fourth.
1906	7,018,712	6,809,584	7,936,884	**8,489,718**
1907	8,043,858	7,603,878	6,425,008	4,642,553
1908	**3,765,343**	**3,313,876**	3,421,977	3,603,527
1909	3,542,590	4,057,939	4,796,833	**5,927,031**
1910	5,402,514	4,257,794	3,158,106	**2,674,757**
1911	3,447,301	3,361,058	3,611,317	5,084,761
1912	5,304,841	5,807,346	6,551,507	**7,932,164**
1913	7,468,956	5,807,317	5,003,785	4,282,108
1914	4,653,825	4,032,857	**3,787,667**	3,836,643
1915	4,255,749	4,678,196	5,317,618	7,806,220
1916	9,331,001	9,640,458	9,522,584	11,547,286
1917	**11,711,644**	11,383,287	9,833,477	9,381,718
1918	9,056,404	8,918,866	8,297,905	7,379,152
1919	5,430,572	**4,892,855**	6,284,638	8,265,366
1920	9,892,075	**10,978,817**	10,374,804	8,148,122
1921	6,284,765	5,117,868	4,560,670	4,268,414

The more important turning points above are indicated by bold face type.

STOCK PRICES.

	Preferred.		Common.	
	Low.	High.	Low.	High.
1901	69	101⅞	24	55
1902	79	97¾	29¾	46⅞
1903	49¾	89¾	10	39⅞
1904	51¼	95½	8⅜	33⅛
1905	91	107	24⅞	39⅛
1906	98¾	113¼	32⅜	50¼
1907	79⅜	107¾	21⅞	50⅜
1908	87½	114⅝	25¾	58¾
1909	107	131	41¼	94⅞
1910	110½	125⅜	61⅛	91⅛
1911	103	121⅞	50	82⅛
1912	107¼	117	58¼	80¾
1913	102½	110¾	49⅞	69⅛
1914	103¼	112¾	48	67¼
1915	102	117	38	89½
1916	115	123	79¾	129¾
1917	102¾	121¼	79½	136⅝
1918	108	113⅝	86½	116½
1919	111¼	117½	88¼	115½
1920	104¼	115¾	76¼	109
1921	105	115	70¼	86½

B. Nicoll & Co., Inc.

Pig Iron

Semi-Finished Steel

Iron Ore

Pig Tin

Spelter

Coal Coke

Limestone

OFFICES

NEW YORK

Pittsburgh Philadelphia

Baltimore Boston

U. S. STEEL CORPORATION.

	Total earnings.	Production, Steel products for sale.	Average per ton.
1902 ...	$133,308,764	8,033,556	$16.59
1903	109,171,152	7,458,879	14.64
1904	73,176,522	6,792,780	10.77
1905	119,787,658	9,226,386	12.98
1906	156,624,273	10,578,433	14.81
1907	160,964,674	10,376,742	15.51
1908	91,847,711	6,206,932	14.80
1909	131,491,414	9,859,660	13.34
1910	141,054,755	10,733,995	13.14
1911	104,305,466	9,476,248	11.01
1912	108,174,673	12,506,619	8.65
1913	137,181,345	12,374,838	11.09
1914	71,663,615	9,014,512	7.95
1915	130,396,012	11,762,639	11.09
1916	333,574,178	15,460,792	21.58
1917 ...	*295,292,180	14,942,911	19.76
1918 ...	*199,350,680	13,849,483	14.39
1919 ...	*143,589,063	11,997,935	11.97
1920 ...	*176,686,898	14,228,502	12.42
1921 ...	*92,708,827	†7,500,000	12.36

* After Federal taxes. † Estimated.

Shipments of rolled steel and other finished products, tons:

	Domestic.	Export.	Total.
1907	9,477,491	1,014,014	10,491,505
1908	5,505,090	777,276	6,282,366
1909	8,690,133	1,001,157	9,691,290
1910	9,511,694	1,216,057	10,727,751
1911	7,740,897	1,719,272	9,460,169
1912	10,299,890	2,233,570	12,533,460
1913	10,412,430	1,756,328	12,168,758
1914	7,982,325	1,096,234	9,078,559
1915	9,331,363	2,350,524	11,681,887
1916	13,075,295	2,466,793	15,542,088
1917	13,196,910	2,173,195	15,370,105
1918	12,384,169	1,740,817	14,124,986
1919	10,310,729	1,932,454	12,243,183
1920	12,453,243	1,645,464	14,098,707

U. S. STEEL CORPORATION.

Quarterly earnings:

	1914.	1915.	1916.
First	$17,994,382	$12,457,809	$60,713,624
Second	20,457,596	27,950,055	81,126,048
Third	22,276,002	38,710,644	85,817,067
Fourth	10,935,635	51,277,504	105,917,438
Year	71,663,615	130,396,012	333,574,178

1917—	Earnings reported.	Tax deduction.	Total profits.
First	$76,756,019	$47,667,476	$124,423,495
Second	88,362,480	60,002,397	148,364,877
Third	70,788,987	62,482,392	133,271,379
Fourth	59,384,694	63,313,170	122,697,864
Year	295,292,180	233,465,435	528,757,615
1918—			
First	$56,961,424	$31,585,198	$88,546,622
Second	62,557,391	90,716,250	153,273,641
Third	42,961,589	101,987,347	144,948,936
Fourth	36,870,276	50,000,000	86,354,936
Year	199,350,680	274,277,835	473,628,515

	1919.	1920.	1921.
First..	$33,513,384	$42,089,019	$32,286,722
Second	34,331,301	43,155,705	21,892,016
Third..	40,177,232	48,051,540	18,918,058
Fourth.	35,567,145	43,390,634	19,612,033
Year.	143,589,063	176,686,898	92,708,827

Earnings stated above are after payment of interest on subsidiary company bonds. Outstanding securities December 31, 1920, not including bonds in sinking funds, as follows:

Subsidiary company bonds guaranteed by corporation..	$95,661,000
Ditto not so guaranteed	60,433,231
Corporation first bonds	224,408,000
Corporation second bonds	174,326,000
Preferred stock	360,281,100
Common stock	508,302,500
Total	1,423,411,831
Approximate total of all bond interest and sinking funds and preferred dividends	65,000,000

IRON AND STEEL DUTIES.

The tariff approved October 3, 1913, effective October 4th:

FREE.

Iron ore	Iron blooms, slabs, etc.
Manganese ore	(not muck bar)
Iron scrap	Steel slabs, billets, etc.
Steel scrap	(not alloyed)
Pig iron	Rails
Spiegeleisen	Nails and spikes
Ferromanganese	Cotton ties

DUTIABLE.

Ferro-chrome, phosphorus, titanium, tungsten, vanadium, ferrosilicon	15 per cent
Muck bar	5 per cent
Steel ingots, crucible, electric, etc	15 per cent
Steel ingots, alloyed	15 per cent
Wire rods	10 per cent
Skelp	12 per cent
Splice bars	10 per cent
Shapes	10 per cent
Plates	12 per cent
Iron bars	5 per cent
Steel bars	8 per cent
Hoops	10 per cent
Welded pipe	20 per cent
Seamless tubes	30 per cent
Black sheets	12 per cent
Galvanized sheets	15 per cent
Tin plate	15 per cent
Enameled ware	25 per cent
Iron castings	10 per cent
Cast iron pipe	10 per cent
Machine tools	15 per cent
Sprocket and machine chains	25 per cent
Other chain	20 per cent
Anti-friction balls, bearing, etc.	35 per cent
Automobiles under $2,000	30 per cent
Automobiles over $2,000	45 per cent
Bicycles	25 per cent
Guns, muzzle loading shot	15 per cent
Other guns	35 per cent
Anvils	15 per cent

Miscellaneous Free.—Coal and coke, agricultural implements, wire fences, cash registers, typewriters, typesetting machines, sewing machines, shoe machinery, road machinery.

WHEELING STEEL PRODUCTS COMPANY

Exclusive Selling Agents for:

Whitaker-Glessner Company | La Belle Iron Works | Wheeling Steel & Iron Co.

Open Hearth Steel Sheets
Blue annealed, black and galvanized
Roofing and Siding

Wrought Pipe
Standard weight and Extra Strong
Black and Galvanized

Sheet Bars, Blooms, Billets, Slabs
Tie Plates

Tin and Terne Plates

Line Pipe and Casing

Cut Nails
Black and Galvanized

General Offices:

Wheeling, West Virginia

IRON AND STEEL EXPORTS.

Tonnage lines exclude ore; include scrap, pig iron, unfinished steel, rolled iron and steel, structural, wire and nails; pipes and fittings, etc.; non-tonnage lines include hardware, cutlery, machinery, etc., (electrical machinery prior to 1912); not agricultural implements, which are separately stated.

	Tonnage Gross tons.	Tonnage Value.	Non-tonnage Value.	Total Value.	Agricultural implements.
1898	901,427	$18,095,244	$64,676,306	$82,771,550	$9,073,384
1900	1,154,284	42,518,072	87,115,408	129,633,480	15,979,909
1905	1,010,255	42,104,348	100,824,165	142,928,513	22,124,312
1908	964,242	43,397,323	107,715,791	151,113,114	25,264,939
1909	1,243,567	50,781,218	106,893,176	157,674,394	27,327,428
1910	1,540,895	63,276,714	137,995,189	201,271,903	31,291,351
1911	2,187,809	86,598,670	163,057,741	249,656,411	36,241,683
1912	2,947,596	112,534,577	176,593,843	289,128,420	41,436,327
1913	2,745,635	109,175,000	184,759,160	293,934,160	35,453,643
1914	1,549,554	63,308,526	136,553,158	199,861,684	21,649,523
1915	3,532,608	140,993,495	247,407,337	388,400,832	13,582,849
1916	6,101,134	353,970,438	517,356,884	871,327,322	21,229,774
1917	6,439,067	567,041,156	674,918,946	1,241,960,102	33,264,649
1918	5,375,28:	558,278,548	477,021,019	1,035,299,567	32,849,164
1919	4,399,698	410,163,546	558,356,608	968,520,154	41,195,494
1920	4,935,157	458,325,890	654,447,996	1,112,773,886	46,277,269
1921	2,213,378	214,885,191	392,541,955	607,427,146	37,478,190

Boiler Tubes

Seamless Steel
Charcoal Iron
Lapwelded Steel

Pipe

Genuine Wrought Iron
Full Weight Wrought Steel

E. F. KEATING CO.

446-454 WATER STREET
NEW YORK

Immediate Shipment from New York Stock

IRON AND STEEL EXPORTS BY PRODUCTS—Gross Tons.

	1916.	1917.	1918.	1919.	1920.	1921.	†1921.
Scrap	212,765	145,574	2,160	27,275	219,250	37,117	$574,006
Pig iron	607,236	656,220	269,575	321,261	216,828	28,305	933,093
Billets, blooms, etc.	1,504,562	2,017,113	1,786,189	258,424	216,873	10,363	518,517
Wire rods	158,284	181,941	148,523	118,010	116,775	18,953	1,112,234
Rails	540,828	512,669	453,537	652,443	594,628	322,107	18,460,790
Structural	300,594	294,150	232,729	360,787	493,633	297,022	26,824,258
Steel bars	774,455	626,465	579,249	554,211	629,051	188,463	14,043,848
Iron bars	74,069	56,332	63,367	60,547	46,648	12,339	1,190,669
Iron sheets and plates	46,499	62,238	40,756	39,892	32,157	12,414	1,578,090
Steel plates	276,304	526,670	551,967	710,013	920,959	335,868	23,285,080
Plates, punched, etc		19,781	29,250	13,688	42,829	9,569	988,000
Steel sheets	107,721	157,353	163,421	177,466	169,244	193,433	18,732,662
Galvanized sheets	85,304	86,487	68,742	101,638	108,369	55,991	7,745,745
Tin plate	227,391	232,799	258,535	204,521	226,410	107,728	17,414,969
Wrought pipe & fittings	158,350	127,191	89,982	236,080	284,771	345,276	48,953,189
Cast pipe and fittings	70,223	77,528	55,961	39,455	68,417	48,524	7,264,747
Hoop, band and scroll	43,208	58,769	50,673	50,836	53,449	20,280	2,017,511
Railroad spikes	23,852	21,189	9,969	24,771	16,601	8,164	908,755
Plain wire	264,142	201,474	157,222	190,212	190,969	69,366	8,726,123
Barb wire	418,882	193,471	235,083	101,451	129,710	29,976	3,558,691
Wire nails and spikes	150,173	114,913	78,726	89,779	93,178	28,109	3,172,054
Cut nails and spikes	4,752	4,525	3,824	2,921	3,858	1,094	133,629
Other nails and tacks	12,354	19,350	11,792	16,234	12,436	4,692	1,178,064
Bolts, nuts, rivets, etc.	29,226	32,261	28,332	39,742	38,944	24,231	4,884,596
Horse shoes	7,806	8,403	2,857	3,385	1,834	614	109,444
Radiators, etc	2,424	5,201	2,857	4,656	7,336	3,408	575,427
Totals	6,101,134	6,439,067	5,375,281	4,399,698	4,935,157	2,213,378	214,885,191

† Vaue.

PRODUCTION OF PIG IRON IN CANADA—Gross Tons.

	Basic.	Bessemer.*	Foundry.†	All other.	Total.
1903	126,892	600	113,717	24,209	265,418
1904	70,133	26,016	155,035	19,758	270,942
1905	172,102	149,203	139,528	7,170	468,003
1906	246,228	165,609	124,361	5,759	541,957
1907	341,257	154,910	78,901	6,078	581,146
1908	335,410	112,811	109,471	5,980	563,672
1909	357,965	169,545	108,608	40,972	677,090
1910	365,090	221,494	143,986	9,640	740,210
1911	413,303	186,274	190,324	34,467	824,368
1912	489,799	228,742	194,208	129	912,878
1913	558,524	227,662	225,231	3,701	1,015,118
1914	331,456	184,053	174,346	16,117	705,972
1915	660,369	13,714	125,769	25,568	825,420
1916	851,453	12,575	181,748	23,765	1,069,541
1917	861,728	13,968	168,964	41,321	1,085,981
1918	857,839	41,474	150,158	57,093	1,106,564
1919	515,359	6,795	257,315	83,397	862,866
1920	657,757	3,410	273,938	63,709	998,814
1921‡	461,578	.....	97,304	35,472	594,354

*Includes low-phosphorus. † Includes ferrosilicon. ‡ Dominion Bureau of Statistics.

STEEL PRODUCTION OF CANADA

(Gross tons.)

	Ingots.	Castings.	Total.
1904	142,279	6,505	148,784
1905	394,055	9,394	403,449
1906	555,913	14,976	570,889
1907	629,026	17,728	646,754
1908	500,300	9,657	509,957
1909	664,789	13,962	678,751
1910	723,002	18,922	741,924
1911	768,559	22,312	790,871
1912	820,792	32,239	853,031
1913	1,006,149	36,354	1,042,503
1914	724,596	18,756	743,352
1915	873,265	39,490	912,755
1916	1,255,196	31,313	1,286,509
1917	1,513,256	49,033	1,562,289
1918	1,622,122	72,855	1,694,977
1919	891,309	36,332	927,641
1920	1,048,089	61,833	1,109,922

Steel ingots and castings by processes.

	Open-hearth.	Bessemer.	Other kinds.	Total.
1904 .	106,046	42,738	.....	148,784
1905 .	238,681	164,488	280	403,449
1906 .	347,778	219,791	3,320	570,889
1907 .	440,936	202,268	3,550	646,754
1908 .	401,119	108,433	405	509,957
1909 .	496,142	182,304	305	678,751
1910 .	542,354	199,570	.....	741,924
1911 .	601,074	189,797	.....	790,871
1912 .	645,062	207,569	400	853,031
1913 .	768,663	273,391	449	1,042,503
1914 .	556,910	186,158	284	743,352
1915 .	884,736	22,521	5,498	912,755
1916 .	1,245,488	10,968	30,053	1,286,509
1917 .	1,517,698	7,168	37,423	1,562,289
1918 .	1,579,927	7,674	107,376	1,694,977
1919 .	902,628	6,007	19,006	927,641
1920 .	1,067,768	10,623	31,531	1,109,922

FERRO

SILICON

FERRO

CHROME

Uniform Quality

LUMP

and

GROUND

THE

BALTIMORE ELECTRO ALLOYS

COMPANY

Manufacturer

BALTIMORE, MARYLAND

CANADA—Miscellaneous Production.

Total finished rolled iron and steel, gross tons.

	Iron.	Steel.	Total.
1904	53,188	126,850	180,038
1905	67,421	318,405	385,826
1906	78,898	492,844	571,742
1907	81,093	519,086	600,179
1908	65,505	431,012	496,517
1909	79,636	583,105	662,741
1910	83,918	655,893	739,811
1911	86,383	695,541	781,924
1912	109,012	752,212	861,224
1913	95,881	871,216	967,097
1914	47,309	612,210	659,519
1915	40,797	612,521	653,318
1916	76,478	887,332	963,810
1917	101,795	874,403	976,198
1918	96,296	905,012	1,001,308
1919	59,410	683,589	742,999
1920	67,800	864,106	931,906

Miscellaneous production, imports and exports, net tons, including iron ore:

	1919.	1920.
Coal production	13,681,218	16,631,954
Coa limports	17,308,837	18,742,542
Coal exports	2,070,050	2,558,174
Coke production	1,160,470	1,306,644
Coke imports	383,374	586,406
Coke exports	14,709	39,536
Iron ore shipments	197,170	129,072
Imported ore consumed	1,674,194	1,957,738
Ore exports	14,480	19,879
Production, gross tons:		
Pig iron	862,866	998,814
Steel ingots	891,309	1,048,089
Steel castings	36,332	61,833
Ingots and castings	927,641	1,109,922
Rails	282,415	227,967
Cut and wire nails, kegs	1,447,000	1,868,000
Wrought pipe	62,670	79,808
Cast iron pipe and fittings, net tons	37,530	59,850

CHARLES HARDY & RUPERTI, Inc.

115 BROAD STREET
NEW YORK, N. Y.

METALS, MINERALS, ORES

ALUMINUM

INGOTS - SHEETS - WIRE - TUBING

Molybdenum		**Manganese**
Tungsten		**Vanadium**
Bismuth	**Antimony**	**Copper**
Silver	**Chrome**	**Zinc**
Lead	**Tin**	**Etc.**

Precipitates, Skimmings, Speisses,
Residues, Mattes, Slags of

Gold, Silver, Platinum, Copper,
Lead, Tin, Antimony

FERRO ALLOYS

WORLD'S PIG IRON PRODUCTION.

(Reduced to tons, 2,240 lbs.)

	1850.	1890.	1900.	1910.	1913.	1917.	†1920.
United States	563,755	9,202,703	13,789,242	27,303,567	30,966,152	38,621,216	36,925,987
Great Britain	2,300,000	7,904,214	8,959,691	10,217,022	10,260,315	9,420,254	8,007,900
Germany	350,000	4,584,882	8,381,373	14,559,509	19,004,022	12,931,000	7,500,000
France	405,653	1,931,188	2,669,966	3,974,478	5,227,378	1,700,000	3,300,000
Russia	227,555	912,561	2,889,789	2,992,058	4,474,757	3,678,527*	.....
Aus.-Hungary	250,000	910,685	1,472,695	2,153,788	2,335,170	2,380,104*	.....
Belgium ...	144,452	775,385	1,001,872	1,822,821	2,318,767	7,862	1,125,000
Canada	.....	19,439	86,090	740,210	1,015,118	1,085,981	998,814
Sweden	150,000	483,155	518,263	594,385	728,103	815,620	450,000
Spain	.....	176,598	289,315	367,423	418,061	351,949	200,000
Italy	.....	14,094	23,569	347,657	420,011	463,510	200,000
India	.....	.....	.....	.....	.....	251,648	300,000
Australia	.....	.....	.....	.....	46,563	147,419	.....
China	.....	.....	.....	.....	.....	144,815	300,000
All other	10,000	80,000	100,000	400,000	500,000	100,000	‡2,000,000
Total	4,401,415	26,994,904	40,181,865	65,472,918	77,714,417	72,000,000	63,000,000

* 1916. † Approximate. ‡ Includes Luxemburg, 700,000; Austria, 100,000; Hungary, 30,000; Czechia, 650,000; Poland, 100,000, etc.

New Jersey Concentrating Co., Inc.

OFFERS Exceptional Facilities for

Storage
Grinding
Concentration
Separation
Weighing
Sampling

OF

Metals

AND

Minerals

RAIL and WATER CONNECTIONS

Write for Rates and Particulars

WORKS

Elizabethport, N. J.

New York Office
115 Broad Street.

TERMS OF PAYMENT

and Units of Sale.

Coke.

Unit—Ton, 2,000 pounds.

Terms—Net on 20th of following month.

Pig Iron.

Unit—Gross ton, 2,240 pounds. ("Sand ton", 2,268 pounds, practically obsolete).

Terms—Commonly 30—½—10. Occasionally 20th of following month net, or ½% ten days from date of shipment. Occasionally 30 days net.

Semi-finished Steel.

Including billets, slabs, sheet bars and rods.

Unit—Gross ton, 2,240 pounds.

Terms—30—½—10.

Finished Steel.

Bars, shapes, plates, etc.:

Unit—Pound. Price sometimes stated in dollars and cents per 100 pounds, occasionally erroneously called "cwt."

Terms—30—½—10.

Pipe:

Unit—Foot. List in cents per foot, quotation in per cent. discount.

Terms—60—2—10.

Wire products:

Unit—Pound for wire and barb wire, keg of 100 pounds for nails.

Terms—60—2—10.

Sheets and tin plate:

Unit—Sheets, pound; tin plate, base box of 31,360 square inches (equivalent of 112 sheets 14x20 inches).

Terms—30—2—10.

Bolts and nuts: 30—1—10.

Rivets: 30—½—10.

A. C. DAFT

OLIVER BUILDING,
PITTSBURGH, PA.

Ferro Chrome

60 - 70%

Carbons from point .10 to 10%

98% Tungsten Metal Powder

70-80% Ferro Tungsten

Cobalt Metal

Chrome Ore

TUNGSTEN.

United States production of tungsten. Unit, a short ton of concentrates carrying 60 per cent. of tungsten trioxide.

United States Production.

	Short tons.	Value.	Per ton.
1906.....	928	$348,867	$376
1907.....	1,640	890,048	543
1908.....	671	229,955	343
1909.....	1,619	614,370	379
1910.....	1,821	832,992	457
1911.....	1,139	407,985	358
1912.....	1,330	502,158	377
1913.....	1,537	672,118	438
1914.....	990	435,000	439
1915.....	2,332	4,100,000	1,760
1916.....	5,923	12,075,400	2,040
1917.....	6,144	6,783,400	1,100
1918.....	5,061	6,802,000	1,348
1919.....	327	353,900	1,082.25
1920.....	216	101,839	471.48

	WOLFRAMITE.			SCHEELITE.		
	1919.	1920.*	1921.*	1919.	1920.	1921.
Jan.	$15.50	$8.75	$4.00	$18.00	$15.00	$3.80
Feb.	14.00	8.75	3.15	14.25	15.00	3.15
Mar.	8.00	8.75	2.90	11.00	15.00	2.85
Apr.	8.00	8.75	3.05	11.00	15.00	3.05
May	8.00	8.75	3.20	10.50	12.50	3.15
June	7.25	8.25	3.15	9.50	7.50	3.20
July	7.25	8.25	3.10	10.00	7.00	3.10
Aug.	7.35	6.35	3.10	10.50	7.00	3.10
Sept.	7.35	5.65	3.10	10.50	6.50	3.10
Oct.	7.30	5.25	3.10	11.00	6.00	3.10
Nov.	7.25	5.00	2.95	9.00	5.50	2.95
Dec.	7.00	4.65	2.95	12.00	4.50	2.95
Av.	8.69	7.26	3.15	11.44	9.71	3.13

* Bolivian.

South China Development Syndicate, Ltd.

Hong Kong **China**

Exporters—Importers

Producers — Dealers

ORES

Manganese -- Tungsten

Bismuth -- Antimony

Tin Plates

LORING P. RIXFORD

2 Rector Street

NEW YORK

Cable Addresses:

SOCHINDEL - Hong Kong

LORIXFORD - - - New York

(Bentley's Code)

TUNGSTEN ORE IMPORTS.

Imports of tungsten-bearing ores (wolframite, scheelite, ferberite, hubnerite, stolzite, raspite) gross tons and value.

	1915.	1916.	1917.	1918.	1919.	1920.	1921.
Portugal, tons ..	97	149	107	24	.....	.....	.....
Value	$ 81,168	$ 212,685	$ 105,830	$ 17,760	.....	.....	.....
Argentine, tons.	108	570	192	479	130	77	51
Value	$ 121,834	$1,442,569	$ 244,793	$ 730,722	$ 111,489	$ 64,284	$ 11,588
Chile, tons.....	178	1,055	1,723	1,116	880	130	148
Value	$ 209,130	$2,750,364	$1,808,853	$ 1,209,864	$ 685,414	$ 74,906	$ 36,389
Peru, tons.....	463	1,005	1,071	1,631	385	41	7
Value	$ 355,086	$1,475,375	$1,126,593	$ 1,488,516	$ 299,101	$ 18,765	$ 3,428
China, tons.....	.....	.....	.....	.....	2,508	375	704
Value	.....	.....	.....	.....	$1,624,539	$142,572	$106,059
Hongkong, tons	.....	.....	.....	.....	3,039	767	284
Value	.....	.....	.....	.....	$2,249,011	$276,842	$ 72,499
Japan, tons.....	84	532	538	1,215	756	114	.....
Value	$ 46,826	$1,041,570	$ 622,691	$ 1,700,332	$ 856,017	$ 98,723	.....
Other countries, tons	440	324	726	5,900	702	236	247
Value	$ 230,945	$ 431,128	$ 558,848	$ 6,266,220	$ 435,619	$103,501	$ 46,794
Total tons.....	1,370	3,635	4,357	10,365	8,400	1,740	1,441
Total value.....	$1,044,981	$7,353,691	$4,467,608	$11,413,414	$6,261,190	$779,593	$276,757

CHINA COMMERCIAL CO.

- LIMITED -

2 RECTOR ST. *NEW YORK*

Trade Mark

MINERS

TUNGSTEN

BISMUTH - ARSENIC

COPPER - MANGANESE

MAIN OFFICE

HONG KONG **CHINA**

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CANTON
NAN ON
SHANGHAI

Mines

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YUNGYUEN
NANANFU

Phone: RECTOR 4095 *Cable CHANLEUNG*

WORLD'S PRODUCTION OF TUNGSTEN ORE.

In net tons of 2,000 pounds of concentrates containing 60% WO_3 (tungsten trioxide) by Metallorganic political areas.

	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.
China	..	...	...	...	...	...	...	120	1,500	8,500	6,000	4,200
Tonkin	..	19	...	81	100	119	219	250	250	250	100	50
Burma & Shan States	..	407	1,119	2,095	1,905	2,055	3,208	4,637	5,494	5,500	3,800	1,500
Siam	..	...	200	200	1	33	475	584	800	800	100	40
Federated Malay States	99	105	205	275	273	317	363	577	793	800	435	150
Unfederated Malay States	..	...	...	...	...	73	175	360	550	550	705	150
Billiton & Singkeg	24	33	...	29	30	30	60	60	60	60	75	50
India (including Burma)	7	23	...	...	...	...	...	51	50	50	...	...
Total	130	587	1,524	2,680	2,309	2,627	4,500	6,639	9,497	6,510	11,215	6,140
Japan	292	275	287	225	327	226	478	771	775	800	8.0	120
Korea (Chosen)	...	...	...	...	...	...	74	612	993	1,000		
Total	292	275	287	225	327	226	552	1,383	1,768	1,800	850	120
United States	1619	1,821	1,139	1,330	1,537	990	2,332	5,923	6,144	5,020	935	216
Mexico	...	...	...	...	...	...	155	175	340	326	125	160
Alaska	...	...	...	...	...	...	...	46	28	45	...	...
Nova Scotia	...	83	...	17	12	...	...	...	...	...	...	...
Total North America	1,619	1,904	1,139	1,347	1,549	990	2,487	6,144	6,512	5,391	1,060	376
Peru	...	15	57	241	327	130	455	586	700	600	248	41
Bolivia	168	232	370	547	328	320	902	3,624	4,289	4,500	1,995	160
Argentina	900	826	683	701	591	482	189	908	1,178	1,200	350	120
Chile	...	...	...	...	...	...	...	9	10	10	...	...
Brazil	...	...	...	...	...	...	...	6	...	...	...	...
Total South America	1,068	1,073	1,110	1,489	1,246	932	1,546	5,133	6,177	6,310	2,593	321

(Continued on next page).

TUNGSTEN FOR HIGH SPEED STEEL MAKING

CHEMICAL PRODUCTS CO.

Washington, D. C., U. S. A.

Granulated Ferro-tungsten carefully refined

It contains less Sulphur, Phosphorus, Carbon and Silicon than any other form of ferro-tungsten or tungsten powder. It pays to use purer tungsten because you have less scrap and fewer complaints. It is supplied to you at a less price per pound of contained tungsten than any other form of tungsten. It contains no Tin, Copper, Arsenic, Calcium or Oxygen. It is absolutely uniform which helps in making up your mixes. Progress in the art is made by using our Granulated Ferro-tungsten. It has many friends. Try it and see.

An average analysis shows:

W	80.3%
C	.23
P	.045
S	.026

Founded in 1914 this company has supplied nearly 2,000,000 lbs. of contained tungsten to the United States Steel Trade, and to our friends we extend our thanks, both in the U. S. and in Europe.

Write, Phone, Wire or Cable whenever you need TUNGSTEN. We always have some ready to ship at lowest market rates. Let us serve you.

WORLD'S PRODUCTION OF TUNGSTEN ORE. (Continued)

In net tons of 2,000 pounds of concentrates containing 60% WO_3 (tungsten trioxide) by Metallorganic political areas.

	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.
England	421	307	298	216	204	230	399	449	288	290	183	140
France	55	33	188	252	300	300	200	182	182	180	33	6
Portugal	609	1,132	1,078	1,466	900	1,000	1,030	1,563	1,741	1,700	770	200
Spain	42	169	106	202	179	175	211	187	360	350	337	150
Italy	...	...	...	...	...	...	...	6	6	...	...	...
Germany	106	105	89	111	150	150	150	350	200	200	290	150
Austria	43	54	50	73	75	75	75	150	150	150		
Russia	...	...	...	...	...	...	...	36	110	150	...	...
Norway	...	...	...	3	11	4	10	10	10	10	...	...
Total Europe	1,276	1,800	1,809	2,323	1,819	1,934	2,075	2,933	3,047	3,030	1,613	646
Northern Territory	49	78	71	44	42	50	50	45	50	50	25	25
Queensland	679	1,145	750	944	587	442	708	503	519	500	314	111
N. South Wales	431	413	512	298	220	244	109	345	297	300	250	50
Victoria	15	31	33	13	1	...	...	1	...	...	...	...
South Australia	...	...	...	...	...	...	...	1	...	..	...	...
Tasmania	20	75	86	87	89	61	124	124	292	300	82	71
Western Australia	1	2	12	...	1	1	...	...	...	...	...	...
Total Australia	1,195	1,744	1,464	1,386	940	798	991	1,019	1,158	1,150	671	257
New Zealand	78	187	184	181	297	274	261	322	350	400	167	13
South Africa	16	...	...	...	...	...	1	2	24	25	4	6
Word's total production..	5,674	7,570	7,517	9,631	8,487	7,781	12,413	23,575	28,533	34,616	18,173	7,879

"LINE WITH THE ASHLAND LINE"

ASHLAND
FIRE BRICK CO.

INCORPORATED 1886

MFGR'S OF THE HIGH GRADE

ASHLAND FIRE BRICK

MADE EXCLUSIVELY FROM
THE HIGHLY REFRACTORY

KENTUCKY FLINT
AND
SEMI-FLINT
FIRE CLAYS

General Offices:
ASHLAND, KY.

Branch Sales Office:
208 So. La Salle St. Chicago, Ill.

U. S. FOREIGN COMMERCE.

Fiscal years:

	Imports.	Exports.	Balance.
1800 ..	$91,252,768	$70,971,780	*$20,280,988
1810 ..	85,400,000	66,757,970	*18,642,030
1820 ..	74,450,000	69,691,669	* 4,758,331
1830 ..	62,720,956	71,670,735	8,949,779
1840 ..	98,258,706	123,668,932	25,410,226
1850 ..	173,509,526	144,375,726	*29,133,800
1855 ..	257,808,708	218,909,503	*38,899,205
1860 ..	353,616,119	333,576,057	*20,040,062
1865 ..	238,745,580	166,029,303	*72,716,277
1870 ..	435,958,408	392,771,768	*43,186,640
1875 ..	533,005,436	513,442,711	*19,562,725
1880 ..	667,954,746	835,638,658	167,683,912
1885 ..	577,527,329	742,189,755	164,662,426
1890 ..	789,310,409	857,828,684	68,518,275
1895 ..	731,969,965	807,538,165	75,568,200

* Balance unfavorable.

Calendar years; three figures omitted.

	Imports.	Exports.	Balance.
1900	$829,150	$1,477,946	$648,796
1902	969,317	1,360,686	391,369
1903	995,494	1,484,753	489,259
1904	1,035,909	1,451,319	415,410
1905	1,179,145	1,626,991	447,846
1906	1,320,502	1,798,243	477,742
1907	1,423,170	1,923,426	500,256
1908	1,116,374	1,752,835	636,461
1909	1,475,521	1,728,199	252,678
1910	1,562,904	1,866,259	303,355
1911	1,532,359	2,092,527	560,168
1912	1,818,073	2,399,218	581,145
1913	1,792,596	2,484,018	691,422
1914	1,789,276	2,113,624	324,348
1915	1,778,597	3,554,671	1,776,074
1916	2,391,635	5,482,641	3,091,006
1917	2,952,468	6,233,513	3,281,045
1918	3,031,213	6,149,088	3,117,875
1919	3,904,365	7,920,426	4,016,061
1920	5,278,481	8,228,016	2,949,535
1921	2,509,025	4,485,123	1,976,098

AMERICAN
Refractories Company

Manufacturers of

HIGHEST GRADE SILICA MAGNESIA and CHROME BRICK

"AA" Austrian Dead Burned Magnesite

CHROME ORE

GENERAL OFFICES
UNION ARCADE BUILDING
Pittsburgh, Pa.

Eastern Sales Office
120 Broadway
New York

Western Sales Office
208 So. LaSalle St.
Chicago

GRAPHITE.

The reports of the Bureau of Foreign and Domestic Commerce show only the country shipping the goods, which is not always the country of origin. For example, graphite entered in the bureau's statements as imported from France probably originated in Madagascar, and imports from Great Britain should probably be credited to Ceylon and possibly Madagascar

Imports of Graphite or Plumbago, Short Tons:

	1917.	1918.	1919.	1920.
Ceylon	24,575	9,029	9,451	9,204
Madagascar	4,393	970	10,016	4,710
Canada	3,476	3,084	1,504	2,170
Brazil	18	45	....	....
Mexico	7,570	5,600	5,506	3,659
Chosen (Korea)	2,462	568	126	810
Italy	115	17	22	137
Austria	....	....	....	58
Germany	....	....	....	30
Other countries .	....	185	1	317
Total	42,609	19,498	26,626	21,095

Total, 11 months, 1921, 7,157 tons.

World's Production of Natural Graphite, in Metric Tons:

United States:a	1913.	1919.	1920.
Amorphous	2,035	3,065	4,258
Crystalline	2,297	3,668	4,369
Canada (a)	1,961	1,199	2,020
Mexico (b)	4,023	4,995	3,319
Austria and Styria	17,282	c17,000	c10,000
Bohemia & Moravia	32,175	31,234	c15,000
Germany	12,057	30,451	c48,000
Italy	11,145	7,626	4,190
Ceylon (b)	28,996	6,778	9,352
Chosen (Korea) (b)	14,543	c12,000	c14,000
Madagascar	7,997	4,983	d4,500
All other countries.	1,987	12,049	c4,000
	136,498	135,000	c123,000

a Shipments and sales. b Exports. c Estimates based on trade statistics or on data received from the industry. d Preliminary figures.

FIRE BRICK
FIRE CLAY

The unexcelled qualities of New Jersey refractory material is known and recognized wherever fire resisting materials are used.

Our product ranks with the *Highest Grade* and prices are commensurate with quality.

Let us estimate on your requirements and permit our experts to demonstrate to you the saving that can be made in cost of maintenance.

Special attention given to export orders

AMERICAN ENAMELED BRICK & TILE CO.

52 Vanderbilt Ave., New York, N. Y.

Cable Address – "AMEREBRICK"

PORTLAND CEMENT.

Production of Portland cement in barrels (about 380 lbs.) and average factory price per barrel.

1880	42,000	$3.00
1885	150,000	1.95
1890	335,500	2.09
1895	990,324	1.60
1900	8,482,020	1.09
1901	12,711,225	.99
1902	17,230,644	1.21
1903	22,342,973	1.24
1904	26,505,881	.88
1905	35,246,812	.94
1906	46,463,424	1.13
1907	48,785,390	1.11
1908	51,072,612	.85
1909	64,991,431	.81
1910	76,549,951	.89
1911	78,528,637	.84
1912	82,438,096	.81
1913	92,097,131	1.01
1914	88,230,170	.93
1915	85,914,907	.86
1916	91,521,198	1.10
1917	92,814,202	1.35
1918	71,081,663	1.60
1919	80,777,935	1.71
1920	100,023,245	2.02
1921	95,051,000	1.87

Natural cement production 1818 to 1909 inclusive, 229,190,050 bbls.; in 1910, 1,139,239 bbls.; dwindled to 750,863 bbls. in 1915; not separately reported thereafter.

Puzzolan or slag-lime cement, 1896 to 1909 inclusive, 4,217,410 bbls.; 1910, 95,951 bbls.; 1915, 42,678 bbls.; not separately reported thereafter.

Puzzolan and natural cement in 1920, 767,481 bbls.; average value, $1.50.

Naylor & Co., Inc.

Established prior to 1800

120 Broadway, New York

Fluor Spar

Sole Agents

Spar Mountain Mining Co.

Illinois

Importers

ORES - Manganese - Pyrites
Iron - Chrome

FERROS - Manganese - Silicon
Chrome, Etc.

Merchants

Exporters Importers

Iron - Steel - Metals

and their products

Pittsburgh
Union Arcade Bldg.

London
Naylor, Benzon & Co., Ltd.

FLUORSPAR.

Fluorspar shipped from mines in the United States, 1919 and 1920.

	Gravel			Lump			Ground			Total		
	Quant. (short tons).	Value.	Aver. Price per ton.	Quant. (short tons).	Value.	Aver. price per ton.	Quant. (short tons.	Value	Aver. price per ton.	Quant. (short tons)	Value	Aver. Price per ton
1919.												
Illinois	81,026	$1,962,934	$24,23	4,246	$133,993	$31.56	10,373	$446,244	$43.02	92,729	$2,430,361	$26.21
Kentucky	29,470	770,381	26.14							32,386	883,171	27,27
Other states	b12,088	184,044	15.23	1,087	27,998	25.76	.....	.....	.....	13,175	212,042	16.09
Total	b122,584	b2,917,359	23.80	5,333	b161,991	30.38	10,373	446,224	43.02	138,290	3,525,574	25.49
1920.												
Illinois	103,486	2,396,322	23.16	8,332	381,171	3,627	8,481	537,151	43.32	120,299	3,096,767	25.74
Kentucky	39,997	1,029,195	25.73	2,178			3,916			46,091	1,246,942	27.05
Other states .	11,303	171,100	15.13	9,083	203,608	22.41	.....	.....	.....	20.388	374,838	18.38
Total	**154,786**	**$3,596,617**	**$23.24**	**19,593**	**$584,779**	**$29.85**	**12,399**	**$537,151**	**$43.32**	**186,778**	**$4,718,547**	**$25.26**

a Arizona, Nevada, New Hampshire, and Utah.

b Some lump spar is included with gravel.

THE NASSAU Smelting & Refining Works, Ltd.

Cable address: NASHNAS, N. Y.

Telephone: 9050 CHELSEA

605 West 29th St., New York City

Manufacturers of

BABBITT AND TYPE METALS
SOLDERS
COPPER SCALE AND OXIDE
GROUND ANTIMONY

Dealers in

COPPER, SPELTER, LEAD, TIN
ALUMINUM, ANTIMONY
and other non-ferrous ingot
and pig metals

TIN DROSSES, SCRUFF, MATTE
LEAD AND TYPE DROSSES
METALLIC OXIDE, RESIDUES
and all copper bearing materials.

METAL DUTIES.

A partial list of metal duties according to the Customs Tariff Act of 1913:

ALUMINUM.

Aluminum alloys, crude and scrap	2c per lb.
Plates, sheets, bars and rods	3½c per lb.
Articles or wares	20 per cent.

ANTIMONY.

Ore	Free
10 per cent. lead	10 per cent.
Metal and regulus	10 per cent.
Antimonial type metal	25 per cent.

BISMUTH.

Metal	Free
Salts and compounds	10 per cent.

COPPER

Ores, matte, bars, ingots, pigs, regulus, plates, scrap and composition with copper chief value	Free
Bottoms, braziers, sheets, pipes, sheathing or yellow metal and rods	5 per cent.
Nails	20 per cent.
Plain wire	15 per cent.

LEAD.

Ores, on lead contained	¾c per lb.
In bars, pigs, granules, bullion, alloys in pigs, dross, hard metal, old tea lead, old scrap lead and old refuse, on lead therein	25 per cent.
Pipe, sheets, shot and wire, on lead therein	25 per cent.
White, dry or in pulp or ground or mixed with oil, or red	25 per cent.

NICKEL.

In ore, matte or other crude form..	Free
Alloys, pigs, plates, ingots, bars, oxide	10 per cent.
Sheets and strips	20 per cent.

ZINC.

Slabs, blocks or pigs and old, fit only for remanufacture	15 per cent.
Zinc bearing ores including calamine, on the zinc contained	10 per cent.
Zinc dust, sheets not polished, or plated	15 per cent.
Oxide	10 per cent.

QUICKSILVER ..... 10 per cent.

PLATINUM.

Ingots, bars, plates, retorts, wire, and scrap	Free

TIN.

Ore, bars, blocks, pigs, oxide and cassiterite or black and dross	Free

Societe Generale Des Minerais

Capital Frs. 25,000,000

Head Office:
31, Rue du Marais, Brussels

Cable Address: "SOGEMIOS - BRUSSELS"

Non-Ferrous
METALS
and ORES

- - Specialties - -

KATANGA
Copper and Tin

BELGIAN
Virgin Zinc
Pyrites

COMPOSITE METAL PRICE.

The composite metal price is a convention devised by the **"American Metal Market"** to show at one glance the bulk movement of metal prices, the metals being weighted according to their tonnage importance. The composite metal price is thus computed (for January 3, 1922):

Pounds.	Metal.	Price.	Extension.
3	Electro Cop. (N. Y.)	13.75	41.25
½	Tin (New York)	32.87½	16.437
4	Lead (St. Louis)	4.42½	17.70
2½	Zinc (St. Louis)	4.85	12.125
10	pounds		87.512
	One pound		**8.751**

Annual averages below:

1890	8.975	1906	11.734
1891	7.870	1907	11.755
1892	7.273	1908	8.290
1893	6.714	1909	8.444
1894	5.934	1910	8.665
1895	6.112	1911	9.043
1896	6.116	1912	10.750
1897	6.532	1913	9.977
1898	7.039	1914	8.555
1899	9.910	1915	12.542
1900	9.247	1916	16.826
1901	8.931	1917	17.643
1902	7.691	1918	16.654
1903	8.480	1919	12.928
1904	8.289	1920	12.882
1905	9.707	1921	8.219

Note—Prior to 1900 the yearly averages are figured on the New York prices of lead and zinc, instead of the St. Louis prices, and on the price of Lake copper instead of Electrolytic.

DAILY PRICES OF METALS IN 1921.

	NEW YORK					ST. LOUIS.	
	Electro Copper	Straits Tin	Antimony	Aluminum	Silver	Lead	Zinc (Spelter)
January							
3	12.75	35.25	5.20	22.50	65¾	4.65	5.60
4	12.50	36.00	5.20	22.50	65⅞	4.70	5.55
5	12.75	36.75	5.20	22.50	67⅝	4.75	5.55
6	12.75	38.25	5.20	22.50	68⅝	4.75	5.50
7	12.75	38.25	5.15	21.50	66¾	4.75	5.50
10	12.87½	38.87½	5.15	21.50	65⅞	4.80	5.50
11	13.00	39.00	5.15	21.50	65¼	4.85	5.50
12	13.12½	38.50	5.15	21.50	66	4.85	5.55
13	13.12½	38.25	5.15	23.00	65⅞	4.90	5.60
14	13.12½	37.25	5.15	23.00	66⅛	4.90	5.57½
17	13.00	36.00	5.15	22.50	66⅛	4.90	5.57½
18	13.00	35.00	5.10	22.50	66⅛	4.85	5.47½
19	12.87½	35.25	4.12½	22.50	65½	4.80	5.45
20	12.87½	37.00	4.12½	22.50	67⅜	4.80	5.45
21	12.87½	36.00	5.12½	23.00	66¾	4.80	5.45
24	12.75	34.00	5.50	24.00	66¾	4.80	5.37½
25	12.75	33.75	5.37½	24.00	66¾	4.75	5.27½
26	12.75	33.50	5.37½	24.00	66⅞	4.75	5.25
27	12.75	35.00	5.37½	24.00	66⅜	4.75	5.22½
28	12.75	33.50	5.37½	24.50	64½	4.65	5.15
31	12.75	34.00	5.25	24.50	59⅞	4.65	5.10
February							
1	12.75	33.00	5.25	24.50	57¾	4.60	5.00
2	12.75	32.25	5.25	24.50	61½	4.55	5.00
3	12.75	31.00	5.25	24.50	63⅛	4.52½	5.00
4	13.00	32.50	5.25	25.50	60	4.52½	5.00
7	13.12½	33.25	5.25	25.50	60½	4.52½	5.02½
8	13.12½	32.75	5.25	25.50	61⅜	4.40	5.50
9	13.00	32.25	5.25	25.50	62	4.35	5.00
10	13.00	32.75	5.25	24.50	62⅛	4.35	5.00
11	13.00	33.25	5.25	24.50	62¼	4.35	5.00
14	13.00	33.50	5.25	24.50	60¾	4.35	5.00
15	12.87½	33.00	5.25	24.50	60¾	4.35	5.00
16	12.75	32.00	5.25	24.00	59½	4.32½	4.95
17	12.75	32.50	5.20	24.00	60	4.30	4.95
18	12.75	33.00	5.20	24.00	58¼	4.25	4.95
21	12.62½	32.50	5.20	24.00	57¼	4.12½	4.90
23	12.62½	33.25	5.20	24.00	57½	4.05	4.90
24	12.50	32.25	5.20	24.00	56	4.00	4.85
25	12.37½	31.62½	5.20	24.00	54⅜	3.90	4.75
28	12.31¼	30.25	5.20	24.00	56¼	3.95	4.75

DAILY PRICES OF METALS IN 1921.

	NEW YORK					ST. LOUIS.	
	Electro Copper	Straits Tin	Anti-mony	Alumi-num	Silver	Lead	Zinc (Spelter)
March							
1	12.25	30.25	5.20	24.00	55¾	3.95	4.75
2	12.25	29.37½	5.20	24.00	54	3.95	4.75
3	12.25	29.00	5.20	23.75	54⅜	3.97½	4.75
4	12.25	28.75	5.20	23.75	53½	3.97½	4.75
7	12.25	28.62½	5.20	23.75	54⅜	4.00	4.80
8	12.25	28.00	5.20	23.75	53¾	4.05	4.85
9	12.12½	27.50	5.20	23.75	54⅛	4.00	4.80
10	12.12½	28.25	5.20	23.50	54½	4.00	4.80
11	12.00	28.50	6.00	23.25	54⅜	4.00	4.80
14	12.00	29.25	5.25	23.25	57½	4.00	4.77½
15	12.00	28.50	5.50	23.25	57	4.05	4.75
16	12.00	28.00	5.50	23.25	55¾	4.05	4.75
17	12.00	28.50	5.50	23.25	55½	4.00	4.72½
18	12.00	28.25	5.50	23.25	56¼	4.00	4.70
21	12.12½	28.25	5.50	23.25	57⅜	4.00	4.70
22	12.12½	28.50	5.37½	23.25	58¼	4.00	4.70
23	12.25	29.50	5.25	23.25	56⅜	4.00	4.70
24	12.25	30.00	5.12½	23.25	57½	4.02½	4.70
28	12.37½	30.00	5.12½	23.25	57¼	4.05	4.65
29	12.62½	29.25	5.12½	23.25	57¼	4.10	4.65
30	12.75	29.37½	5.12½	23.25	57½	4.20	4.65
31	12.75	29.00	5.12½	23.25	57¼	4.30	4.65
April							
1	12.75	29.00	5.12½	23.25	56⅛	4.30	4.65
4	12.75	28.87½	5.12½	23.25	57	5.30	4.65
5	12.62½	28.75	5.12½	23.25	56⅜	4.30	4.65
6	12.62½	29.37½	5.12½	23.25	57⅛	4.30	4.65
7	12.62½	30.00	5.12½	23.25	58⅛	4.30	4.65
8	12.50	29.50	5.12½	23.25	57⅛	4.30	4.65
11	12.50	30.00	5.12½	23.25	59⅝	4.27½	4.65
12	12.50	29.75	5.12½	23.25	62⅜	4.25	4.62½
13	12.50	29.25	5.12½	23.25	59⅜	4.22½	4.62½
14	12.50	29.75	5.12½	23.25	58¾	4.22½	4.62½
15	12.50	30.25	5.12½	23.25	58½	4.25	4.65
18	12.62½	31.25	5.12½	23.25	61¼	4.25	4.65
19	12.62½	30.75	5.12½	23.25	60⅛	4.22½	4.70
20	12.50	30.75	5.12½	23.25	60⅝	4.25	4.77½
21	12.50	31.12½	5.12½	23.25	59¾	4.25	4.85
22	12.50	31.00	5.12½	23.25	59⅞	4.27½	4.87½
25	12.50	32.25	5.25	23.25	60⅛	4.27½	4.95
26	12.50	32.00	5.25	23.25	60⅜	4.35	4.95
27	12.50	31.50	5.25	23.25	60¼	4.35	5.00
28	12.37½	31.62½	5.25	23.25	60⅝	4.50	5.00
29	12.37½	31.87½	5.25	23.25	60⅝	4.50	5.00

DAILY PRICES OF METALS IN 1921.

	NEW YORK					ST. LOUIS.	
	Electro Copper	Straits Tin	Anti-mony	Alumi-num	Silver	Lead	Zinc (Spelter)
May							
3	12.50	31.87½	5.25	23.25	61⅜	4.60	4.95
3	12.50	31.62½	5.25	23.25	61⅜	4.60	4.95
4	12.50	31.87½	5.25	23.25	61⅜	4.77½	4.95
5	12.50	33.00	5.25	23.25	61⅞	4.77½	4.95
6	12.62½	33.00	5.25	23.25	60¾	4.77½	4.95
9	12.62½	32.62½	5.25	23.25	61⅝	4.82½	4.95
10	12.75	31.87½	5.25	23.25	61⅜	5.00	4.90
11	12.75	33.00	5.25	23.25	60½	5.00	4.90
12	12.75	33.00	5.25	23.25	60⅜	5.00	4.90
13	12.75	32.75	5.25	23.25	60¼	4.95	4.90
16	12.87½	32.50	5.25	23.25	59¾	4.92½	4.87½
17	12.87½	33.00	5.25	23.25	59⅝	4.90	4.85
18	12.87½	33.10	5.25	23.25	59⅛	4.87½	4.82½
19	12.93¾	32.87½	5.25	22.75	58¾	4.82½	4.82½
20	13.00	33.50	5.25	22.75	58⅛	4.82½	4.82½
23	13.06¼	33.00	5.25	22.75	59⅛	4.80	4.80
24	13.12½	32.25	5.25	22.75	58	4.75	4.75
25	13.12½	32.50	5.25	22.75	58⅛	4.75	4.75
26	13.12½	32.25	5.25	22.75	58	4.75	4.75
27	13.12½	31.75	5.25	22.75	58	4.72½	4.72½
31	13.12½	31.62½	5.25	22.75	57½	4.70	4.70
June							
1	13.12½	31.50	5.20	22.75	57¾	4.70	4.70
2	13.12½	31.25	5.20	22.75	57⅝	4.65	4.67½
3	13.06¼	30.75	5.12½	22.75	58⅛	4.65	4.67½
6	13.00	29.75	5.20	22.75	57⅜	4.57½	4.55
7	13.00	29.50	5.20	22.75	58⅛	4.52½	4.50
8	13.00	29.50	5.20	22.75	58⅛	4.52½	4.50
9	12.87½	29.50	5.20	22.75	57⅜	4.50	4.47½
10	12.81¼	29.00	5.20	22.75	58½	4.47½	4.45
13	12.75	29.00	5.20	22.75	59⅛	4.22½	4.45
14	12.75	29.37½	5.12½	22.75	59	4.22½	4.45
15	12.75	30.00	5.12½	22.75	58⅛	4.22½	4.45
16	12.75	30.25	5.12½	22.75	58	4.20	4.45
17	12.62½	29.50	5.12½	22.75	58⅛	4.20	4.45
20	12.62½	29.25	5.12½	22.75	59⅛	4.17½	4.45
21	12.56¼	29.00	5.12½	22.75	59¼	4.15	4.45
22	12.50	29.00	5.00	22.75	58¾	4.15	4.40
23	12.50	29.12½	4.87½	22.75	58½	4.10	4.37½
24	12.50	29.00	4.87½	22.75	58¼	4.10	4.32½
27	12.62½	29.12½	4.87½	22.75	58¾	4.31¼	4.25
28	12.62½	29.12½	4.75	22.75	59	4.25	4.25
29	12.56¼	29.00	4.75	22.75	59½	4.25	4.22½
30	12.56¼	29.00	4.75	22.75	59	4.25	4.25

DAILY PRICES OF METALS IN 1921.

	NEW YORK					ST. LOUIS.	
	Electro Copper	Straits Tin	Antimony	Aluminum	Silver	Lead	Zinc (Spelter)
July							
1	12.62½	29.25	4.75	22.75	58½	4.35	4.27½
5	12.62½	29.87½	4.75	22.75	59¾	4.32½	4.35
6	12.62½	29.00	4.75	22.75	59⅜	4.37½	4.35
7	12.62½	28.87½	4.75	22.75	59⅛	4.37½	4.35
8	12.62½	28.87½	4.75	22.75	60	4.35	4.35
11	12.62½	28.37½	4.75	22.75	59⅝	4.35	4.35
12	12.62½	28.37½	4.65	22.75	59½	4.35	4.30
13	12.50	28.37½	4.65	22.75	60⅜	4.35	4.27½
14	12.50	28.25	4.65	22.75	60¾	4.35	4.25
15	12.37½	27.87½	4.65	22.75	60½	4.32½	4.25
18	12.37½	27.37½	4.65	22.50	59⅝	4.27½	4.25
19	12.37½	27.00	4.65	22.50	59½	4.22½	4.22½
20	12.37½	26.62½	4.65	22.50	59⅜	4.22½	4.22½
21	12.12½	26.62½	4.65	22.50	60⅛	4.22½	4.20
22	12.06¼	27.12½	4.65	22.50	60⅜	4.22½	4.22½
25	12.06¼	26.62½	4.65	22.50	61¼	4.22½	4.25
26	12.06¼	26.00	4.65	22.50	61¼	4.22½	4.25
27	12.00	26.25	4.65	22.50	61⅛	4.20	4.25
28	11.87½	26.50	4.65	22.50	62⅛	4.20	4.25
29	11.87½	26.62½	4.60	22.50	61¼	4.20	4.20
August							
1	11.87½	26.75	4.60	22.50	61¼	4.20	4.20
2	11.87½	26.50	4.60	21.50	61¼	4.20	4.20
3	11.87½	25.87½	4.60	21.50	61	4.20	4.20
4	11.87½	26.25	4.60	21.50	61⅛	4.20	4.20
5	11.75	26.50	4.60	21.00	61¼	4.20	4.20
8	11.75	27.75	4.60	21.00	61⅞	4.25	4.20
9	11.75	27.75	4.60	21.00	60	4.25	4.25
10	11.75	27.00	4.60	21.00	60⅜	4.25	4.25
11	11.75	26.50	4.55	21.00	60⅜	4.25	4.20
12	11.87½	26.25	4.55	19.50	60⅜	4.25	4.20
15	11.87½	26.37½	4.55	19.50	61¼	4.25	4.20
16	11.87½	26.12½	4.55	19.50	61¼	4.25	4.20
17	11.87½	25.62½	4.55	19.50	62	4.25	4.20
18	11.75	26.00	4.55	19.50	62	4.25	4.20
19	11.75	26.12½	4.50	19.50	62⅛	4.25	4.20
22	11.62½	26.25	4.50	19.50	61¼	4.25	4.17½
23	11.62½	26.12½	4.50	19.50	61⅛	4.25	4.15
24	11.62½	25.62½	4.50	19.50	62⅛	4.25	4.15
25	11.55	25.50	4.50	19.50	62⅜	4.20	4.15
26	11.55	26.12½	4.50	19.50	62	4.20	4.15
29	11.60	26.37½	4.50	19.50	62⅜	4.20	4.15
30	11.81¼	26.87½	4.50	19.50	62⅜	4.20	4.12½
31	11.87½	27.00	4.50	19.50	62¼	4.20	4.17½

DAILY PRICES OF METALS IN 1921.

	NEW YORK					ST. LOUIS.	
	Electro Copper	Straits Tin	Anti-mony	Alumi-num	Silver	Lead	Zinc (Spelter)
September							
1	11.87½	26.75	4.50	19.50	62½	4.20	4.20
2	11.87½	27.00	4.50	19.50	62½	4.30	4.20
6	11.93¾	27.25	4.45	19.50	63⅜	4.30	4.20
7	12.00	27.37½	4.45	19.50	63⅞	4.27½	4.20
8	12.00	27.12½	4.45	19.50	63¾	4.27½	4.20
9	12.12½	26.50	4.45	19.50	63¾	4.37½	4.20
12	12.12½	26.62½	4.45	19.50	64½	4.40	4.20
13	12.12½	26.75	4.45	19.50	65⅜	4.40	4.20
14	12.12½	26.50	4.45	19.50	65⅜	4.42½	4.17½
15	12.12½	26.50	4.45	19.50	64⅝	4.42½	4.17½
16	12.12½	26.00	4.45	19.50	65	4.42½	4.17½
19	12.12½	26.25	4.45	18.50	65½	4.42½	4.17½
20	12.12½	26.50	4.45	18.50	65⅝	4.42½	4.17½
21	12.12½	26.75	4.45	18.50	65⅞	4.42½	4.17½
22	12.12½	27.00	4.45	18.50	68⅝	4.42½	4.20
23	12.12½	27.12½	4.60	18.50	68¼	4.47½	4.25
26	12.12½	27.00	4.60	18.50	68⅝	4.52½	4.30
27	12.25	26.75	4.60	18.50	71⅛	4.52½	4.37½
28	12.25	26.62½	4.65	18.50	71⅜	4.52½	4.42½
29	12.25	26.37½	4.80	18.50	71⅛	4.52½	4.50
30	12.25	26.62½	5.00	18.50	70½	4.52½	4.50
October							
3	12.37½	26.87½	5.00	18.50	70	4.52½	4.52½
4	12.50	26.87½	5.12½	18.50	70⅝	4.52½	4.55
5	12.62½	27.00	5.12½	18.50	70⅜	4.52½	4.60
6	12.75	27.12½	5.00	18.50	69⅜	4.50	4.60
7	13.00	27.00	5.00	18.50	70⅛	4.50	4.60
10	13.00	27.37½	5.00	18.50	72¼	4.50	4.62½
11	13.00	27.25	5.00	18.50	72¼	4.47½	4.62½
13	13.00	27.25	5.00	17.50	73¼	4.47½	4.62½
14	12.93¾	27.25	5.00	17.50	72¾	4.47½	4.62½
17	12.75	28.12½	5.00	17.50	73⅛	4.47½	4.67½
18	12.62½	28.00	4.90	17.50	70⅝	4.47½	4.67½
19	12.62½	28.12½	4.90	17.50	69¼	4.47½	4.67½
20	12.62½	28.50	4.90	17.50	71½	4.47½	4.67½
21	12.62½	28.62½	4.90	17.50	71½	4.40	4.62½
24	12.75	28.50	4.85	17.50	70¼	4.40	4.62½
25	12.75	28.50	4.85	17.50	68⅝	4.42½	4.60
26	12.75	28.25	4.80	17.50	69⅛	4.42½	4.60
27	12.75	28.00	4.80	17.50	69¼	4.42½	4.60
28	12.75	28.00	4.80	17.50	70¼	4.42½	4.57½
31	12.87½	28.25	4.80	17.50	70¼	4.42½	4.57½

DAILY PRICES OF METALS IN 1921.

	NEW YORK					ST. LOUIS.	
	Electro Copper	Straits Tin	Anti-mony	Alumi-num	Silver	Lead	Zinc (Spelter)
November							
1	12.87½	28.12½	4.80	17.50	69⅝	4.42½	4.57½
2	12.87½	27.87½	4.80	17.50	70¼	4.42½	4.62½
3	12.87½	28.00	4.80	17.50	70	4.42½	4.72½
4	12.87½	28.37½	4.80	17.50	69⅝	4.42½	4.75
7	13.00	28.75	4.75	17.50	67¾	4.42½	4.72½
9	13.00	28.62½	4.70	17.50	67⅜	4.42½	4.72½
10	13.00	28.50	4.70	17.50	68⅜	4.37½	4.72½
14	13.12½	28.75	4.70	17.50	67	4.35	4.72½
15	13.12½	28.70	4.70	17.50	67¼	4.35	4.70
16	13.18¾	28.87½	4.65	17.50	67½	4.35	4.70
17	13.25	29.25	4.65	17.50	68¾	4.35	4.70
18	13.25	29.12½	4.65	17.50	69	4.35	4.67½
21	13.25	29.62½	4.55	17.50	69¾	4.35	4.67½
22	13.25	29.75	4.55	17.50	67¾	4.35	4.65
23	13.25	29.50	4.55	17.50	68¼	4.35	4.65
25	13.37½	29.75	4.55	17.50	66⅞	4.35	4.62½
28	13.50	30.00	4.55	17.50	67⅜	4.35	4.65
29	13.50	29.87½	4.55	17.50	67¼	4.35	4.65
30	13.50	29.87½	4.55	17.50	67½	4.35	4.67½
December							
1	13.50	30.37½	4.55	17.50	68	4.42½	4.72½
2	13.50	31.00	4.55	17.50	67⅜	4.45	4.77½
5	13.62½	31.50	4.55	17.50	66¾	4.42½	4.85
6	13.62½	31.75	4.55	17.50	66½	4.40	4.90
7	13.62½	31.50	4.50	17.50	66¾	4.40	4.87½
8	13.62½	31.62½	4.50	17.50	63¼	4.40	4.87½
9	13.62½	32.00	4.50	17.50	64¼	4.40	4.85
12	13.62½	33.50	4.50	17.50	66¾	4.40	4.82½
13	13.62½	32.75	4.50	17.50	65½	4.40	4.82½
14	13.62½	32.87½	4.50	17.50	66¼	4.37½	4.82½
15	13.62½	33.75	4.50	17.50	65⅜	4.37½	4.85
16	13.68¾	33.75	4.50	17.50	65½	4.37½	4.85
19	13.68¾	33.00	4.50	17.50	66¼	4.37½	4.87½
20	13.75	33.00	4.50	17.50	66¾	4.37½	4.90
21	13.75	33.00	4.50	17.50	66	4.37½	4.90
22	13.75	32.75	4.50	17.50	65¼	4.37½	4.87½
23	13.75	32.50	4.50	17.50	64¾	4.37½	4.85
27	13.75	32.62½	4.50	17.50	64¾	4.37½	4.82½
28	13.75	33.00	4.50	17.50	65	4.37½	4.82½
29	13.75	32.87½	4.50	17.50	65	4.37½	4.82½
30	13.75	33.12½	4.50	17.50	64¾	4.42½	4.85
High	**13.75**	**39.00**	**6.00**	**26.00**	**73⅝**	**5.05**	**5.60**
Low	**11.50**	**25.50**	**4.45**	**17.00**	**52⅝**	**3.90**	**4.12½**
Aver.	**12.65**	**30.00**	**4.92**	**21.21½**	**62.66½**	**4.39**	**4.67**

HOT ROLLED COPPER RODS

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Solid and Stranded

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Trolley Wire

"From Ore to Finished Product"

Every step under direct Anaconda supervision

ANACONDA COPPER MINING CO.

ROLLING MILLS DEPARTMENT

General Office: 111 W. Washington St., CHICAGO

Mills: Great Falls, Montana

TOTAL PRODUCTION OF COPPER.

Total production of copper in the world, 1801 to 1921 inclusive, arranged in decades. Figures selected from statistics issued by several authorities whose data are used in this book; in tons of 2,240 pounds:

	United States Production.	World's Total Production.
1801-1810	.....	91,000
1811-1820	.....	96,000
1821-1830	.....	135,000
1831-1840	.....	218,400
1841-1850	2,400	291,000
1851-1860	37,050	506,000
1861-1870	97,546	900,000
1871-1880	188,000	1,189,400
1881-1890	732,507	2,217,714
1891-1900	1,941,390	3,713,003
1901-1910	3,822,960	6,856,585
1911-1921	6,599,160	*10,883,420
Totals	13,421,013	27,097,522

* Figures for 1921 not yet available.

WORLD'S PRODUCTION OF COPPER.

World's production of copper, 1886 to 1920; from figures issued by H. R. Merton and Company, (Ltd.) American Bureau of Metal Statistics and the U. S. Geological Survey; in tons of 2,240 pounds:

1886	217,086	1904	649,300
1887	223,798	1905	689,784
1888	258,026	1906	712,934
1889	259,837	1907	709,736
1890	269,096	1908	744,240
1891	282,713	1909	836,870
1892	314,509	1910	861,109
1893	304,943	1911	878,511
1894	315,619	1912	1,000,621
1895	332,182	1913	979,911
1896	377,534	1914	909,916
1897	405,831	1915	1,053,632
1898	429,379	1916	1,369,071
1899	463,693	1917	1,395,348
1900	486,600	1918	1,372,582
1901	517,865	1919	982,594
1902	548,604	1920	941,234
1903	586,143		

THE AMERICAN METAL CO., LTD.

NEW YORK CITY

St. Louis Joplin Pittsburgh

Sellers of:

ZINC	ZINC OXIDE
LEAD	ZINC DUST
TIN	ZINC SULPHATE
COPPER	TUNGSTEN
GOLD	FERRO-TUNGSTEN
SILVER	SULPHURIC ACID
COAL	MOLYBDENUM
ARSENIC	SELENIUM

Buyers of:

Gold, Silver, Lead, Zinc and Copper Ores, Copper Matte, Copper Bullion, Lead Bullion, Molybdenum Concentrates and Tungsten Concentrates.

WORLD'S PRODUCTION OF COPPER.

Statistics based on Blister Copper referred to countries wherein ore originated; according to the American Bureau of Metal Statistics, in short tons of 2,000 lbs.

	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.
Africa	18,293	25,236	29,790	34,493	43,876	47,007	34,233	34,548	35,517
Australasia	51,070	56,144	42,611	41,555	43,920	40,293	49,284	18,118	29,188
Austria-Hungary	4,408	4,518	3,857	3,857	3,857	3,857	2,755	1,102	1,102
Bolivia	4,077	4,077	4,269	6,467	5,675	7,053	6,612	7,714	10,910
Canada	38,900	38,460	37,498	52,016	52,880	55,790	58,068	39,789	39,121
Cuba	4,849	3,747	6,889	9,737	8,613	11,365	13,595	10,991	7,146
Chile	45,895	46,574	49,221	57,680	78,559	112,985	106,415	70,451	104,173
Germany	28,211	27,881	27,550	28,144	27,325	31,552	16,641	17,384	19,015
Japan	68,790	73,283	77,650	83,108	110,900	119,058	99,536	90,215	72,241
Mexico	81,217	58,185	40,043	34,128	60,751	52,348	83,233	66,661	55,629
Norway	2,347	3,021	3,151	3,114	1,779	1,995	3,147	1,984	1,543
Peru	29,720	30,609	29,853	38,269	47,472	49,784	48,944	43,496	34,466
Russia	36,917	37,358	35,196	28,521	23,018	17,632	.....	.....	.....
Serbia	8,155	7,053	4,896	3,526	5,510	12,342	6,612	1,332	2,684
Spain and Portugal	66,010	60,279	40,883	50,912	46,284	46,284	45,182	44,080	27,550
Sweden	4,361	4,645	5,170	5,026	3,505	4,874	3,258	3,921	3,857
United States	620,757	614,255	579,133	712,126	971,123	961,016	968,687	604,642	635,248
Other Countries	5,841	4,188	5,510	5,510	5,510	5,510	5,510	5,510	5,510
Totals	**1,119,818**	**1,099,513**	**1,023,170**	**1,198,189**	**1,540,557**	**1,580,745**	**1,551,712**	**1,061,938**	**1,084,900**

AMERICAN
INSULATED WIRE & CABLE CO.

GENERAL OFFICES AND FACTORY:
954 W. 21st STREET

CHICAGO, ILL.

Manufacturers of

BARE COPPER WIRE AND CABLES

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SLOW BURNING (Underwriter's) WIRE AND CABLES

SLOW BURNING WEATHERPROOF (Black) WIRE AND CABLES

GALVANIZED GUY WIRE

Always soliciting your inquiries.

U. S. COPPER PRODUCTION.

(Smelter production in pounds)

1860	16,128,000*	1901	602,072,519
1861	16,800,000*	1902	659,508,644*
1862	21,160,000*	1903	698,044,517*
1863	19,040,000	1904	812,537,267*
1864	17,920,000	1905	888,784,267*
1865	19,040,000	1906	917,805,682*
1866	19,936,000	1907	868,996,491
1867	22,400,000*	1908	942,570,721*
1868	25,984,000*	1909	1,092,951,624*
1869	28,000,000*	1910	1,080,159,509
1870	28,224,000*	1911	1,097,232,749*
1871	29,120,000*	1912	1,243,268,720*
1872	28,000,000	1913	1,224,484,098
1873	34,720,000*	1914	1,150,137,192
1874	39,200,000*	1915	1,388,009,527*
1875	40,320,000*	1916	1,927,850,548*
1876	42,560,000*	1917	1,886,120,721
1877	47,040,000*	1918	1,908,533,595
1878	48,160,000*	1919	1,310,541,529
1879	51,520,000*	1920	1,209,061,040
1880	60,480,000*	1921	†461,000,000
1881	71,680,000*		
1882	90,646,232*		Totals.
1883	115,526,053*	1845-60	88,368,000
1884	144,946,653*	1861-70	218,504,000
1885	165,875,483*	1871-80	421,120,000
1886	157,763,043*	1881-90	1,640,815,315
1887	181,477,331*	1891-00	4,348,713,397
1888	226,361,466*	1901-10	8,563,431,241
1889	226,775,962*		
1890	259,763,092*	1845-10	15,280,951,953
1891	284,121,764*	1911-20	14,345,239,719
1892	344,998,679*		
1893	329,354,398	1845-20	29,626,191,672
1894	354,188,374*		
1895	380,613,404*		
1896	460,061,430*		
1897	494,078,274*	* Record years.	
1898	526,512,987*	† Estimated.	
1899	568,666,921*		
1900	606,117,166*		

NICHOLS COPPER COMPANY

25 BROAD STREET NEW YORK

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"L N S" AND "TRIANGLE" BRANDS

Electrolytic Copper

"TRIANGLE" Brand

Copper Sulphate

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COPPER BULLION, MATTES, ORES, CONCENTRATES

Works:

LAUREL HILL, N. Y.

PRODUCTION OF COPPER IN THE UNITED STATES — BY STATES.

Smelter production, in tons of 2,000 pounds.

	1895.	1900.	1905.	1910.	1915.	1916.	1917.	1918.	1919.	1920.
Alaska	....	....	2,450	2,156	35,348	56,912	42,380	33,541	28,268	33,047
Arizona ...	23,977	59,159	113,427	148,625	216,234	347,424	359,518	384,761	268,258	276,494
California ..	109	14,256	8,349	22,880	18,829	21,700	22,467	22,075	11,774	5,912
Colorado ..	3,040	3,913	4,702	4,654	3,636	4,768	5,027	3,796	2,446	2,141
Idaho	713	145	3,661	3,439	3,109	3,624	3,223	2,918	1,983	961
Michigan .	64,665	72,731	115,144	110,731	119,478	134,897	134,254	115,548	100,858	76,742
Montana .	95,086	135,369	157,375	141,539	134,131	176,070	138,113	163,213	88,145	88,872
Nevada ...	....	204	207	32,247	33,879	50,408	57,514	53,133	32,342	27,790
New Mexico	72	2,085	2,667	1,892	31,408	39,932	53,797	48,280	30,189	26,080
Tennessee .	....	....	....	8,346	9,103	7,278	8,047	7,527	7,815	8,363
Utah	1,092	9,177	27,042	62,593	87,589	116,168	113,920	115,482	73,089	55,179
Other States	1,553	6,020	9,368	978	1,261	4,744	4,800	3,993	10,104	2,949
Totals ...	190,307	303,059	444,392	540,080	694,005	963,925	943,060	954,267	655,271	604,530

The smelter production in 1921, according to preliminary statistics was 230,500 tons.

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- ¶ Seamless and Brazed Tubing
- ¶ Radiator Core Stock
- ¶ Naval Bronze and Yellow (Muntz) Metal
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COPPER PRODUCTION BY GRADES.

Production of refined copper in the United States from both domestic and foreign ores, according to the U. S. Geological Survey, except for 1909 to 1912 for which the figures of the Copper Producers' Association are used. Distributed according to class; in pounds.

Year.	Lake.	Electrolytic.	Casting.	Pig.	Total.
1908	195,503,099	874,895,617	24,301,407	(a)	1,094,700,123
1909	226,602,134	1,101,518,458	34,123,446	43,159,018	1,405,403,056
1910	221,400,864	1,151,624,597	32,193,196	46,903,463	1,452,122,120
1911	216,412,867	1,156,627,311	22,977,534	35,920,626	1,431,938,338
1912	231,628,486	1,288,333,298	24,777,266	37,181,237	1,581,920,287
1913	155,715,286	1,400,741,470	22,606,040	36,004,986	1,615,067,782
1914	158,009,748	1,314,931,278	21,506,325	39,334,043	1,533,781,394
1915	236,757,062	1,360,844,267	21,555,129	15,047,990	1,634,204,448
1916	269,794,531	1,950,255,629	12,469,050	26,868,105	2,259,387,315
1917	268,508,091	2,007,744,593	69,916,911	82,376,576	2,428,546,171
1918	231,096,158	2,052,508,786	72,614,370	76,165,976	2,432,385,290
1919	177,594,135	1,604,553,103	19,485,372	3,674,191	1,805,306,801
1920	153,483,952	1,460,435,825	16,195,560	4,793,307	1,634,908,644
Estimated production of refined copper for 1921					**996,000,000**

(a) Exported without being refined.

Note.—The distribution of refined copper according to class is only approximate, as an accurate separation at this stage of manufacture is not possible.

WIZARD BRONZE

AGAIN, for the year 1922 we solicit your business on our WIZARD BRONZE. By leaps and bounds, WIZARD BRONZE has jumped to the very front rank in popularity in America. It is THE bronze for discriminating manufacturers who demand only the very best and at the right price.

We produce WIZARD BRONZE in the standard grades of phosphor bronze and magnanese bronze or any other special mixtures to suit any requirement. Let us send you samples for testing, then pass your own opinion.

ALSO, we buy foundry ashes, borings, turnings, and residues of all kinds. Then too, our high quality foundry specialties will appeal to men who recognize the difference between the unusual and the mediocre. Let's get acquainted. Write us.

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25th & Ellsworth Sts.

ELECTROLYTIC COPPER REFINERIES OF THE U. S. AND CANADA.

Figures for 1920 are according to American Bureau of Metal Statistics.

Works.	Location.	Capacity in lbs. 1914.	1920.	Increase Since 1914.
American Smelt. & Ref. Co.	Baltimore, Md.	336,000,000	720,000,000	114%
American Smelt. & Ref. Co.	Maurer, N.J.	216,000,000	240,000,000	11%
American Smelt. & Ref. Co.	Tacoma, Wash.	48,000,000	204,000,000	325%
Anaconda C. M. Co. (old plant)	Gt. Falls, Mont.	65,000,000	(b)	
Anaconda C. M. Co. (new plant)	Gt. Falls, Mont.	.....	216,000,000	(*)
Balbach Smelt. & Ref. Co.	Newark, N.J.	48,000,000	†	
British America Nickel Co.	Deschene, Que.	.....	8,000,000	(a)
Calumet & Hecla Mining Co.	Hubbell, Mich.	65,000,000	60,000,000	‡8%
Consolidated Min. & Smelt. Co.	Trail, B. C.	.....	35,000,000	(*)
Nichols Copper Co.	Laurel Hill N. Y.	400,000,000	500,000,000	25%
Raritan Copper Works	P'th Amboy N. J.	400,000,000	480,000,000	20%
U. S. Metals Refining Co.	Chrome, N.J.	200,000,000	240,000,000	20%
Totals		1,778,000,000	2,703,000,000	52%

† Dismantled in 1919. (*) Started operating in 1916. ‡ Decrease. (a) New refinery started in 1920; capacity 15,000,000 lbs. nickel, 8,000,000 lbs. copper. (b) Dismantled 1920.

COLEMAN AND REITZE

Established 1908

50 BROAD ST., NEW YORK

Private leased wires to Chicago, Detroit, Kansas City, St. Louis, Denver and Boston.

INVESTMENT SECURITIES

We specialize in

COPPER
SILVER
GOLD
LEAD
ZINC

company issues.

The Financial Review

Published Weekly by us is the leading authority in this country on the above subjects. Copies supplied if requested.

PRODUCTION OF SECONDARY COPPER IN THE UNITED STATES.

(Tons of 2,000 Pounds).

	1916.	1917.	1918.	1919.	1920.
Copper pigs produced at secondary smelters	74,100	88,442	88,130	83,730	97,000
Copper produced from alloys other than brass	14,000	31,400	34,380	28,670	33,600
Total	88,100	119,842	122,510	112,400	130,600
From new scrap	.....	45,000	36,000	34,000	45,500
From old scrap	.....	74,842	86,510	78,400	85,100
Total	88,100	119,842	122,510	112,400	130,600
Copper content of brass scrap smelted (averaging about 70% copper):					
New scrap	.....	143,500	140,000	100,590	98,000
Old scrap	.....	80,500	90,160	74,200	93,860
Total	210,000	224,000	230,160	174,790	181,860
Total copper produced at secondary plants.					
From new scrap	.....	188,500	176,000	134,590	143,500
From old scrap	.....	155,342	176,670	152,600	168,960
Total	298,100	343,842	352,670	287,190	312,460

COST OF PRODUCING COPPER.

The costs of producing copper by some of the representative companies during 1918-19-20, as compiled by Hayden, Stone & Company, were as follows:

	1920.	1919.	1918.
Ahmeek Mining Co. ...	16.64	14.51	14.79
Allouez Mining Co.	24.46	22.05	20.22
Anaconda Cop. Min. Co.	16.50*	14.50*	17.09*
Cal. & Ariz. Min. Co...	14.00*	12.00*	15.80*
Cal. & Hecla Min. Co...	21.28	20.64	21.55
Chile Copper Co.	10.70	13.01	13.30
Chino Copper Co.	14.40	15.31	17.18a
Copper Range Co.	17.77	15.02	14.46
E. Butte Cop. Min. Co..	15.85	16.58	19.71
Granby Con. M. & S. Co.	15.94†	21.00‡	19.80‡
Greene-Cananea Cop. Co.	16.30	14.75	15.08
Inspir. Cons. Cop. Co...	14.17	13.41	11.26
Isle Royale Copper Co..	20.66	16.30	17.00
Magma Copper Co.	18.29	14.92	16.42
Miami Copper Co.	11.90	15.81	14.83
Mohawk Mining Co. ...	17.54	13.98	14.64
New Cornelia Cop. Co..	15.20*	14.60*	14.80*
North Butte Mining Co.	17.64	14.85	20.91
Osceola Con. Min. Co...	24.74	18.57	18.16
Phelps Dodge Corp. ...	17.00*	14.00*	18.70*
Quincy Mining Co.	19.16	17.54	20.15
Ray Cons. Copper Co. ..	15.56	14.94	17.19a
Nevada Consolidated ..	17.28	16.14	16.60a
Tennessee Copper Co. .	20.80	20.20	20.60
Utah Copper Co.	13.14	12.37	14.53a

* Estimated. † Cost at smelter. ‡ Cost delivered in New York. (a) After allowances for excess profits taxes.

ESTIMATED CONSUMPTION OF COPPER IN THE UNITED STATES.

Mr. C. F. Kelley, president of the Anaconda Copper Mining Company, submitted to "Mining and Metallurgy" the following estimates of the ultimate uses of copper.

	1919		1920	
	Pounds.	%.	Pounds.	%.
Electrical manufactures	284,000,000	23.48	340,000,000	26.12
Telephones and telegraphs	65,679,218	5.43	100,000,000	7.68
Wire (not included elsewhere)	160,000,000	13.23	190,000,000	14.59
Automobiles	92,965,000	7.68	99,320,400	7.63
Locomotives	8,998,000	0.74	9,457,250	0.73
Railway cars—freight and passenger	15,832,800	1.31	8,119,500	0.62
Steam railways—electrified	250,000	0.02	2,200,000	0.17
Shipbuilding	101,884,625	8.42	61,906,325	4.76
Buildings	76,778,800	6.35	53,443,200	4.10
Ammunition	23,000,000	1.90	23,400,000	1.80
Fire extinguishers	2,000,000	0.16	2,100,000	0.16
Pins	2,000,000	0.16	2,000,000	0.15
Valves	10,000,000	0.83	10,000,000	0.77
Coins	2,075,321	0.17	3,148,863	0.24
Bearing metal—steam railways	45,000,000	3.72	45,000,000	3.46
Cash registers	1,300,000	0.11	1,340,000	0.10
Condensers	10,000,000	0.83	6,000,000	0.46
Miscellaneous	150,000,000	12.40	180,000,000	13.83
Exported in manufactures	157,965,641	13.06	164,420,412	12.63
Total in manufactures	**1,209,729,405**	**100.00**	**1,301,855,950**	**100.00**

The Stamford Rolling Mills Company, Inc.

347 Madison Ave., New York

Sheet Metal

Brass, Bronze, Copper,
Nickel Silver, Cupro Nickel

Radiator Brass and Copper
Our Specialty

MILLS:
SPRINGDALE, CONN.
STAMFORD, CONN.

CONSUMPTION OF COPPER IN U. S.

Based on the annual reports of the U. S. Geological Survey, except for the returns of the Copper Producers' Association for 1909-13.

Year.	Pounds.	Year.	Pounds.
1895	258,701,337	1909	705,051,591
1896	196,103,142	1910	749,426,542
1897	234,745,630	1911	709,611,605
1898	299,727,082	1912	819,665,948
1899	411,512,781	1913	812,268,639
1900	356,891,121	1914	701,624,158
1901	382,761,014	1915	1,136,618,187
1902	551,688,131	1916	1,478,881,871
1903	526,429,885	1917	1,394,829,715
1904	482,190,920	1918	1,661,669,576
1905	561,006,325	1919	914,471,572
1906	686,265,987	1920	1,053,838,558
1907	487,771,625	1921*	572,000,000
1908	479,955,318		

* Estimated.

(Of recent years the copper exported in the form of wire, sheets, tubes, plates, etc., has not been included as domestic consumption.)

STOCKS OF COPPER IN U. S.

The stocks of refined copper and blister and material in process of refining at the beginning of each year are reported by the U. S. Geological Survey as follows:

	Refined Copper.	Blister and material in process of refining.
1908	125,745,796	175,254,659
1909	121,876,759	234,013,843
1910	141,486,244	266,754,808
1911	122,803,656	245,218,530
1912	88,372,195	219,864,749
1913	105,497,683	274,072,084
1914	90,385,402	247,789,811
1915	173,640,501	203,067,571
1916	82,429,666	274,000,000
1917	128,000,000	424,000,000
1918	114,000,000	411,000,000
1919	180,000,000	562,600,000
1920	631,000,000	273,000,000
1921	659,000,000	465,000,000
1922*	496,000,000	297,000,000

* Estimated.

SUZUKI & CO.

KOBE, JAPAN

ESTABLISHED 1887.

IMPORTERS & EXPORTERS

NEW YORK OFFICE: 220 Broadway

Smelteries and Refineries

UNDER
DIRECT MANAGEMENT

COPPER, LEAD
SPELTER
ANTIMONY
ETC.

SAN FRANCISCO OFFICE:
351 California Street

SEATTLE OFFICE:
400 Colman Bldg.

PORTLAND OFFICE:
Board of Trade Bldg.

LONDON OFFICE:
29 Mincing Lane, E. C.

IMPORTS OF COPPER.

Imports of copper to the United States according to New York Metal Exchange figures; ore, matte and regulus reduced to fine copper; in tons of 2,240 lbs.

	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.	1921.
Jan.	10,600	17,800	18,500	15,700	6,500	16,000	26,000	19,000	9,000	16,500	17,500
Feb.	13,400	13,000	13,500	13,000	8,500	15,500	17,500	27,000	21,000	20,000	18,000
Mar.	13,500	14,200	16,000	13,000	10,000	18,000	19,500	24,000	27,000	17,500	10,000
April	13,600	16,000	14,500	12,000	8,700	18,500	22,000	21,000	14,500	12,000	15,500
May	11,600	14,000	14,500	13,000	9,300	16,000	22,000	20,500	10,500	23,000	7,000
June	12,000	14,000	11,500	14,500	14,500	19,500	28,000	11,000	14,000	22,000	9,000
July	11,000	14,500	16,500	10,300	15,000	18,000	9,000	16,500	15,000	12,000	14,000
Aug.	14,300	13,500	14,000	11,500	13,500	18,500	22,000	32,000	12,000	13,000	10,000
Sept.	15,000	14,000	20,500	5,700	17,000	16,000	17,500	22,000	16,000	12,500	10,500
Oct.	12,000	17,000	12,500	8,000	13,000	15,000	16,500	20,000	12,000	14,500	14,500
Nov.	10,000	14,000	13,000	10,000	10,000	12,000	16,000	20,000	23,000	16,000	11,000
Dec.	15,000	17,000	16,000	7,300	11,500	16,000	26,000	18,000	13,000	17,500	14,000
Tot.	152,000	179,000	181,000	134,000	137,500	199,000	242,000	251,000	187,000	196,500	151,000

(Detailed statistics of imports are given on page 259.)

BRONZE
BRASS
ALUMINUM
Castings
ALSO
MILL BEARINGS
BUSHINGS
ANTI-ACID METAL
HYDRAULIC PUMP WORK
PICKLE CRATES
You'll Like our Quality, Workmanship and Price
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THE SHOOP BRONZE COMPANY
344-354 West Sixth Avenue
Bell Phone 371
TARENTUM, PA.
(PITTSBURGH DISTRICT)

IMPORTS OF COPPER INTO THE UNITED STATES.

(In pounds.)

Ore and matte (copper contents):	1913.	1915.	1916.	1917.	1918	1919.	1920.	1921.
Spain	6,244,676	1,278,403	2,659,211	371,902	.....	2,157,072	2,123,594	5,163,996
Cuba	5,362,132	28,876,226	40,644,140	45,343,462	28,716,903	15,979,585	18,446,649	17,956,447
Canada	34,072,096	29,591,823	37,344,754	31,134,172	31,718,790	28,201,213	28,556,362	3,621,268
Mexico	19,722,530	14,707,724	33,525,559	40,168,291	64,879,683	57,370,307	34,176,192	14,507,374
Chile	25,311,542	33,435,039	44,508,322	43,906,869	18,947,088	15,500,966	18,510,907	41,860,767
Other countries..	18,779,129	6,442,226	16,105,868	14,822,411	12,954,017	7,245,920	14,623,351	19,690,068
Totals	**109,492,105**	**114,331,441**	**174,787,854**	**175,747,107**	**157,216,481**	**126,455,063**	**116,437,055**	**102,799,920**
Blister and black (copper contents):								
United Kingdom .	17,943,285	7,485,625	3,838,167	.....	112,738	228,083	5,939,811	3,721,557
Spain	36,565,767	7,964,534	550,290	.....	165,011	.....	.....	7,000
Canada	33,749,133	44,977,829	53,765,656	40,571,204	37,881,986	31,199,467	26,287,350	22,073,731
Mexico	97,003,847	15,973,838	62,391,123	40,213,831	83,568,187	52,609,210	72,670,790	16,450,113
Chile	18,315,000	36,303,505	76,833,657	162,227,104	156,285,580	89,859,898	46,289,793	39,242,226
Peru	42,667,436	61,342,067	72,892,869	100,302,275	81,492,209	80,829,505	82,509,806	72,016,068
Australia	22,149,335	443,520	.....	.....	.....	.....	.....	.....
Japan	14,367,493	17,970,768	9,528,457	6,393,524	827,404	600	.....	.....
Other countries ..	17,298,533	8,905,322	7,747,907	5,890,018	18,038,536	8,493,686	10,998,774	18,224,584
Totals	**300,059,829**	**201,367,008**	**287,548,126**	**355,598,036**	**378,371,651**	**263,220,449**	**244,696,324**	**171,735,279**
Refined ingots ..	(a)	(a)	(a)	6,747,958	38,087,769	35,138,760	108,743,298	69,249,281
Scraps and old	(a)	(a)	(a)	17,893,594	1,921,539	4,217,340	11,558,367	5,706,896
Alloys	(a)	(a)	(a)	429,702	207,675	355,982	4,235,647	981,235
Grand Totals	**409,551,934**	**315,698,449**	**462,335,980**	**556,416,397**	**575,805,115**	**429,387,594**	**485,670,691**	**350,472,611**

(a) Included in blister and black.

THE
Riverside Metal Company
Riverside
NEW JERSEY

New York Office
15 Maiden Lane

Chicago Office
29 E. Madison St.

NICKEL SILVER
PHOSPHOR BRONZE
BRASS

Rod - Wire - Sheet - Plate

Platers Metal - Shot Copper

Guinea Gold Alloy

SPECIAL ALLOYS FOR SPECIAL PURPOSES

"RIVERSIDE QUALITY"

EXPORTS OF COPPER.

From the United States, exclusive of shipments to Canada (see footnote) and Mexico; compiled by the New York Metal Exchange from Custom House Returns; in tons of 2,240 lbs.

	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.	1921.
Jan.	29,357	31,229	25,026	36,018	26,193	23,663	51,322	40,529	35,343	21,804	24,068
Feb.	19,492	31,894	26,792	34,634	15,583	20,648	32,265	28,162	17,937	25,700	27,748
Mar.	23,600	27,074	42,428	46,504	30,148	26,321	51,218	31,188	12,036	39,236	17,151
Apr.	27,466	22,591	33,274	35,079	18,738	21,654	49,536	23,811	10,272	28,644	18,397
May	27,670	32,984	38,601	32,077	28,889	16,062	49,245	30,793	10,489	37,090	15,736
June	30,489	26,669	28,015	35,182	16,976	39,595	41,177	31,049	13,183	25,581	22,339
July	36,659	26,761	29,596	34,145	17,708	35,066	24,363	30,147	21,525	20,430	22,774
Aug.	29,018	29,526	35,072	16,509	17,551	32,190	42,735	21,084	23,530	20,121	19,110
Sept.	26,170	25,572	34,356	19,402	14,877	29,803	29,509	33,545	29,093	10,751	28,343
Oct.	22,555	25,020	29,239	23,514	24,087	33,224	41,412	15,152	21,793	10,073	22,934
Nov.	26,600	19,171	29,758	24,999	23,168	22,598	34,044	20,408	14,470	16,954	32,407
Dec.	37,725	29,474	30,653	22,166	42,426	26,486	41,430	22,976	17,498	18,304	27,394
Tot.	336,801	327,965	382,810	360,229	276,344	327,310	493,256	328,844	227,169	274,688	278,401

Note. — Commencing January, 1917, exports to Canada are included.

Classified statistics of exports are given on page 263.

BRASS

Bronze

Nickel Silver

Gilding

In Either

Sheets or Rolls

WESTERN
CARTRIDGE CO.

EAST ALTON ILLINOIS

EXPORTS OF COPPER.

From the United States according to the Department of Commerce; copper contents in pounds:

	1913.	1916.	1917.	1918.	1919.	1920.	1921.
Ore and matte (a) ..	147,132,160	5,784,768	5,790,510	3,259,839	668,667	440,906	360,120
Refined ingots, bars, etc.							
United Kingdom ..	133,679,641	173,003,875	372,766,738	251,805,814	105,619,710	99,479,801	62,334,868
Belgium	7,102,120	.....	.....	.....	.....	28,090,450	26,619,837
France	160,000,345	318,136,643	366,231,608	265,270,793	89,188,652	118,489,043	98,731,640
Germany	307,150,761	.....	.....	.....	6,831,400	89,194,588	233,072,479
Italy	41,568,713	98,249,149	151,820,647	121,907,864	65,343,538	918,802	16,369,962
Netherlands	178,940,289	.....	.....	.....	.....	34,228,046	28,646,940
Russia (Europe) ..	7,907,672	45,341,690	71,658,907	.....	.....	.....	.....
Austria-Hungary ..	34,648,205	.....	.....	.....	.....	.....	.....
Canada	36,182,257	41,900,063	49,871,919	33,087,082	19,781,227	29,697,098	7,198,649
Other countries	19,261,139	39,985,343	17,284,124	17,956,400	151,396,291	151,128,965	123,142,872
Total refined	**926,411,142**	**716,616,763**	**1,029,633,943**	**690,027,953**	**438,160,818**	**551,226,793**	**596,117,247**
Blister and black (c)		18,263,118	17,215,445	14,687,823	1,674,411	1,843,293	150,313
Alloys (b)		.....	1,230,910	186,260	364,089	454,306	28,916
Old and scrap (c) ..	.....	815,825	1,183,109	257,403	449,804	577,319	585,111
Pipes and tubes (b)		.....	7,273,480	4,109,226	5,993,959	4,899,223	2,250,561
Plates and sheets (c)		24,843,435	42,664,943	19,471,584	13,764,425	22,799,148	5,105,916
Wire not insulated (c)		23,467,345	26,880,587	15,689,554	55,579,125	41,812,713	11,437,832
Grand total	.....	**789,791,254**	**1,131,872,927**	**747,689,642**	**516,655,298**	**624,053,701**	**616,036,016**
Total value (d)	**$144,909,117**	**$230,676,765**	**$355,065,672**	**$200,337,223**	**$121,846,326**	**$133,429,272**	**$ 89,279,924**

(a) Gross weight, copper contents not stated. (d) Including all other manufactures of; except ore.
(b) Included in "Refined ingots, bars etc." until July 1, 1917.
(c) Included in "Refined ingots, bars, etc.," until January 1, 1916.

Brass

BRONZE GILDING

BRAZED TUBING

NICKEL SILVER

Fabricated in

ALL SHAPES

SHEET - WIRE - RODS

QUALITY *SERVICE*

BRISTOL BRASS CORP.

BRISTOL, CONNECTICUT

ORGANIZED 1850

GRADES OF COPPER.

Lake.—Copper from the native copper mines of the Lake Superior district. The standard range of conductivity is 99.5%.

Electrolytic.—Copper refined by the electrolytic process and running 99.93% upwards for cathodes. Conductivity to 103%.

Casting. — Copper analyzing 99 to 99.75% made from ore and scrap. Used for casting purposes.

Best Selected. — British copper averaging 99.75% fine. Largely used in the British brass trades.

Tough. — British copper largely used for casting, rolling and drawing. Runs about 99.25%.

Chili Bars.—Copper smelted in Chili, running 95 to 99% pure and in some cases carrying bullion.

Standard. — Practically anything running from 96% upwards, dealt in on London Metal Exchange.

Matte. — A semi-metallic compound made from ores and usually running from 25 to 55% copper. An intermediate product between the ore and the finished copper.

DESCRIPTIONS OF COPPER.

Wire Bars.—About 3″ to 4″ square and 3′ to 7′ long. Varying in weight 135 to 500 lbs. Used for wire drawing.

Ingots.—Average weight about 18 to 22 lbs. Notched. Used for casting.

Ingot Bars. — Notched bars for casting. Weight from 55 to 110 lbs.

Cakes.—Weight 100 lbs. and upward. Used for rolling.

Anodes.—About 2′ by 3′, 1½″ thick, weighing 250 lbs. Crude copper. Used by electrolytic refiners.

Cathodes.—About 2′ by 3′ but thicker at the top than the bottom. Refined copper from the electrolytic tanks which is run down to wire bars, etc.

Seymour Products

NICKEL (or German) SILVER

Wide Sheets, Polished and Patent Levelled
SAND CASTINGS

PHOSPHOR BRONZE

SILVORE

CUPRO NICKEL

Brass, Bronze, etc.
Ingots, Sheets, Wire, Rods,
Tubes, Blanks and Shells.

Cast Nickel Anodes
Rolled Pure Nickel Anodes

The Seymour Mfg. Co.

SEYMOUR, CONN.

Tel. Seymour 115 Cable Address: Seymourco

BRANDS OF COPPER.

LAKE	Refined at	
Ahmeek	Dollar Bay, Mich.	T. O.
Allouez	Hubbell, Mich.	T. O.
Calumet & Hecla	Hubbell, Mich.	C. & H. M. Co. C. L. T. O.
Lake Superior Smelting Co.	Dollar Bay, Mich.	S. R.
Copper Range	Houghton, Mich.	C. R.
Franklin	Hancock, Mich.	F. M. Co.
La Salle	Hubbell, Mich.	S. R.
Mass.	Hancock, Mich.	Mass.
Michigan	Houghton, Mich.	M. C.
Mohawk	Houghton, Mich.	M. M.
Osceola	Dollar Bay, Mich.	T. O.
Quincy	Hancock, Mich.	Q. M. Co
Superior	Hubbell, Mich.	S. R.
Victoria	Hubbell, Mich.	V. C.
White Pine	Hubbell, Mich.	S. R.
Winona	Hubbell, Mich.	W. A.
Wolverine	Houghton, Mich.	W.
ELECTROLYTIC		
American Smelting & Refining Co.	Perth Amboy, N. J.	P. A.
American Smelters Securities Co.	Tacoma, Wash.	Tacoma
Anaconda Copper Co.	Great Falls, Mont.	B. M.
Arizona Copper Co.	Clifton, Ariz.	A. C. C.
Balbach Smelting & Refining Co.	Newark, N. J.	Bb.
Baltimore Copper Smelting & Refining Co.	Baltimore, Md.	B. E. R.
Boston & Montana Co.	Great Falls, Mont.	B. & M.

(Continued on succeeding page.)

COPPER

In Every Variety of

SHEETS - PLATES - ROLLS

EAVES TROUGH
CONDUCTOR PIPE

IMMEDIATE
SHIPMENTS
ASSURED

THE

NATIONAL

BRASS AND COPPER COMPANY

Main Office and Mills

LISBON, OHIO

Sales Offices

30 CHURCH ST., NEW YORK

BRANDS OF COPPER.

ELECTROLYTIC (Ctd.)	Refined at	
Chile Copper Co.	Chuquicamata, Chile	C. C. C.
Denn Arizona Copper Co.	Laurel Hill, L. I.	A. L. S.
East Butte Copper Mining Co.	Butte, Mont.	Pittsmont
Granby Consolidated Mining & Smelting Co.	Grand Forks, B. C.	L. N. S.
Lake Superior Smelting Co.	Dollar Bay, Mich.	T. O.
La Salle	Hubbell, Mich.	S. R.
Miami Copper Co.	Perth Amboy, N. J.	N. E. C.
Missouri Cobalt Co.	Fredericktown, Mo.	M. C. Co.
Nichols Copper Co.	Laurel Hill, L. I.	Triangle; L. N. S.
Orford Copper Co.	Chrome, N. J.	O. E. C.
Phelps, Dodge Corporation	Laurel Hill, L. I.	C. * Q.
Raritan Copper Works	Perth Amboy, N. J.	N. E. C.
		A. B. S.
Shattuck, Arizona Copper Co.	Laurel Hill, L. I.	A. L. S.
Superior	Hubbell, Mich.	S. R.
U. S. Metals Refining Co.	Chrome, N. J.	D. R. W.
White Pine, Superior, La Salle	Hubbell, Mich.	S. R.
CASTING.		
Balbach Smelting & Refining Co.	Newark, N. J.	N. B. C.
Baltimore Copper Smelting & Refining Co.	Baltimore, Md.	B. C. W.
Boston & Montana Co.	Great Falls, Mont.	M. A.
Chicago Copper Refining Co.	Blue Island, Ill.	C. C. R.
Duquesne Reduction Co.	Pittsburgh, Pa.	D. R. C.
Nichols Copper Co.	Laurel Hill, L. I.	C. N. C.
Phelps, Dodge Corporation	Laurel Hill, L. I.	P. D. Co.
Tottenville Copper Co.	Tottenville, N. Y.	C. T. C.
U. S. Metals Refining Co.	Chrome, N. J.	D. S.
White & Bros., Inc.	Philadelphia, Pa.	C. C.

MICHIGAN SMELTING & REFINING COMPANY

DETROIT, MICH.

Manufacturers of

RED AND YELLOW BRASS AND BRONZE INGOTS, BILLETS AND SLABS

BABBITT, METALS, SOLDERS
STANDARD RAILWAY BRASSES

LEAD PIPE, TIN PIPE

BRAZING SPELTER AND SPECIAL ALLOYS

COMPLETE DIE CASTING DEPARTMENT

Dealers in

ALL NON-FERROUS METALS

Purchasers and Refiners of

BRASS ASHES, SKIMMINGS

and all copper bearing materials

STANDARD SPECIFICATIONS FOR ELECTROLYTIC COPPER

The specifications for electrolytic copper wire bars, cakes, slabs, billets, ingots and ingot bars as adopted by the American Society for Testing Materials in 1911 and revised in 1913 (Serial Designation: B 5-13) provide:

1. All wire bars, cakes, slabs, and billets shall be stamped with the maker's brand and furnace charge mark. Ingots and ingot bars shall have a brand stamped or cast in, but need have no furnace charge mark.

2. The refiner shall arrange carloads or lots so that as far as possible each shall contain pieces from but one furnace charge in order to facilitate testing by the user.

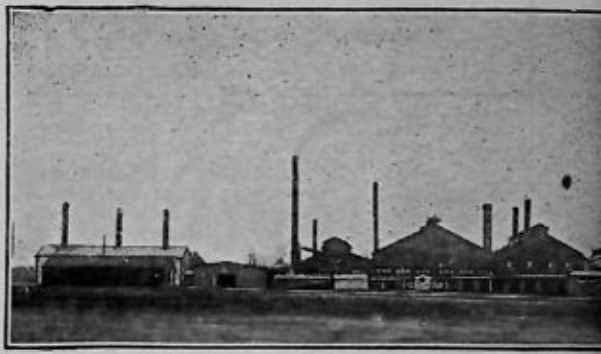
3. (a) Metal Content—The copper in all shapes shall have a purity of at least 99.88 per cent., as determined by electrolytic assay, silver being counted as copper.

(b) Resistivity—All wire bars shall have a resistivity not to exceed 0.15535 international ohms per meter-gram at 20° C. (annealed); all ingots and ingot bars shall have a resistivity not to exceed 0.15694 international ohms per meter-gram at 20° C. (annealed).

Cakes, slabs, and billets shall come under the ingot classification, except when specified for electrical use at time of purchase, in which case wire-bar classification shall apply.

4. Wire bars, cakes, slabs and billets shall be substantially free from shrink holes, cold sets, pits, sloppy edges, concave tops, and similar defects in set or casting. This clause shall not apply to ingot or ingot bars, in which case physical defects are of no consequence.

5. Five per cent. variation in weight or ¼-inch variation in any dimension from the refiner's published list or purchaser's specified size shall be considered good delivery; provided, however, that wire bars may vary in length 1 per cent. from the listed or specified length, and cakes 3 per cent. from the listed or specified size in any dimension greater than 8 inches. The weight of ingot and ingot-bar copper shall not exceed that specified by more than 10 per cent., but otherwise its variation is not important.



TOTTENVILLE C

Cable address: "TOTTENCOP NEW YORK" TOTTEN

Prime C.T.C. Ingot Casting Copper 99½% Pure

C.T.C.
TOTTENVIL
OFFICE & WORKS
COPPER

Producers of Grade A, Intermediate and Brass Mill Spelter

Manganese Bronze Ingot

Tensile Strength 70,000 lbs. per sq. inch. Elasticity 35,000 lbs. per sq. inch. Elongation 20% in a test bar of two inches.

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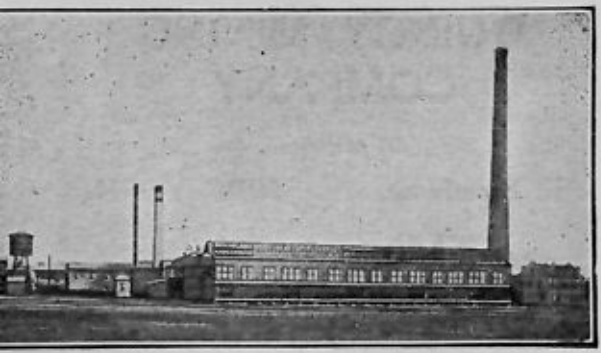

PER REFINERIES

E, N. Y. Telephone: 929 TOTTENVILLE

PPER CO. Inc.
TNVILLE, N.Y.

Journal Bearing Ingot Metals, Valve Metals, Government Bronze, Acid Resisting Bronze, Yellow Brass.

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White Metal Products

Solder, Babbitt, Terne Metal, Type Metal, Britannia Metal, Casket Hardware Metal.

QUINCY MINING COMPANY

Of Michigan.

52 Broadway, NEW YORK.

Mining and Refining

Highest Grade Lake Superior Copper

Mine and Smelter
HANCOCK, MICH.

Adolph Lewisohn & Sons

61 Broadway, New York

High Grade Electrolytic Copper

AGENTS FOR

The Miami Copper Co.

Seneca Copper Corporation

Tennessee Copper Co.

COPPER PRICES IN NEW YORK.

Yearly high, low and average prices of Lake Copper in New York from 1850 to 1891 inclusive.

Year.	High.	Low.	Average.
1860	24.00	19.75	22.87½
1861	27.00	17.50	22.25
1862	32.87½	20.75	21.87½
1863	38.75	29.00	33.87½
1864 **Highest** ..	**55.00**	39.00	47.00
1865	50.50	28.00	39.25
1866	42.00	26.50	34.25
1867	29.25	21.50	25.37½
1868	24.50	21.50	23.00
1869	27.00	21.50	24.25
1870	23.37½	19.00	21.19
1871	27.00	21.25	24.12½
1872	44.00	27.12½	35.56
1873	35.00	21.00	28.00
1874	25.00	19.00	22.00
1875	23.87½	21.50	22.69
1876	23.25	18.75	21.00
1877	20.50	17.50	19.00
1878	17.62½	15.50	16.56
1879	21.75	15.50	18.62½
1880	25.00	17.87½	21.50
1881	20.37½	16.00	18.25
1882	20.37½	17.87½	18.50
1883	18.12½	14.87½	15.87½
1884	15.00	11.00	13.75
1885	11.50	9.75	11.10
1886	12.12½	10.00	11.00
1887	17.75	9.12½	11.25
1888	17.50	15.75	16.80
1889	17.50	11.00	13.75
1890	17.25	14.00	15.75
1891	15.00	10.25	12.87½

MOHAWK MINING COMPANY
of Michigan

WOLVERINE COPPER MINING COMPANY
of Michigan

MICHIGAN COPPER MINING COMPANY
of Michigan

LAKE COPPER

"M M" **"W"** **"M C"**

L. P. YANDELL, Pres.
15 William St., New York

SALES AGENT FOR ABOVE COMPANIES

COPPER PRICES IN NEW YORK.

Yearly high, low and average prices of Lake Copper in New York.

Year.	High.	Low.	Average.
1892	12.37½	10.50	11.50
1893	12.50	9.62½	10.65
1894 Lowest ...	10.25	9.00	9.43
1895	12.75	9.25	10.70
1896	11.75	9.75	10.92½
1897	12.00	10.75	11.30
1898	12.87½	10.87½	12.01
1899	19.50	13.00	17.75
1900	17.25	16.00	16.70
1901	17.00	13.00	16.77
1902	13.50	11.00	12.14
1903	15.37½	12.00	13.72
1904	15.37½	12.00	13.24
1905	20.00	14.87½	16.09
1906	25.00	18.37½	19.87
1907	26.25	12.50	21.30
1908	14.62½	12.62½	13.50
1909	14.62½	12.75	13.39
1910	14.00	12.50	13.12
1911	14.37½	12.20	12.71
1912	17.80	14.15	16.58
1913	17.75	14.50	15.70
1914	15.50	11.30	13 61
1915	23.00	13.00	17.64
1916	35.00	23.00	28.17
1917	36.00	23.50	29.18
1918	26.00	23.00	24.68
1919	24.00	15.25	19.49
1920	20.50	13.75	18.01
1921	14.00	12.00	12.98
Average price for 30 years			15.76

Note: Government prices: 23.50c, effective from Sept. 21, 1917; 26.00c effective from July 2, 1918.

CALUMET & HECLA MINING COMPANY

of Michigan

LAKE COPPER

BRANDS

C&H · TO · SR · CL

COPPER OXIDE

SALES AGENTS:

Calumet & Hecla Company, Inc.

25 BROADWAY, NEW YORK

LAKE COPPER PRICES.

Monthly average prices of Lake Copper in New York.

	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.	1921.
Jan. ..	14.40	13.93	12.75	14.37	16.89	14.76	13.89	24.10	29.83	23.50	21.75	19.76	13.53½
Feb. ..	13.56	13.76	12.73	14.38	15.37	14.98	14.72	27.44	34.04	23.50	17.87	19.09	13.33½
Mar. ..	12.94	13.71	12.56	14.87	14.96	14.72	15.11	27.42	35.33	23.50	15.48	18.87	12.58½
April .	12.99	13.31	12.41	15.98	15.55	14.68	17.43	28.91	32.46	23.50	15.73	19.05	12.89
May ..	13.28	12.98	12.32	16.27	15.73	14.44	18.81	29.28	31.90	23.50	16.30	18.85	13.12
June ..	13.54	12.83	12.63	17.43	15.08	14.15	19.92	27.44	31.35	23.50	17.93	18.55	13.04½
July ..	13.44	12.62	12.72	17.37	14.77	13.73	19.42	25.81	29.78	25.89	22.08	18.83	12.75
Aug. ..	13.45	12.78	12.70	17.61	15.79	12.68	17.47	26.58	28.75	26.00	22.96	18.72	12.11½
Sept. .	13.07	12.72	12.57	17.69	16.72	12.43	17.76	27.86	26.19	26.00	22.48	18.53	12.23
Oct. ..	13.00	12.90	12.47	17.69	16.81	11.66	17.92	28.37	23.50	26.00	21.94	16.87	13.01
Nov. ..	13.39	13.00	12.84	17.66	15.90	11.93	18.86	31.71	23.50	26.00	20.49	14.97	13.30
Dec. ..	13.66	12.92	13.79	17.62	14.82	13.16	20.37	33.07	23.50	25.28	18.88	14.01	13.80
Av. ..	13.39	13.12	12.71	16.58	15.70	13.61	17.64	28.17	29.18	24.68	19.49	18.01	12.98

PHELPS DODGE CORPORATION

99 JOHN STREET
NEW YORK

—

COPPER

—

BRANDS

"C★Q" ELECTROLYTIC
"P. D. Co." CASTING

ELECTROLYTIC COPPER PRICES.

Extreme price fluctuations of Electrolytic copper in New York, by months and years.

	1920			1921		
	High.	Low.	Av.	High.	Low.	Av.
Jan.	19.50	18.50	19.02	13.25	12.50	12.85
Feb.	19.00	18.50	18.61	13.25	12.25	12.79
Mar.	19.00	18.00	18.36	12.87½	12.00	12.23
Apr.	19.00	18.37½	18.54	12.87½	12.37½	12.54
May	18.50	18.00	18.28	13.12½	12.50	12.83
June	18.12½	17.75	17.97	13.12½	12.50	12.76
July	19.00	18.12½	18.61	12.62½	11.75	12.35
Aug.	18.62½	18.25	18.44	12.00	11.50	11.76
Sept.	18.25	17.87½	18.04	12.25	11.87½	12.10½
Oct.	18.00	14.75	16.30	13.00	12.37½	12.75
Nov.	15.00	13.37½	14.39	13.50	12.87½	13.16
Dec.	13.75	12.75	13.48	13.75	13.50	13.67

	High.	Low.	Average.
1902	13.37½	11.00	11.96½
1903	15.25	11.75	13.62
1904	15.25	12.00	13.11
1905	20.00	14.87½	15.98
1906	25.00	18.37½	19.77½
1907	26.00	12.25	20.86
1908	14.50	12.37½	13.39
1909	14.37½	12.25	13.11
1910	13.80	12.20	12.88
1911	14.25	12.00	12.55
1912	17.75	13.95	16.48
1913	17.60	14.12½	15.52
1914	14.87½	11.10	13.31½
1915	23.00	12.80	17.47
1916	36.00	23.00	28.46
1917	37.00	23.50	29.19
1918	26.00	23.00	24.68
1919	23.50	14.75	18.00½
1920	19.50	12.75	17.50
1921	13.75	11.50	12.65
Average price for 20 years			17.02½

Standard Underground Cable Company

Manufacturers of

Copper, Brass and Bronze Wire
Copper, Brass and Bronze Rods
Copper and Brass Tubes
Colonial Copper Clad Steel Wire
TRADE C.C.C. MARK
Magnet and Weatherproof Wire
Rubber Insulated Wire
Varnished Cambric Insulate Cables
Fibre Insulated, Leaded Cables
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Rubber Insulated Cables
Armored Cables of all kinds
Outdoor and Indoor Cable Terminals
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Ozite Insulating Compounds
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Branch Offices:

Boston	Detroit
New York	Seattle
Philadelphia	San Francisco
Atlanta	Los Angeles
Pittsburgh	Washington
St. Louis	Minneapolis
Chicago	Kansas City

For Canada Standard Underground Cable Co. of Canada, Limited, Hamilton, Ont.

ELECTROLYTIC COPPER PRICES.

Monthly average prices of Electrolytic Copper in New York.

	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.	1921.
Jan. ..	14.08	13.68	12.53	14.27	16.75	14.45	13.71	24.10	30.26	23.50	20.05	19.02	12.85
Feb. ..	13.21	13.51	12.48	14.26	15.27	14.67	14.57	27.46	35.22	23.50	16.91	18.61	12.79
Mar. ..	12.58	13.42	12.31	14.78	14.92	14.33	14.96	27.44	35.74	23.50	15.01	18.36	12.23
April...	12.67	12.93	12.15	15.85	15.48	14.34	17.09	29.31	32.19	23.50	15.40	18.54	12.54
May ..	13.02	12.67	12.13	16.16	15.63	14.13	18.60	29.81	32.32	23.50	16.00	18.28	12.83
June ..	13.26	12.59	12.55	17.29	14.85	13.81	19.71	27.49	32.57	23.50	17.65	17.97	12.76
July ..	12.97	12.36	12.62	17.35	14.57	13.49	19.08	25.60	28.90	25.89	21.71	18.61	12.35
Aug. ..	13.06	12.56	12.57	17.60	15.68	12.41	17.22	27.36	27.13	26.00	22.22	18.44	11.76
Sept. .	12.93	12.49	12.39	17.67	16.55	12.08	17.70	28.26	25.45	26.00	21.95	18.04	12.10½
Oct. ..	12.81	12.77	12.36	17.60	16.54	11.40	17.86	28.64	23.50	26.00	21.50	16.30	12.75
Nov. ..	13.24	12.87	12.77	17.49	15.47	11.74	18.83	32.22	23.50	26.00	19.96	14.39	13.16
Dec. ..	13.48	12.72	13.71	17.50	14.47	12.93	20.35	33.84	23.50	25.28	18.48	13.48	13.67
Av. ..	13.11	12.88	12.55	16.48	15.52	13.32	17.47	28.46	29.19	24.68	18.90	17.50	12.65

BALBACH SMELTING & REFINING COMPANY

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Purchase and Sales Depts.
280 Broadway, N. Y.

General:
580 Market St., Newark, N. J.

PLANTS:
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Market and Polk Sts.
Newark, N. J.

SMELTERS AND REFINERS

Bullion, Ores, Residues and Scrap containing:

Gold - Silver - Platinum - Copper
Lead - Tin - Antimony

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Copper - Copper Sulphate
Lead (Desilverized)
Lead (Antimony) - Brass Ingots
Babbitts

Inquiries solicited on standard or special metallurgical operations

BUSINESS ESTABLISHED 1852

CASTING COPPER PRICES.

Monthly average prices of Casting Copper in New York.

	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.	1921.
Jan. ..	13·94	13·60	12·39	14·02	16·57	14·27	13·52	23·06	28·04	23·50	18·48	18·81	12·61
Feb. ..	12·94	13·41	12·33	14·02	15·14	14·48	14·17	26·03	31·73	23·50	16·45	18·21	12·45
Mar. ..	12·49	13·31	12·20	14·53	14·76	14·18	14·34	25·90	32·18	23·50	14·82	18·11	11·83
Apr. ..	12·55	12·87	12·07	15·72	15·33	14·18	16·48	27·16	29·24	23·50	15·06	18·40	11·81½
May ..	12·87	12·62	12·08	16·01	15·45	14·00	17·41	27·37	30·11	23·50	15·49	18·16	12·24
June .	13·22	12·52	12·40	17·08	14·72	13·65	18·74	25·10	30·36	23·50	17·17	17·65	12·08
July ..	12·96	12·30	12·49	17·09	14·40	13·34	17·76	23·61	27·59	25·89	21·10	18·12	11·68½
Aug. ..	13·01	12·48	12·42	17·35	15·50	12·27	16·46	24·67	26·58	26·00	21·71	18·00	11·43½
Sept...	12·90	12·46	12·23	17·51	16·57	12·00	16·75	25·93	25·37	26·00	21·28	17·76	11·75
Oct. ..	12·77	12·70	12·21	17·44	16·33	11·29	17·32	27·17	23·50	26·00	20·66	16·01	12·43
Nov. ..	13·16	12·82	12·61	17·34	15·19	11·63	18·41	30·37	23·50	26·00	19·37	14·12	12·53
Dec. ..	13·41	12·64	13·56	17·34	14·22	12·83	19·73	31·74	23·50	25·28	18·21	13·12	12·97
Av. ..	13·02	12·81	12·42	16·29	15·33	13·18	16·76	26·51	27·64	24·68	18·32	17·21	12·15

Brass
Bronze
Nickel Silver

Sheets Cups Wire
Rods Plates Circles

Scovill Special Spring Bronze
Extruded Rods
Brass Castings and Forgings
Special Stampings
Seamless Brass and Copper Tubing

and a wide range of special products from sheet metal, wire, and rods, made to order in quantities.

We have had more than a century of experience in determining the proper compositions for an almost infinite variety of uses. This experience is at your disposal if you need advice. And your specifications will be followed out—exactly.

SCOVILL MANUFACTURING CO.
ESTABLISHED 1802
WATERBURY, CONNECTICUT

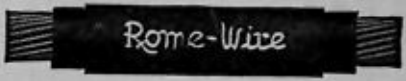
New York Boston Chicago
Rochester Philadelphia Detroit
Cleveland

21

WATERBURY COPPER AVERAGES.

	1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.	*1918.	1919.	1920.	1921.
Jan. .	13.87½	12.87½	14.50	17.00	14.75	14.12½	24.75	32.25	23.50	23.00	19.25	13.75
Feb. .	13.87½	12.75	14.50	15.50	15.12½	15.25	27.75	35.25	23.50	18.00	19.12½	13.50
Mar. .	13.75	12.50	15.00	15.12½	15.00	15.75	28.00	35.50	23.50	15.50	18.87½	12.62½
Apr. .	13.25	12.50	16.00	15.75	14.87½	18.50	29.00	32.75	23.50	15.50	19.12½	12.75
May .	13.00	12.37½	16.37½	15.87½	14.75	22.50	29.87½	32.00	23.50	16.37½	19.00	13.12½
June .	12.75	12.62½	17.50	15.37½	14.37½	22.50	28.25	32.50	23.50	17.75	18.50	13.12½
July .	12.75	12.75	17.75	14.75	14.12½	22.25	27.25	30.87½	26.00	22.00	19.00	12.87½
Aug. .	12.75	12.75	17.75	15.62½	13.00	19.50	27.00	29.00	26.00	23.00	18.75	12.25
Sept. .	12.75	12.62½	17.87½	16.87½	12.87½	18.50	28.00	27.25	26.00	22.50	18.75	12.37½
Oct. .	12.87½	12.50	17.75	16.87½	12.25	18.25	28.87½	27.00	26.00	22.25	16.87½	13.12½
Nov. .	13.00	12.87½	17.75	16.25	12.25	19.37½	33.25	*23.50	26.00	21.00	15.25	13.37½
Dec. .	13.00	13.87½	17.75	15.00	13.50	20.75	34.25	*23.50	26.00	18.75	14.25	13.87½
Av....	13.13½	12.75	16.71	15.83	13.91	18.94	28.85½	30.11½	24.75	19.63½	18.06	13.06

*F.o.b. New York; all other prices f.o.b. Eastern mills.



"Rome Wire" Products

HOT ROLLED COPPER RODS
BARE COPPER WIRE

Round, square and rectangular, plain and tinned.
Polished Copper piano covering wire.

COPPER TROLLEY WIRE
MAGNET WIRE

Round cotton covered, silk covered, enamel covered, enamel and cotton covered, enamel and silk covered.
Square and rectangular cotton covered.

RUBBER COVERED WIRES

National Electrical Code Standard Wire
Fixture Wires
Lead Covered Cables
Flexible Cords
Deck Cable
Brewery Cord
Heater Cords
Telephone Wires
Bridle Wires
Jumper Wires
Gathering Locomotive Cable
Mining Machine Cable

WEATHERPROOF WIRE
AUTOMOBILE WIRES

Rome Wire Company
Rome, New York

BUFFALO, NEW YORK

COPPER WIRE PRICES.

Base prices of Copper Wire prevailing on the first of each month from January 1, 1909 to and including December 1, 1921.

	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.	1921.
Jan.	15.75	15.25	14.25	15.25	18.50	16.00	14.50	23.50	36.75	26.25	22.75	22.00	16.25
Feb.	15.75	15.00	13.50	15.50	17.50	16.00	15.75	27.25	36.75	26.25	21.75	23.00	15.75
Mar.	14.25	15.00	13.50	15.50	16.00	15.75	15.75	29.25	36.75	26.25	18.25	23.00	15.50
Apr.	14.25	14.75	13.75	16.50	16.00	15.50	16.75	28.50	36.75	26.25	17.00	23.00	15.00
May	14.25	14.25	13.75	17.00	16.75	15.50	20.00	31.50	34.75	26.25	17.25	23.00	15.00
June	14.75	14.25	13.75	17.75	16.75	15.25	20.00	32.50	32.75	26.25	18.50	23.00	15.75
July	15.00	14.00	14.00	18.75	16.00	14.50	21.00	32.50	33.75	28.25	21.00	23.00	15.25
Aug.	15.00	14.00	14.00	18.75	16.00	14.50	20.00	30.50	31.75	29.00	26.75	23.00	14.25
Sept.	15.00	14.00	13.75	18.75	16.75	13.50	19.00	30.75	29.75	29.00	26.75	23.00	13.75
Oct.	14.50	14.00	13.50	18.75	17.75	13.00	19.00	31.75	29.75	29.00	26.75	23.00	14.00
Nov.	14.50	14.00	13.50	18.75	17.75	12.50	19.00	31.75	28.75	29.00	25.75	22.00	15.00
Dec.	15.25	14.25	14.50	18.50	16.00	14.00	21.00	35.75	27.75	29.00	21.75	17.00	15.50

THE AMERICAN BRASS COMPANY

Waterbury, Conn., U. S. A.

COPPER and BRASS PRODUCTS

Sheets, Rolls, Plates, Wire, Rods, Seamless and Brazed Tubing, Mouldings, Angles and Channels, Circles, Blanks and Shells, in Brass, Copper and Nickel-silver.

TOBIN BRONZE, EXTRUDED METAL
BENEDICT NICKEL, WHITE METAL
BARE AND INSULATED
COPPER WIRE AND CABLE

MILLS:

Ansonia Branch
Ansonia, Conn.

Buffalo Branch
Buffalo, N. Y.

Kenosha Branch
Kenosha, Wis.

Torrington Branch
Torrington, Conn.

Waterbury Branch
Waterbury, Conn.

HIGH SHEET BRASS PRICES.

Base prices of High Sheet Brass prevailing on the first of each month from January 1, 1910 to and including December 1, 1921.

	1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.	1921.
Jan.	14.00	13.50	14.37½	17.12½	14.75	13.75	28.25	38.50	26.75	24.75	24.25	19.25
Feb.	14.00	13.00	14.75	16.25	14.75	15.50	32.25	38.50	26.75	23.75	25.25	18.75
Mar.	14.00	13.00	14.50	15.12½	14.50	16.00	34.25	38.50	26.75	19.25	25.25	17.75
Apr.	14.00	13.00	15.50	15.12½	14.25	17.12½	34.75	36.50	26.75	18.75	25.25	17.25
May	13.25	13.00	15.75	15.37½	14.25	20.50	35.75	35.25	26.75	18.75	25.25	17.25
June	13.25	12.75	16.25	15.37½	14.25	*24.25	*36.75	33.25	26.75	19.75	25.25	16.25
July	13.00	13.12½	16.25	14.75	13.87½	*25.37½	*36.75	33.25	28.25	22.75	25.25	16.25
Aug.	13.00	13.12½	17.00	14.75	13.50	*26.25	*36.75	33.25	28.75	27.75	25.25	15.75
Sept.	13.00	13.12½	17.00	15.37½	13.12½	*26.25	*36.75	31.25	28.75	27.75	25.25	15.25
Oct.	13.00	13.12½	17.37½	16.00	12.75	*26.25	*36.75	31.25	29.25	27.75	25.25	15.25
Nov.	13.00	13.12½	17.37½	16.00	12.25	*26.25	*36.75	30.25	30.00	26.75	22.25	16.25
Dec.	13.25	13.62½	17.37½	14.75	13.25	*26.25	38.50	28.75	30.00	24.25	20.25	16.75

* Market nominal.

BALTIMORE TUBE COMPANY

INCORPORATED

SEAMLESS TUBES
SHEETS
ROLLS
RODS
BARS
DRAWN SHAPES

IN

COPPER
BRASS
BRONZE

Works and Executive Offices:
BALTIMORE, MD.

Branches and Agencies:

New York
Philadelphia
Boston
Pittsburgh
Cleveland
Detroit
Chicago
Denver
San Francisco
Seattle
Portland
Los Angeles
New Orleans

EXPORTS OF BRASS.

Exports of brass and brass goods from the United States, according to the returns of the Department of Commerce.

	— Scrap —		— Bars, Plates, Sheets —		Other manufactures of	Total
	Pounds.	Value.	Pounds.	Value.	Value.	Value.
1910	(*)	(*)	(*)	(*)	(*)	$5,103,865
1911	18,818,641†	$1,703,131†	2,303,903†	$314,089†	$2,016,362	7,370,088
1912	28,870,392	3,090,833	6,862,546	1,058,560	5,036,197	9,185,590
1913	21,886,259	2,292,349	6,111,463	933,949	4,719,119	7,945,417
1914	20,639,401	2,100,870	7,115,807	909,153	3,756,888	6,766,911
1915	11,256,672	1,259,638	66,272,110	12,435,906	41,117,771	54,813,315
1916	6,956,212	1,305,050	244,531,706	72,683,626	241,668,081	315,656,757
1917	8,298,989	1,758,384	328,346,666	101,521,426	136,611,299	239,891,109
1918	4,909,820	799,318	30,989,717	9,522,934	19,483,146	29,805,398
1919	1,321,767	176,028	7,770,671	2,310,561	11,426,289	13,912,878
1920	2,060,468	254,189	5,810,733	1,671,608	13,202,854	15,128,651
1921	5,938,002	405,871	2,874,762	741,110	7,123,302	8,270,283

* Not classified. † For the period July to December.

DETROIT
Copper and Brass Rolling Mills

Manufacturers of

Sheet Copper

Plain — Tinned Copper Flats — Polished

Brass - Copper - Bronze

in

Rolls — Sheets — Plates

Rods — Wire

Mouldings — Channels — Angles

Seamless and Brazed Tubing

in

Brass — Copper — Bronze

Yellow or Muntz Metal

in

Sheets — Plates — Bars

Detroit Bronze — **Extruded Shapes**

Bus Bar Copper

Main Office and Mills:

DETROIT, MICHIGAN U. S. A.

Branch Offices and Stores:

111-113 N. Jefferson St.
CHICAGO, ILL.

413 N. 3rd Street
ST. LOUIS, MO.

SHEET COPPER PRICE CHANGES.

Changes in the base price of sheet copper, compiled from manufacturers' records, with the price of Lake copper in New York on the same dates:

		Sheet Copper	Lake Copper
1906—			
High ..		29.00	25.00
Low ...		23.00	18.37½
1907—			
High ..		32.00	26.25
Low ...		20.00	12.50
1908—			
High ..		20.00	14.62½
Low ...		17.00	12.62½
1909—			
High ..		19.00	14.62½
Low ...		16.50	12.75
1910—			
High ..		19.00	14.00
Low ...		16.50	12.50
1911—			
High ..		19.00	14.37½
Low ...		16.00	12.20
1912—			
High ..		23.00	17.80
Low ...		19.00	14.15
1913—			
High ..		23.00	17.75
Low ...		19.75	14.50
1914—			
Jan	1.	20.25	15.37½
Feb.	2.	20.00	15.12½
Mar.	13.	19.75	14.50
May	13.	19.50	14.43¾
"	22.	19.25	14.43¾
June	15.	19.00	14.18¾
July	27.	18.50	13.43¾
Aug.	18.	18.00	12.56¼
Sept.	1.	17.50	12.62½
Oct.	1.	17.00	12.12½
"	22.	16.50	11.50
Nov.	19.	17.00	12.25
"	23.	17.50	12.62½
Dec.	1.	18.00	12.90
"	15.	18.50	13.50
1915—			
Jan.	16.	18.75	13.75
"	21.	19.00	14.12½
"	23.	19.25	14.12½
"	25.	19.50	14.37½
"	29.	19.75	14.62½
Mar.	22.	20.25	15.12½
"	25.	20.50	15.43¾
"	27.	20.75	15.75
April	8.	21.00	16.50
"	13.	21.25	16.62½
"	14.	21.50	16.75
"	17.	22.00	17.00
"	19.	22.50	17.62½
"	22.	23.00	18.00
"	28.	24.00	18.93¾
June	8.	24.50	19.62½
"	9.	25.00	19.87½
July	27.	24.50	18.75
"	30.	24.00	18.75
Aug.	18.	23.00	16.75
Nov.	3.	23.25	18.06¼
"	15.	23.50	18.62½
"	16.	23.75	18.75
"	17.	24.00	18.87½
"	18.	24.25	19.00
"	22.	24.50	19.87½
"	23.	25.00	19.87½
Dec.	22.	25.50	20.50
"	23.	26.00	20.75
"	24.	27.00	21.50
"	30.	27.50	22.37½
1916—			
Jan.	3.	29.00	23.25
"	6.	30.00	23.75
"	18.	30.50	23.87½
"	22.	31.00	24.75
"	29.	32.00	25.25
Feb.	4.	33.00	26.00

Hendricks Brothers

INCORPORATED

Sheet and Bar
Copper

Copper Firebox
Plates and Staybolts
Braziers' Rivets

Copper Rods

IMPORTERS
AND DEALERS IN

Ingot Copper, Block Tin,
Spelter, Lead, Antimony

49 Cliff Street, New York

SHEET COPPER PRICE CHANGES.

Changes in the base price of sheet copper, compiled from manufacturers' records, with the price of Lake copper in New York on the same dates:

		Sheet Copper	Lake Copper
1916—			
Feb.	15.	34.00	28.25
"	22.	35.00	28.25
"	29.	34.00	28.37½
Mar.	10.	33.00	27.25
"	16.	33.50	27.62½
Apr.	3.	34.50	27.62½
"	13.	35.50	29.25
"	26.	36.50	29.75
May	9.	37.50	30.00
Aug.	1.	35.50	25.50
"	19.	36.00	27.00
Sept.	27.	37.00	28.25
Nov.	14.	40.00	31.75
"	20.	41.00	33.75
Dec.	5.	42.00	34.00
1917—			
Apr.	23.	40.00	30.75
May	22.	38.00	32.00
June	18.	39.00	31.50
July	20.	37.00	28.50
Aug.	31.	35.00	27.50
Oct.	27.	34.00	23.50
Nov.	12.	33.00	23.50
Dec.	7.	31.50	23.50
1918—			
June	25.	33.50	23.50
July	3.	34.25	26.00
Sept.	9.	35.25	26.00
1919—			
Jan.	2.	29.00	23.00
Feb.	3.	28.00	19.50
"	11.	27.00	18.00
"	19.	24.50	17.75
Mar.	3.	23.50	16.00
"	10.	22.50	15.50
May	13.	23.00	16.12½
"	14.	23.50	16.12½
"	20.	24.00	17.00

		Sheet Copper	Lake Copper
1919—			
June	5.	24.25	17.25
"	12.	25.50	18.12½
"	26.	27.50	18.75
July	2.	28.50	19.75
"	8.	29.00	20.25
"	10.	29.50	20.62½
"	15.	31.50	22.25
"	18.	32.50	23.25
"	23.	33.50	23.75
Oct.	20.	32.50	22.00
Nov.	12.	31.50	21.25
"	20.	30.00	20.00
Dec.	1.	28.50	18.75
1920—			
Jan.	7.	29.50	20.00
Oct.	11.	28.50	17.75
"	18.	26.50	16.50
"	25.	25.50	15.50
"	30.	24.50	15.50
Nov.	8.	23.50	15.50
Dec.	1.	22.50	14.00
1921—			
Jan.	1.	21.50	13.75
"	10.	21.25	13.75
Feb.	23.	20.75	13.12½
Mar.	8.	20.50	12.62½
Apr.	7.	20.25	12.87½
"	18.	20.75	12.87½
May	24.	21.50	13.25
June	16.	21.25	13.00
July	6.	21.00	12.93¾
"	12.	20.75	12.93¾
"	30.	20.25	12.50
Aug.	8.	20.00	12.00
Sept.	1.	19.50	12.12½
Oct.	4.	20.50	12.62½
Nov.	16.	21.00	13.31¾
Dec.	1.	21.25	13.50

R. M. EASDALE & CO.

Metal Refiners and Merchants

65 - 69 Washington St.,
GLASGOW.

CABLES:-	"Easdale" Glasgow.
CODES:-	A. B. C. Code, 5th edition. Waste Merchants. Bentley's Phrase
BUYERS OF:-	Copper, Spelter, Pig Lead, also all classes of Scrap Metals, Metal Residues, Scrap Yellow Brass, Brass Turnings, Car Boxes, Composition, Old Brass Tubes and Pipes, Solder, White metal, Type metal, Manganese Bronze, etc.
AGENCIES AT:-	London, Liverpool, Birmingham, Newcastle-on-Tyne.

FOREIGN COPPER PRICES.

Extreme yearly price fluctuations of G. M. B. and Standard copper in London:

Year.		High.			Low.		
1882		£71	10s	0d	£63	0s	0d
1883		67	10	0	57	0	0
1884		58	0	0	47	5	0
1885		61	12	6	38	10	0
1886		43	15	0	38	10	0
1887		85	5	0	38	7	6
1888		105	0	0	73	0	0
1889	**Lowest**	80	0	0	35	0	0
1890		61	12	6	46	10	0
1891		56	10	0	44	0	0
1892		48	0	0	43	10	0
1893		46	15	0	40	12	6
1894		43	0	0	37	16	3
1895		47	7	6	38	12	6
1896		50	10	0	40	10	0
1897		51	15	0	47	0	0
1898		57	8	9	49	10	0
1899		79	2	6	58	1	3
1900		78	7	6	70	15	0
1901		72	17	6	47	0	0
1902		57	0	0	45	2	6
1903		67	0	0	52	15	0
1904		68	5	0	55	2	6
1905		80	12	6	64	0	0
1906		108	0	0	76	15	0
1907		110	15	0	55	10	0
1908		65	2	6	56	2	6
1909		64	3	9	54	10	0
1910		61	1	3	52	15	0
1911		64	0	0	53	7	6
1912		80	1	3	60	17	6
1913		77	2	6	61	15	0
1914		66	15	0	49	0	0
1915		87	10	0	57	2	6
1916	**Highest**	153	0	0	84	0	0
1917		140	0	0	110	0	0
1918		122	10	0	100	0	0
1919		117	10	0	73	10	0
1920		122	5	0	70	0	0
1921		75	11	3	65	6	3

Cable Addresses TYSEFERMO

Brass Founders, Metal Merchants and Manufacturers

E. J. Smith & Co.

Head Office: TYSELEY METAL WORKS
BIRMINGHAM, ENGLAND

All Grades of Non-Ferrous Metals, Government War Surplus Our Specialty

New York Office: 342 MADISON AVENUE Phone: Murray Hill 2185-6
LONDON OFFICE: FINSBURY PAVEMENT, BALFOUR HOUSE, E. C. 2

STANDARD COPPER PRICES.

Monthly average prices of prompt Standard (G.M.B) Copper in London.

	1915.			1916.			1917.			1918.			1919.			1920.			1921.		
	£	s	d	£	s	d	£	s	d	£	s	d	£	s	d	£	s	d	£	s	d
Jan. ...	60	17	7	88	2	11	131	16	9	110	0	0	93	9	9	118	4	1	71	1	4
Feb. ...	63	12	6	102	13	1	138	5	9	110	0	0	78	10	3	120	6	2	71	0	9
Mar. ..	66	5	5	106	19	11	137	1	2	110	0	0	76	17	7	109	11	11	67	13	3
April ..	75	3	5	124	4	0	134	1	10	110	0	0	77	7	0	103	2	11	69	9	0
May ..	77	14	3	135	9	11	130	5	0	110	0	0	77	16	8	96	18	1	73	5	11
June ..	82	13	8	112	17	8	130	5	0	110	0	0	83	0	6	88	0	0	71	18	3
July ..	76	1	11	95	0	9	128	13	2	120	9	0	99	14	5	90	5	7	71	4	5
Aug. ...	68	15	1	110	8	3	122	10	5	122	0	0	97	11	4	94	1	1	68	12	8
Sept. ..	69	1	2	114	1	5	117	15	0	122	0	0	100	17	4	96	13	4	68	1	0
Oct. ..	72	13	7	122	10	0	110	5	0	122	0	0	103	11	0	93	10	1	67	8	1
Nov. ..	77	16	10	134	18	2	110	5	0	122	0	0	98	18	9	84	18	7	66	13	6
Dec. ..	80	17	10	145	9	2	110	5	0	116	2	10	103	17	2	75	16	8	66	15	4
Av. ...	72	12	9	116	1	3	125	2	5	115	7	8	90	19	4	97	12	4	69	8	7

ESTABLISHED 1812

RICHARDS & CO., Inc.

METAL MERCHANTS

IMPORTERS OF

TIN AND ANTIMONY

PROPRIETORS
OF THE
FAMOUS
BISON
AND
LLAMA
BRANDS OF
TIN

"BUY BY THE BISON" "LOOK FOR THE LLAMA"

AICO PRODUCTS

200 CAUSEWAY ST.
BOSTON
81 FULTON ST.
NEW YORK

AICO PRODUCTS

WORLD'S PRODUCTION OF TIN.

The figures given below, as issued by the U. S. Geological Survey, are based on official reports and as far as possible are those of mine output, but for some countries, such as Bolivia, China, Siam and Nigeria, the figures represent exports. Where the output is given in the original sources in terms of tin-bearing concentrate—as, for example, it is for the Australian States—it is here given in terms of metal obtainable by smelting. In metric tons of 2,204.6 pounds.

Country—	1913.	1914.	1915.	1916.	1917.	1918.	1919.	†1920.
Federated Malay States	50,930	49,820	47,520	44,570	40,470	37,970	37,460	35,489
British Prot. Malay States	1,800	2,700	4,170	4,450	4,500	4,500	4,000	
Bolivia	26,760	22,360	21,900	21,330	28,320	30,550	30,000	30,016
Banca	15,940	14,630	13,660	15,000	13,940	11,000	11,000	14,218
Billiton and Singkep	5,300	6,090	6,760	7,420	7,740	9,000	9,000	7,620
China	8,390	7,120	8,000	7,630	11,800	8,500	9,000	8,128
Siam	6,660	6,740	8,520	8,960	8,600	8,600	8,000	9,145
Nigeria	2,950	4,590	4,630	5,150	7,070	6,000	6,000	5,334
Australia	8,160	5,520	5,680	5,550	4,970	4,740	4,000	4,274
Cornwall	5,370	5,140	5,060	4,770	4,000	4,000	4,000	2,962
Union of South Africa	2,050	2,000	2,050	1,900	1,540	1,370	1,300	1,555
Other countries	1,400	1,150	1,500	1,700	1,800	2,000	2,000	1,575
Totals	135,710	128,210	129,450	128,430	134,750	128,230	125,760	120,316

† As reported by the Mineral Industry.

DIRECT IMPORTERS

of

STRAITS -- CHINESE -- BANCA
AUSTRALIAN -- ENGLISH
TIN

JAPANESE -- CHINESE
ANTIMONY

TUNGSTEN
CHROME
MANGANESE
} **ORES**

Mitsui & Co., Ltd.

(Mitsui, Bussan, Kaisha, Ltd.)

METAL DEPARTMENT

65 BROADWAY, NEW YORK

Cable Address—Mitsui, New York

TIN SUPPLIES.

World's tin supplies as compiled by N. Y. Metal Exchange; in tons of 2,240 lbs.

Year.	Shipments from Straits Settlements.	Shipments from Australia.	Shipments from Bolivia.	Shipments from So. Africa.	Shipments from China.	Banca Sales in Holland.	Billiton Sales in Java.	Production in Cornwall.	Grand Total.
1921	36,100	1,900	16,600	5,000	6,800	12,500	1,000	760	80,660
1920	45,000	3,300	29,600	5,700	7,200	13,000	2,100	3,000	108,900
1919	49,763	2,900	25,824	5,544	565	14,291	981	3,800	103,668
1918	55,334	3,345	27,183	5,889	8,000c	8,197	2,185	4,100c	114,233
1917	62,366c	1,483d	24,058	6,650	5,748	15,209c	1,304c	4,100	120,918
1916	61,600	2,650	19,400a	6,000	2,800b	17,800	2,500	4,500	117,250
1915	66,500	2,550	23,000	5,500	3,000	14,350	1,900	5,000	121,800
1914	63,000	1,800	18,750	5,000	1,900	9,300	1,250	6,000	107,000
1913	62,500	3,200	24,850	3,200	2,450	14,800	2,200	5,800	119,000
1912	59,000	3,800	21,200	3,100	3,800	16,000	2,200	5,500	114,600
1911	55,100	4,000	22,600	2,900	2,500	15,000	2,200	5,300	109,600
1910	54,600	4,650	17,550	3,000	2,200	13,500	2,200	5,800	103,500
1909	58,500	5,350	18,000	3,000	.....	11,600	2,200	5,600	104,250
1908	60,500	5,850	17,000	1,700	.....	11,500	2,200	5,400	104,150
1907	52,500	6,350	15,300	.....	200	10,890	2,150	4,900	92,290
1906	57,200	5,900	16,380	.....	1,500	8,980	1,900	4,900	96,760

(a) 15,100 tons to Europe; 4,300 tons to U. S. (b) 1,300 tons to Europe; 1,500 tons to U. S.
(c) Partly estimated. (d) Arrivals in the United States.

"Represented Throughout The World"

Cable Address "SENTROX"

SENTER - ROBBINS - FOX
CORPORATION

215 BROADWAY
NEW YORK

FERROUS - NON-FERROUS
METALS AND ALLOYS
MINERALS AND ORES

BRASS, COPPER, STEEL PRODUCTS

SCRAP METALS AND RESIDUES

TIN SHIPMENTS FROM THE STRAITS SETTLEMENTS.

To Europe and the United States; based on Powell's returns through June, 1914, and the figures of the New York Metal Exchange thereafter; in tons of 2,240 pounds.

	1911.	1912.	1913.	1914.	1915.	1916.	1917.	*1918.	1919.	1920.	1921.
Jan.	4,290	4,018	6,050	5,290	5,200	6,095	4,815	4,000	3,340	3,910	1,055
Feb.	4,290	5,260	4,660	6,520	5,584	6,250	6,255	4,000	2,860	4,810	240
Mar.	4,510	5,150	4,810	4,120	4,970	5,170	5,134	6,000	2,254	2,795	915
April	3,140	4,290	4,400	4,930	5,270	4,685	4,393	4,000	1,127	3,872	1,800
May	4,310	5,760	6,160	6,900	6,759	3,965	6,866	5,000	1,704	4,930	3,667
June	5,050	4,290	4,820	5,870	6,665	6,210	4,723	4,000	1,629	4,261	1,425
July	4,660	4,580	4,770	4,975	5,606	5,410	4,410	5,000	7,302	3,865	3,975
Aug.	4,680	5,210	6,030	3,315	4,712	4,526	5,770	4,000	8,829	3,798	3,165
Sept.	5,150	5,430	5,160	4,973	5,296	3,270	*5,000	7,000	5,465	4,529	5,300
Oct.	4,350	4,450	5,020	4,610	4,441	5,868	*5,000	3,000	4,431	3,340	4,525
Nov.	5,070	5,600	5,560	5,155	6,713	5,380	*5,000	5,000	4,135	2,630	4,065
Dec.	5,970	4,980	5,110	6,435	5,301	4,758	*5,000	4,000	6,677	2,225	5,920
Total	55,470	59,018	62,550	63,093	66,517	61,587	62,366	55,000	49,763	44,965	36,052

* Estimated.

S. L. Jones & Co.

44 Beaver Street
NEW YORK

IMPORTERS

—

Chinese Tin

AGENTS

FUNG TANG *HONG KONG*

EXPORTERS

—

Steel Products
Metals

OFFICES:

SAN FRANCISCO KOBE, TOKYO, JAPAN
LOS ANGELES
SEATTLE FUNG TANG, HONG KONG
PORTLAND FUNG TANG, SHANGHAI

CABLE ADDRESS:
REDBOIS

TIN DELIVERIES.

World's tin consumption as compiled by N. Y. Metal Exchange (gross tons):

	London Deliveries.	Continent of Europe.	Cornwall Production.	Bolivian Shipments.	South African Shipments.	China Shipments.	United States.	*Grand Total.
	—— Figured as delivered in Europe ——							
1921 .	18,665	8,700	760	7,811	5,000	3,800	34,699	74,996
1920 .	21,165	5,629	3,000	14,479	5,700	2,710	65,633	111,426
1919 .	19,037	10,656	3,800	14,228	5,544	400	43,897	97,562
1917 .	17,144	14,019	4,100	19,209	6,650	571	*62,730	124,423
1916 .	16,862	14,599	4,500	15,100	6,000	1,300	60,016	118,377
1915 .	25,148	16,871	5,000	23,000	5,500	3,000	50,387	118,906
1914 .	20,835	20,310	6,000	18,750	5,000	1,900	43,308	107,503
1913 .	17,897	25,631	5,800	24,850	3,200	2,450	45,551	116,079
1912 .	18,592	26,625	5,500	21,200	3,100	2,300	51,390	120,137
1911 .	15,753	22,028	5,300	22,600	2,900	1,500	46,332	110,313
1910 .	15,190	22,869	5,800	17,550	3,000	1,300	47,250	107,259
1909 .	16,035	21,643	5,600	18,000	3,000	.....	43,484	103,262
1908 .	16,389	22,848	4,100	16,000	1,700	.....	35,131	96,168
1907 .	16,697	21,984	3,400	14,200	.....	.....	36,917	93,198
1906 .	14,484	21,532	4,900	13,380	.....	.....	42,930	97,226
1905 .	14,876	22,334	4,500	11,900	.....	.....	40,144	93,754

* Deducting Straits, etc., shipped to United States from the Continent and English tin arriving in the United States.

(Owing to incomplete reports it has so far been impossible to compile statistics for 1918)

Balfour, Williamson & Co.

IMPORTERS

of

Pig Tin

STRAITS - LAMB & FLAG

CHINESE - BOLIVIAN

67 Wall Street,
NEW YORK CITY

DELIVERIES OF TIN IN THE UNITED STATES.

Monthly deliveries of tin in the United States according to the statistics of the New York Metal Exchange.

	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.	1921.
Jan.	3,200	3,700	3,700	3,600	2,300	4,452	7,177	4,642	1,850	3,910	1,555
Feb.	3,800	4,050	3,500	3,300	3,375	6,388	3,930	3,398	2,450	5,200	1,585
Mar.	5,100	4,000	5,900	4,450	3,200	4,726	4,804	5,151	2,070	5,130	1,683
April	3,300	5,400	3,450	4,300	3,200	4,202	4,380	5,045	36	3,305	1,590
May	3,400	4,250	3,350	3,800	5,600	5,455	5,749	4,056	20	3,550	1,225
June	2,900	2,850	3,800	3,650	3,900	6,398	6,398	6,782	68	6,500	1,590
July	4,300	5,150	3,900	3,900	5,300	4,432	4,806	7,169	132	5,530	1,525
Aug.	3,800	4,300	3,600	2,900	4,500	4,335	3,305	5,953	4,345	3,745	3,320
Sept.	4,200	3,600	3,100	3,600	4,300	4,025	5,402	5,454	4,825	4,860	2,605
Oct.	3,500	3,850	3,700	3,700	4,900	4,556	4,669	4,260	2,875	3,415	2,280
Nov.	3,100	4,300	2,800	2,600	2,975	3,165	2,578	2,379	6,665	3,395	3,250
Dec.	3,700	4,050	3,100	1,900	5,200	4,082	4,683	4,050	6,965	2,580	3,710
Total	44,300	49,500	43,900	41,700	48,750	56,216	57,881	58,339	32,301	51,120	25,918
American refined tin			....	....	....	5,600	4,849	9,854	11,596	14,513	8,781
Grand total	44,300	49,500	43,900	41,700	48,750	61,816	62,730	68,193	43,897	65,633	34,699

Small deliveries in early part of 1919 due to Government restrictions of imports.

ESTABLISHED 1854

DICKERSON, VAN DUSEN & CO.

METALS

Tin Plates
Roofing Plates
Taggers Tin and Taggers Iron
Sheet Zinc
Rolled Zinc Plates
Nickel Tin and Nickel Zinc
Black Sheets
Galvanized Sheets
Long Terne Sheets
Wellsville Polished Steel
Solder - Spelter
Wire

32 Cliff St., New York City

TIN DELIVERIES IN LONDON.

Compiled from the monthly statistics of the New York Metal Exchange.

	1916.	1917.	1918.	1919.	1920.	1921.
Jan.	1,377	1,215	1,579	1,020	1,466	1,254
Feb.	1,183	1,117	1,595	1,296	1,714	1,321
Mar.	1,416	1,424	1,782	1,448	2,389	1,359
Apr.	1,455	1,634	1,022	2,079	1,578	1,531
May	1,758	1,801	1,138	1,937	1,826	1,000
June	1,917	1,350	1,034	1,375	1,691	1,361
July	1,467	1,118	1,440	1,949	1,939	1,224
Aug.	1,287	932	735	1,333	1,553	2,004
Sept.	1,397	1,584	917	1,142	2,214	1,707
Oct.	1,208	1,523	1,239	1,650	1,670	1,808
Nov.	1,197	1,750	994	2,122	1,607	2,330
Dec.	1,200	1,696	100	1,686	1,518	1,766
Tot.	16,862	17,144	13,575	19,037	21,165	18,665

STOCKS OF TIN IN THE U. S.

Stocks of tin in the United States at the end of each month, according to figures issued by the New York Metal Exchange.

	1916.	1917.	1918.	1919.	1920.	1921.
Jan.	2,401	2,622	767	311	3,723	2,546
Feb.	1,308	3,027	197	251	3,743	3,546
Mar.	2,746	3,362	134	156	2,848	3,476
Apr.	2,756	1,707	64	120	2,676	2,441
May	2,468	4,402	363	100	5,356	2,571
June	3,963	2,332	95	182	3,586	2,546
July	5,028	1,722	265	50	1,926	2,521
Aug.	4,756	2,092	715	920	3,256	1,761
Sept.	4,769	2,397	275	1,515	3,731	1,756
Oct.	3,419	1,657	190	7,560	3,191	2,041
Nov.	2,850	1,592	180	4,955	2,966	1,316
Dec.	3,511	497	185	3,438	2,856	1,696
Av.	3,331	2,284	286	1,630	3,321	2,351

LAMB AND FLAG TIN

NORTHFLEET BRAND

Produced by

The Thames Metal Co.

LIMITED

LONDON

AGENTS

BALFOUR, WILLIAMSON & CO.

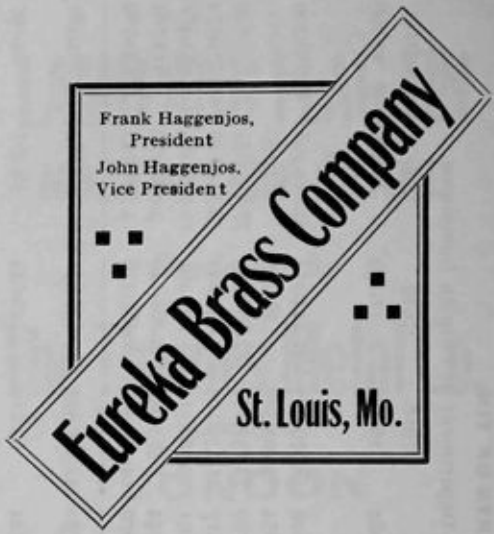
43 Exchange Place

NEW YORK

IMPORTS OF TIN.

According to statistics issued by the Department of Foreign Commerce.

	1916.	1917.	1918.	1919.	1920.	1921.
Ore (tons)	8,307	8,084	16,423	17,139	30,489	13,696
Pigs, bars, blocks, or granulated, in lbs.						
United Kingdom ..	41,368,711	39,679,628	18,076,055	21,244,214	24,244,498	15,656,399
China	1,020,098	4,922,854	3,205,588	56,000	672,399	56,000
Straits Settlements	69,320,093	53,196,789	72,135,832	57,580,343	77,611,855	34,786,859
Dutch E. Indies ..	20,422,678	31,685,517	21,339,165	5,049,843	3,374,540	224,172
Hong Kong	4,193,108	7,203,091	15,780,513	207,464	12,707,284	1,983,481
Australia	1,090,803	5,743,924	7,573,938	3,295,149	3,037,070	634,781
Other countries ...	657,802	1,204,970	4,396,302	2,265,378	4,390,743	859,789
Total refined ...	138,073,293	143,636,782	142,507,393	89,698,391	126,038,389	54,201,481
Equivalent in gross tons	61,640	64,124	63,619	40,044	56,267	24,197



Railroad Car Journal
BEARINGS

Locomotive Brass
CASTINGS

Aluminum, Brass
and Bronze
CASTINGS

DAILY CAPACITY 100,000 POUNDS

Switch on Terminal Railroad

IMPORTS OF TIN.

Tin Imported and Entered for Consumption in the United States, 1906-1921.

(Compiled from records of Bureau of Foreign and Domestic Commerce)

Year.	Quantity. (Short tons)	Value.
1906	50,476	$34,447,315
1907	41,257	32,074,263
1908	41,267	23,923,560
1909	47,662	27,558,546
1910	52,528	33,913,255
1911	53,527	43,346,394
1912	58,016	50,372,478
1913	52,329	46,927,213
1914	47,530	32,881,619
1915	57,792	38,736,909
1916	69,035	51,802,232
1917	72,166	63,860,340
1918	71,254	93,144,218
1919	44,849	50,890,019
1920	63,019	73,786,765
1921	27,101	16,645,719

Tin Ore Imported Into the United States, 1916-1921.

Year.	Quantity. (Short tons)	Value.
1916	9,304	$4,036,821
1917	8,084	4,743,099
1918	16,423	11,444,401
1919	17,139	11,871,948
1920	30,489	18,795,162
1921	13,696	5,672,861

Prior to 1916 the imports of tin ore were negligible.

Lewis Lazarus & Sons

MEMBERS OF LONDON METAL EXCHANGE

London Birmingham Toronto

DIRECT IMPORTERS

of

Straits, Banca and Chinese Tin

NEW YORK 61 BROADWAY

CLASSIFICATION OF TIN IMPORTS.

Compiled by New York Metal Exchange; in tons of 2,240 pounds.

	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.	1921.
Straits	41,403	38,072	35,459	42,071	42,992	32,675	34,243	26,225	37,535	20,319
Australian..	135	295	45	10	205	1,483	3,345	1,675	1,440	345
Banca and Billiton ..	745	590	267	3,253	7,575	9,273	7,590	2,271	3,675	210
English	4,148	3,445	3,380	3,430	5,734	6,155	6,647	4,700	3,215	1,426
Chinese ...	1,461	1,322	925	1,420	1,530	5,177	5,967	165	4,490	2,203
Sundries ..	1,404	1,085	811	188	320	104	235	368	208	255
Arrivals at Pacific ports, Undistributed	1,895	1,651	1,608	(*)	(*)	(*)	(*)	(*)	(*)	(*)
Totals ...	51,191	46,460	42,495	50,372	58,356	54,867	58,027	35,404	50,563	24,758

(*) Distributed.

The above figures are the basis for the statistics issued by the New York Metal Exchange regarding supplies and deliveries, etc., but in recent years (excepting 1921) the actual importations, according to the returns of the Department of Commerce, have been considerably in excess of what the Metal Exchange has reported. The figures of the Department of Commerce are given below:

1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.	1921.
51,787	46,554	42,433	51,623	61,640	64,124	63,619	40,044	56,267	24,197

Philipp Brothers,

Inc.

Cable Address "Cufeniag"

29 BROADWAY, NEW YORK

Agents in London and Paris

Sellers of:

COPPER:
Electrolytic and Casting
Copper and Brass Sheets, Wire and Tubes
Phosphor Copper

REFINED PIG LEAD **ANTIMONIAL LEAD**

ZINC (Spelter):
Prime Western Brass Special Highgrade and
Electrolytic Zinc Sheets Zinc Dust

TIN:
Straits, English, American, Banca, Billiton,
Bolivian and Chinese

ANTIMONY:
Babbitt Metal, Solders and White Metal Alloys

ALUMINUM:
Virgin & Remelted, Sheet, Wire, Rods, Powder, etc.

NICKEL:
Ingot, Shot, Cube, Sheets, Anodes, Wire, etc.

MAGNESIUM:
Sticks and Powder

Bismuth, Cobalt, Cadmium
Quicksilver Gold and Silver
Platinum, Palladium, Iridium and Osmium
(Sponge, Sheet, Wire and Scrap)
Tin Plates
Ferro-Manganese, Ferro-Silicon, Ferro-Tungsten
Ferro-Vanadium Ferro-Molybdenum Ferro-Chrome

Our Ore Department Handles:

Ores, Concentrates, Bullion or Mattes Containing:

TIN	COPPER
ANTIMONY	SILVER
TUNGSTEN	LEAD
MANGANESE	ZINC
MOLYBDENUM	COBALT
VANADIUM	BISMUTH

TYPICAL TIN ANALYSES.

	Tin.	Antimony.	Arsenic.	Lead.	Bismuth.	Copper.	Iron.	Silver.	Sulphur.	
American Electrolytic Tin	99.928	.002	.002	nil	.042	.026	trace	....	....	
Banca Tin	99.950	.007	nil	trace	nil	.018	.045	nil	trace	
Billiton Tin	99.960	.006	nil	nil	nil	.023	nil	nil	nil	
Penang Tin	99.939	trace	.013	trace	nil	.016	.028	nil	.004	
Singapore Tin	99.870	.008	.045	034	.003	.052	.003	.006	.005	
*Mt. Bischoff	99.795	.015	.063	.037	.005	.035	.042	trace	.008	
Pyrmont Tin	99.938	.017	.019	trace	nil	.022	trace	nil	.004	
Irvine Bank	99.580	.062	.034	.221	.025	.126	.002	.018	.004	
Mellanear, Lamb & Flag	99.19	.16	.06	.16	.35	.06	.02	....	....	
Williams Harvey Corp. No. 1	99.860	.015	.040	.004	.005	.047	.003	nil	.006	
Williams Harvey Corp. No. 2	99.560	.166	.037	.162	.007	.050	.005	trace	.013	
Williams Harvey Cor. No. 2a	99.350	.245	.065	.223	.015	.042	.016	trace	.013	
Williams Harvey Corp. No. 3	99.200	.300	.037	.396	.007	.100	.013	.014	.006	
Williams Harvey Corp.No. 4	99.941	.011	.022	trace	.001	.020	trace	trace	.005	
Penpoll No. 1	99.720	.118	.054	.041	.007	.052	.004	.009	.007	
Penpoll No. 2	98.710	.569	.042	.546	.055	.103	.007	.015	.004	
Penpoll No. 3	99.300	.325	.056	.212	.050	.088	.002	.021	.009	
										Cobalt.
Redruth	99.160	.176	.053	.177	.017	.445	.041	.006	.008	.012
Sutton, T. & Sons	99.550	trace	.022	.342	.015	.045	.010	trace	nil	Traces
Chinese No. 1	99.343	.031	.040	.434	.007	.052	.010	trace	.011	.072
Wing, Hong & Co. No. 2	98.662	.039	.035	1.035	.012	.134	.014	trace	.011	.058
Wing, Hong & Co. No. 3	95.280	.381	.050	3.995	.020	.106	.026	.018	.008	.116
*The Co.'s directors issue the following analyses	99.847	.015	.015	.042	.001	.017	.063	....	....	....
	99.90	....	....	.05	.01	.006	.01	.008	.005	.04

PRODUCTION OF SECONDARY TIN IN THE UNITED STATES.

This includes the metal recovered by detinning and refining and also the tin recovered in alloys.

(Tons of 2,000 lbs.)

Year	Secondary tin.	Recovered in alloys.	Value.
1907	93	1,569	$914,404
1908	1,124	1,666	1,641,476
1909	2,423	3,092	3,281,425
1910	7,217	6,686	9,481,800
1911	7,749	6,957	12,353,040
1912	8,333	7,068	14,301,368
1913	6,415	7,763	12,567,379
1914	4,535	7,912	8,887,158
1915	5,250	8,400	10,554,180
1916	7,600	9,800	15,131,040
1917	6,000	13,400	23,920,200
1918	7,142	16,695	41,381,000
1919	5,977	18,056	29,868,200
1920	7,200	16,300	22,765,700

USES OF TIN.

Compiled by the War Industries Board from returns obtained through the Sub-Committee on Pig Tin, for the calendar year 1917, in tons of 2,240 lbs.

Tin and terne plate	27,600
Solder	17,000
Babbitt and other bearing metals	10,800
Brass and bronze	4,800
Collapsible tubes	2,100
Foil	4,000
White metal	1,750
Tinning and retinning	1,900
Chemicals	1,700
Platedware, britanniaware, etc.	1,000
Miscellaneous	3,607
Total	76,257

VISIBLE SUPPLY OF TIN.

Total visible supply of tin at the close of each month as compiled by the New York Metal Exchange.

	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.	1921.
Jan.	18,616	16,707	13,971	16,244	13,901	17,041	18,169	16,949	6,388*	21,056	18,994
Feb.	17,260	14,996	12,304	17,308	14,548	16,511	19,627	17,034	5,213*	21,586	17,074
Mar.	16,682	15,694	11,132	16,989	15,467	18,782	20,307	15,887	6,410*	18,305	16,073
April	14,441	11,893	9,822	15,447	15,785	19,739	18,047	17,262	5,173*	19,342	15,670
May	15,938	14,345	13,710	17,862	14,646	19,614	19,404	18,841	5,843*	20,976	18,352
June	16,605	12,920	11,101	16,027	15,927	19,363	18,059	18,486	6,828*	18,851	17,968
July	16,707	13,346	12,063	14,167	16,084	18,404	17,544	13,589*	13,555	18,546	20,316
Aug.	16,619	12,285	11,261	14,452	15,127	18,042	20,353	11,204*	18,149	19,858	19,358
Sept.	16,672	13,245	12,943	14,613	15,191	16,192	19,153	12,602*	21,630	18,996	21,189
Oct.	14,161	10,735	11,857	10,894	13,154	17,415	18,027	8,543*	23,143	19,064	23,349
Nov.	16,630	12,348	14,470	11,483	16,451	21,186	19,183	8,546*	20,462	19,823	22,806
Dec.	16,514	10,977	13,893	13,396	16,216	20,737	17,766	7,787*	21,887	19,410	25,220
Av.	16,404	13,207	12,377	14,907	15,208	18,585	18,803	13,894	12,890	19,726	19,697

* As reported in Quin's Metal Handbook.

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MORE-JONES BRASS & METAL CO.,
St. Louis, Mo., U. S. A.

PIG TIN PRICES IN NEW YORK.

Yearly high, low and average prices of Straits Tin for prompt delivery in N. Y.

Year.	High.	Low.	Average.
1892	22.15	19.40	20.60
1893	21.25	18.15	20.14
1894	20.45	13.45	18.08
1895	15.15	13.00	14.06
1896 Lowest..	13.70	12.62½	13.24
1897	14.12½	13.00	13.60
1898	19.00	13.70	15.64
1899	33.12½	19.87½	27.19
1900	35.00	25.20	30.00
1901	33.50	23.12½	26.94
1902	30.62½	22.60	26.95
1903	30.80	24.95	28.19
1904	30.12½	25.75	28.08
1905	36.45	28.65	31.55
1906	50.00	35.65	39.82
1907	44.10	26.00	38.34
1908	32.37½	26.45	29.54
1909	34.12½	27.30	29.76
1910	38.75	31.75	34.27
1911	48.50	37.60	42.68
1912	51.05	42.05	46.43
1913	51.00	36.75	44.32
1914.	65.00	28.50	35.70
1915	57.00	32.00	38.66
1916	56.00	37.50	43.48
1917	86.00	42.50	61.65
1918 Highest	110.00	70.00	86.80
1919	72.50	52.75	65.54
1920	65.00	32.50	50.36
1921	39.00	25.50	30.00
Average price for 30 years			34.39

Non Ferrous METALS

VERNON METAL AND PRODUCE CO., Inc.

25 BEAVER STREET
NEW YORK

Agents

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London, England

PIG TIN PRICES IN NEW YORK.

Monthly average prices of Straits Tin in New York.

	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.*	1919.	1920.	1921.
Jan.	41.39	43.24	50.45	37.74	34.30	41.88	44.19	84.00	72.50	62.89	36.11
Feb.	42.83	43.46	48.73	39.93	37.32	42.63	51.37	85.00	72.00	60.00	32.47
Mar.	40.76	42.86	46.88	38.08½	48.93½	50.42	54.36	87.00	71.75	61.99	28.85
Apr.	42.20	44.02	49.12	36.10	47.98	51.75	55.91	90.00	72.26	62.20	30.41
May	43.10	46.12	49.14	33.30	38.78	49.15	63.29½	105.00	71.94	55.07	32.52
June	46.16	47.77	44.93	30.65	40.37	42.18	62.09	97.00	71.20	48.62½	29.57
July	42.96	44.75	40.39	31.75	37.50	38.46	62.60½	98.00	70.39	49.37½	27.69
Aug.	43.45	45.87	41.72	50.59½	34.39	38.54	62.68½	90.00	63.78	47.69	26.40
Sept.	39.98	49.18	42.47	32.79	33.13	38.70½	61.68	80.00	55.81	44.62	26.73
Oct.	41.21	50.11	40.50	30.39½	33.08	41.16	61.85	80.00	55.62	40.64	27.74
Nov.	43.13	49.90	39.81	33.50	39.37½	44.17	74.42½	74.00	54.17	37.02	29.02
Dec.	44.97	49.90	37.64	33.60	38.75	42.66½	85.35	71.50	55.06	34.15	32.49
Av.	42.68	46.43	44.32	35.70	38.66	43.48	61.65	86.80	65.54	50.36	30.00

* Approximate averages based on sales of Straits and other grades of pure tin for prompt delivery, for the most part in small lots; until October 3, when all licenses to import tin except to the U. S. Steel Products Co. were refused, on orders of the War Industries Board, future deliveries were being sold at from 5c to 20c per pound below these prices for prompt deliveries.

H. P. Winter & Co.

64 WALL STREET
NEW YORK CITY

Importers & Dealers

in

METALS

PIG TIN - ZINC

ANTIMONY

PIG TIN PRICES IN NEW YORK.

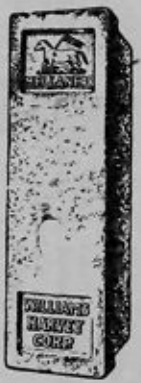
Monthly price fluctuations of Straits tin for prompt delivery in New York.

	1916.		1917.		1918.(a)		1919.		1920.		1921.	
	High.	Low.	High.	Low.	High.	Low.	High.	Low.	High.	Low.	High.	Low.
Jan.	45.00	40.87½	45.85	42.50	86.00	80.00	72.50	72.50	65.00	60.25	39.00	32.75
Feb.	50.00	41.25	55.00	48.75	90.00	80.00	72.50	72.00	64.25	57.00	33.50	30.25
Mar.	56.00	46.00	56.62½	51.50	90.00	86.00	72.50	71.50	64.00	59.00	30.25	27.50
Apr.	54.50	49.50	58.75	54.37½	95.00	88.00	72.50	71.00	63.50	60.75	32.25	28.75
May	51.50	45.75	66.50	58.50*	110.00	100.00	72.50	71.25	61.00	50.25	33.50	31.62½
June	45.50	39.00	64.00	60.50	105.00	94.00	72.50	70.00	51.50	46.50	31.50	29.00
July	39.37½	37.50	63.75	62.00	100.00	94.00	72.50	70.00	51.00	48.25	29.87½	26.00
Aug.	39.37½	37.75	64.00	61.50	97.00	83.00	72.50	55.50	49.62½	45.75	27.75	25.50
Sept.	39.37½	38.30	62.50	60.75	85.00	77.00	56.75	54.62½	45.75	42.75	27.37½	26.00
Oct.	42.75	39.37½	66.00	60.75	84.00	77.00	56.50	54.50	43.50	37.75	28.62½	26.87½
Nov.	45.62½	41.75	81.00	66.00	76.00	70.00	55.25	53.37½	40.00	33.12½	30.00	27.87½
Dec.	45.12½	40.50	86.00	81.00	72.50	70.00	59.50	52.75	36.25	32.50	33.75	30.37½
Year	56.00	37.50	86.00	42.50	110.00	70.00	72.50	52.75	65.00	32.50	39.00	25.50

(a) These are approximate figures based on actual sales of Straits and other grades of pure tin for prompt delivery. Owing to highly irregular condition of the market accurate figures are impossible. Government import restrictions lifted August 15, 1919.

* Highest.

MELLANEAR BRAND



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PIG TIN PRICES IN NEW YORK.

Monthly price fluctuations and averages of American Electrolytic and 99% pure Pig Tin for prompt delivery in New York.

	American Electrolytic						99%					
	1920			1921			1920			1921		
	High.	Low.	Av'ge.	High.	Low.	Av'ge.	High.	Low.	Av'ge.	High.	Low.	Av'ge.
Jan.	64.75	59.50	62.43½	38.25	32.50	35.42	63.75	59.00	61.71½	34.75	28.25	31.64
Feb.	64.00	56.50	59.71½	33.00	30.50	31.99	63.50	56.00	59.13	29.50	27.25	28.64
Mar.	63.75	58.50	61.87½	31.00	27.50	28.82	63.00	58.25	61.21	28.75	25.75	27.30
Apr.	63.50	60.75	61.95	31.50	28.50	29.92	62.50	59.50	61.15	30.50	27.50	28.98
May	60.75	50.00	54.82½	33.87½	31.25	32.25	60.00	48.25	53.34	32.37½	30.25	31.36
June	51.25	46.50	48.25½	31.25	28.87½	29.45	50.50	43.50	46.20½	30.50	28.00	28.54½
July	50.00	46.50	48.03	29.75	26.00	27.66	47.25	44.50	45.75	28.87½	25.25	26.74
Aug.	47.50	45.50	46.48	27.75	25.50	26.31	44.75	41.75	43.41	26.75	25.25	25.72
Sept.	45.25	42.75	44.42	27.37½	26.00	26.68	42.50	41.25	41.76	26.75	25.50	26.30
Oct.	43.25	37.50	40.28	28.62½	26.75	27.74	41.75	36.75	39.22½	28.12½	26.50	27.35
Nov.	39.37½	33.12½	36.81	29.25	28.25	†	38.87½	32.00	35.82	29.75	27.37½	28.64½
Dec.	36.00	32.50	34.01	*	*	*	33.50	29.50	31.05½	33.25	30.00	32.06
Year	64.75	32.50	49.92	38.25	25.50	....	63.75	29.50	48.31	34.75	25.25	28.60½

* Market nominal; no metal offering. †Market quotable only part of the month.

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363-5-7 Hudson Avenue
BROOKLYN, N. Y.
Telephone Main 4137-8

FOREIGN TIN PRICES.

Yearly price fluctuations of tin in London; in pounds sterling, per gross ton.

Year.	Open.	High.	Low.	Close.	Average.		
1887	£100	£167	£100	£167	£111	15s	0d
1888	168	170	75	100	117	10	0
1889	99	100	88	97	93	0	9
1890	98	104	88	91	94	3	6
1891	91	94	89	90	91	3	0
1892	91	103	88	91	93	6	8
1893	91	95	74	74	85	7	7
1894	73½	74	60⅞	60⅞	68	14	2
1895	60½	68⅞	58⅝	59	63	7	1
1896	58¾	67¾	*56	58⅜	59	9	11
1897	58½	63⅝	58½	62⅞	61	8	0
1898	63	86⅛	62⅝	86⅛	71	4	1
1899	87¼	150⅜	86½	111¾	122	8	7
1900	115	153	108¼	121¾	133	11	6
1901	121½	140	100	106¼	118	12	8
1902	105¾	137¼	100¼	120⅜	120	14	5
1903	120⅝	141¼	111¾	132⅞	127	6	5
1904	133½	136½	116¾	134	126	14	8
1905	132⅛	166⅜	129¾	160⅝	143	1	8
1906	161½	215	161	193½	180	12	11
1907	191¾	200	115	123½	172	12	9
1908	121	147	118½	132	133	2	6
1909	132¼	154¼	123½	153¼	134	15	6
1910	152⅜	176⅝	143	174⅞	155	6	2
1911	178½	233	169¾	205	192	6	2
1912	201	233	183⅞	229½	209	8	5
1913	229½	232	166½	169¼	201	14	0
1914‡	168	188¼	120	146¼	151	2	9
1915	151	194	148	167¾	164	4	0
1916	171	205	161½	178½	182	3	5
1917	180¾	309	180¾	280½	237	13	3
1918	269	399	236	236	329	11	8
1919	235¼	342¼	204	341¾	257	9	8
1920	347½	†419½	195	205½	296	1	7
1921	206½	210½	148	170½	165	8	2

† Highest. * Lowest. ‡ Based partly on private transactions.

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London, E. C. 3

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COPPER

SPELTER

LEAD

ZINC SHEETS

IRON & STEEL

GALVANIZED SHEETS

STANDARD TIN PRICES.

Monthly average prices of prompt Standard tin in London.

	1915. £ s d	1916. £ s d	1917. £ s d	1918. £ s d	1919. £ s d	1920. £ s d	1921. £ s d
Jan. ..	156 14 6	175 16 4	186 6 4	293 0 3	248 9 11	376 12 9	190 13 11
Feb. ..	177 1 9	181 3 4	198 19 3	311 5 6	224 3 4	395 16 6	166 9 1
Mar. ..	180 10 10	193 13 11	207 10 8	318 14 6	236 18 5	369 14 5	156 4 7
April ..	166 10 0	199 10 0	220 3 10	329 18 1	225 6 6	345 13 1	164 0 11
May ..	162 18 6	196 11 9	245 2 10	364 7 3	234 9 5	295 3 7	177 10 11
June ..	167 17 3	179 11 3	242 7 7	332 0 0	238 8 1	250 18 6	167 12 10
July ..	167 5 11	168 9 6	242 6 6	360 6 10	253 5 1	262 1 6	164 13 1
Aug. ..	151 12 10	169 19 9	243 18 8	380 18 1	271 8 0	274 5 10	155 8 4
Sept. .	152 18 4	171 8 4	243 19 4	343 19 0	280 4 0	270 7 3	156 17 7
Oct. ..	151 16 2	179 8 2	247 9 4	335 10 0	279 4 11	258 8 8	156 10 0
Nov. ..	167 18 5	186 19 8	275 2 10	317 7 7	283 13 7	241 5 7	159 0 2
Dec. ..	167 3 10	183 9 1	298 11 8	267 13 2	314 5 1	212 11 8	169 16 10
Av. ...	164 4 0	182 3 5	237 13 3	329 11 8	257 9 8	296 1 7	165 8 2

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COMPANY OF CANADA, Ltd.

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TADANAC BRAND

ONTARIO SALES OFFICE
C. P. R. BUILDING, TORONTO

GENERAL SALES OFFICE
DRUMMOND BUILDING, MONTREAL

WORLD'S PRODUCTION OF LEAD.

As reported by the American Bureau of Metal Statistics, in short tons of 2,000 lbs.

	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.
Australia	109,759	118,354	121,661	104,635	104,690	155,637	179,150	195,947	90,014	12,908
Africa (Rhodesia)	.....	.....	.....	.....	534	1,393	4,278	10,257	14,171	15,318
Austria-Hungary	21,599	23,582	26,558	35,264	38,019	40,223	37,909	36,366	1,944	1,984
Argentina	.....	.....	.....	1,199	1,704	1,775	3,023	3,786	4,369	3,857
Other South America	2,794	2,529	2,729	1,946	2,963	2,492	1,548	1,482	2,865	1,653
Belgium	48,819	56,422	59,056	78,220	18,480	17,147	25,065	22,734	4,656	8,816
Canada	11,886	17,873	18,822	18,164	23,152	20,743	16,283	25,692	21,903	16,985
France	26,007	34,272	31,756	32,620	16,022	26,752	23,401	14,081	12,043	13,224
Germany	181,059	194,723	207,176	198,636	134,113	117,701	95,023	77,140	56,753	59,949
Great Britain	28,652	32,178	33,611	21,692	17,375	14,205	12,596	12,213	11,506	11,020
Greece	15,759	15,979	20,177	22,794	12,778	10,387	1,567	4,510	4,233	4,408
India (Burma)	.....	.....	6,535	11,260	7,779	12,415	18,885	21,357	20,747	26,665
Italy	18,403	23,693	23,885	22,551	24,037	26,847	17,893	20,202	18,216	17,538
Japan	4,546	4,114	4,162	5,027	5,250	12,530	17,418	11,774	6,360	5,510
Mexico	137,309	119,016	68,324	26,005	34,585	22,003	51,366	97,530	86,667	92,788
Russia	1,102	1,102	1,678	1,102	1,102	1,102	.....	.....	.....	.....
Spain	209,291	256,338	219,110	158,163	188,962	162,441	190,546	187,019	138,545	156,484
Sweden	1,212	1,432	1,361	1,796	2,788	2,380	3,493	2,468	915	882
Turkey	13,665	13,775	15,318	6,612	1,322	1,322	3,306	2,755	1,102	1,102
United States	405,690	414,807	435,665	538,588	535,776	592,079	581,557	510,092	454,797	476,455
Totals	**1,237,552**	**1,330,189**	**1,297,584**	**1,286,274**	**1,171,431**	**1,241,576**	**1,284,307**	**1,257,405**	**951,806**	**927,546**

A LEAD *Product for Every* LEAD *Purpose*

- Corroded White Lead
- White Lead in Oil
- Red Lead in Oil
- Sublimed White Lead
- Sublimed Blue Lead
- Red Lead
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- Sublimed Litharge
- Orange Mineral
- Special Lead Oxides
- Plumbers' Lead Goods
- Solder
- Babbitt Metal
- Pig Lead
- Lead Wool
- Slab Zinc

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And All Principal Cities

Manufacturers of White Lead, Lead Oxides, Sublimed White Lead, Sublimed Blue Lead, Babbitt Metal, Lead Pipe, Plumbers' Lead Goods, Pig Lead, Slab Zinc, Sulphuric Acid and Lithopone

U. S. LEAD PRODUCTION

(Domestic production; tons of 2,000 lbs.)

1860	15,600
1861	14,100
1862	14,200
1863	14,800
1864	15,300
1865	14,700
1866	16,100
1867	15,200
1868	16,400
1869	17,500
1870	17,830
1871	20,000
1872	25,880
1873	42,540*
1874	52,080*
1875	59,640*
1876	64,070*
1877	81,900*
1878	91,060*
1879	92,780*
1880	97,825*
1881	117,085*
1882	132,890*
1883	143,957*
1884	139,897
1885	129,412
1886	130,629
1887	145,700*
1888	151,919*
1889	156,397*
1890	143,630
1891	178,554*
1892	173,305
1893	163,982
1894	159,351
1895	165,709
1896	187,256*
1897	207,365*
1898	210,676*
1899	208,466
1900	270,824*
1901	269,266
1902	276,455*
1903	290,194*
1904	308,603*
1905	318,509*
1906	336,200*
1907	352,381*
1908	311,666
1909	352,839*
1910	375,402*
1911	391,995*
1912	392,517*
1913	411,878*
1914	512,794*
1915	507,026
1916	552,228*
1917	548,450
1918	539,905
1919	424,433
1920	476,849
1921 (est)	390,000

Totals.

1825-50	393,000
1851-60	162,400
1861-70	156,130
1871-80	627,775
1881-90	1,391,516
1891-00	1,925,488
1901-10	3,191,515
1825-10	7,847,824
1911-20	4,758,075
1825-20	12,605,899

* Record years.

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AJAX PRODUCTS carried in stock at Branch Offices

Boston Cleveland New York Chicago San Francisco St. Louis Washington

PRODUCTION OF LEAD IN THE UNITED STATES.

Production of Primary Lead according to source of ore. Figures represent lead content of ore and not the actual recovery of refined lead; in tons of 2,000 pounds.

	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.
Arizona	3,891	4,901	5,601	6,953	15,328	7,456	6,195	5,407	5,987
California	811	3,294	3,698	5,606	3,633	11,471	6,228	2,004	2,260
Colorado	37,039	42,840	41,198	32,352	33,046	29,327	29,395	18,867	17,752
Idaho	127,780	137,802	177,827	160,680	170,059	174,045	142,640	89,091	117,191
Missouri	162,610	152,430	194,275	195,634	218,253	218,197	187,743	150,341	171.999
Montana	2,517	3,256	4,386	4,853	4,961	5,933	17,586	17,513	13,231
Nevada	5,699	6,142	5,996	7,664	11,858	12,334	8,726	5,958	8,650
New Mexico	2,511	1,821	741	2,157	3,290	3,428	5,140	1,418	1,123
Oklahoma	2,500	3,214	3,916	4,346	10,969	19,646	58,755	49,984	68,494
Utah	60,664	71,069	88,976	106,105	111,789	82,081	76,169	65,102	64,006
Wisconsin	3,301	2,639	1,819	2,632	3,121	2,930	4,275	3,975	3,841
Other States	2,941	3,252	1,924	3,468	4,436	6,050	8,667	13,278	15,447
Zinc Residues	3,131	3,765	4,125	4,562	5,478	6,489	5,359	4,887	4,366
Total domestic	**415,395**	**436,430**	**534,482**	**537,012**	**596,221**	**579,385**	**556,878**	**427,825**	**494,347**
Foreign—Mexico	7,407	4,512	2,386	5,437	1,917	7,607	4,798	2,261	2,729
Africa	1,774	5,976	2,942	.....	328	1,738	1,519	644	1,171
South America	2,332	2,617	1,821	2,829	2,366	1,533	1,101	2,537	2,747
Other	59	118	490	1,315	1,474	4,994	7,916	2,214	1,767
Base Bullion:									
Mexico	76,805	37,359	21,689	33,173	11,598	39,508	76,809	49,564	42,421
Other	.....	.....	.....	275	1,223	6,939	8,147	567	1,973
Total Foreign	**88,377**	**50,582**	**29,328**	**43,029**	**18,906**	**62,319**	**100,290**	**57,787**	**52,808**
Grand Totals	**503,772**	**487,012**	**563,810**	**580,041**	**615,127**	**641,704**	**657,168**	**485,612**	**547,155**

Production in 1921 estimated at 390,000 tons from domestic ores and 50,000 tons from foreign ores.

International Ores & Metals Selling Corporation

280 BROADWAY, NEW YORK

A. BLUM, President

General Representatives for United States

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Societe de Mines de Cuivre de Naltagua, Chile
Corocoro United Copper Mines, Bolivia

PRODUCTION OF REFINED LEAD IN THE UNITED STATES.

(Tons of 2,000 lbs.)

Year.	Desilverized.	Soft Lead.	Total Production.	From domestic ores and base bullion	From foreign ores.	From foreign base bullion.
1903	295,074	83,444	378,518	290,194	88,324	.....
1904	315,284	89,169	404,453	308,603	95,850	.....
1905	313,847	85,455	399,302	318,509	80,793	.....
1906	313,886	90,860	404,746	336,200	28,803	39,743
1907	313,588	99,801	413,389	352,381	24,041	36,967
1908	295,552	101,012	396,564	311,666	11,509	73,389
1909	329,751	117,158	446,909	352,839	21,754	72,316
1910	328,954	141,318	470,272	375,402	18,065	76,805
1911	331,032	155,947	486,979	391,995	10,764	84,220
1912	339,646	141,248	480,894	392,517	11,572	76,805
1913	330,593	131,867	462,460	411,878	13,223	37,359
1914	383,903	158,219	542,122	512,794	7,639	21,689
1915	388,594	161,461	550,055	507,026	9,581	33,448
1916	403,619	167,515	571,134	552,228	6,085	12,821
1917	422,266	188,503	610,769	548,450	15,872	46,447
1918	429,732	210,463	640,195	539,905	15,334	84,956
1919	334,476	147,744	482,220	424,433	7,656	50,131
1920	339,803	189,854	529,657	476,849	8,414	44,394
1921	220,327	219,673	440,000	390,000	50,000	

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Perfect Bearing Metals

H. KRAMER & CO.
Loomis St. & 21st. Place
CHICAGO, ILL.

PRODUCTION OF SECONDARY LEAD IN THE UNITED STATES.

(In tons of 2,000 lbs.)

	Pig Lead.	Lead in Alloys.	Total.
1909	17,822	23,327	41,149
1910	29,384	25,939	55,323
1911	27,359	26,895	54,254
1912	30,266	36,902	67,168
1913	33,104	39,730	72,834
1914	29,337	31,725	61,062
1915	36,400	42,500	78,900
1916	56,700	39,600	96,300
1917	45,100	48,400	93,500
1918	41,146	55,954	97,100
1919	55,684	66,416	122,100
1920	56,350	68,300	124,650

PRODUCTION OF LEAD PIGMENTS IN THE UNITED STATES.

(In tons of 2,000 lbs.)

	Red-lead and Orange Mineral.	White Lead.	Litharge.
1901	14,190	100,787	9,460
1902	12,536	114,658	12,755
1903	13,300	112,700	12,400
1904	15,063	126,336	12,487
1905	17,269	122,398	12,643
1906	16,620	123,640	13,816
1907	14,185	111,409	14,769
1908	11,751	116,628	12,254
1909	16,330	131,643	13,391
1910	16,657	134,276	13,659
1911	20,360	132,612	25,190
1912	21,665	146,833	29,111
1913	18,069	142,626	23,093
1914	19,123	159,474	27,345
1915	19,435	156,101	26,118
1916	23,035	128,979	37,739
1917	25,478	115,200	44,102
1918	30,069	102,888	48,874
1919	32,362	139,090	46,739
1920	34,431	145,695	62,329

C. W. Leavitt & Co.

30 Church Street, New York

Sole Agents

Carlton Brand English

FERRO MANGANESE

Brokers

ORES and METALS

including

TIN - ALUMINUM - ANTIMONY

TUNGSTEN - CHROME - MANGANESE

Cable Address: "HUGSCAM"

Established 1882.

ESTABLISHED 1789.

Nathan Trotter & Co.

Importers and Dealers in

Tin Copper Lead Spelter and Antimony

INGOT ALUMINUM

BISMUTH AND NICKEL

36 North Front St., Philadelphia, Pa.

CONSUMPTION OF LEAD IN THE UNITED STATES.

Since 1901 there have been no public records of the stocks of domestic lead in the United States and therefore the following figures only represent the total supply available each year for consumption.

(Tons of 2,000 lbs.)

1894	192,371	1909	368,664
1895	241,044	1910	379,196
1896	213,901	1911	385,319
1897	219,248	1912	388,148
1898	227,452	1913	408,146
1899	226,315	1914	452,512
1900	269,302	1915	419,560
1901	271,934	1916	460,703
1902	332,484	1917	515,445
1903	300,167	1918	542,975
1904	319,543	1919	434,143
1905	347,015	1920	538,020
1906	376,300	1921	438,000
1907	360,715		
1908	318,555		

Considerable quantities of lead which were shipped abroad in 1917 and 1918 for use of American Expeditionary Forces are included in the apparent consumption.

STOCKS OF BONDED LEAD.

Stocks of lead in bond in the United States; in tons of 2,000 pounds.

		Tons.			Tons.
1900	Jan. 1	11,160	1912	Jan. 1	4,481
1901	"	21,190	1913	"	10,492
1902	"	16,622	1914	"	5,310
1903	"	23,939	1915	"	7,660
1904	"	10,694	1916	"	12,169
1905	"	11,481	1917	"	12,369
1906	"	8,148	1918	"	26,612
1907	"	5,756	1919	"	17,471
1908	"	12,944	1920	"	45,710
1909	"	18,565	1921	"	52,542
1910	"	17,405	1921	Dec. 1	23,855
1911	"	35,972			

IMPORTS OF LEAD.

(In pounds.)

	Lead in Ore. (Lead content)	Base Bullion — Gross weight.	Base Bullion — Lead content.	Pigs, Bars, Sheets and old.	Total Lead content.
1907	64,815,254	76,259,828	74,594,313	18,554,899	157,964,466
1908	64,708,204	153,921,829	150,560,176	5,518,621	220,787,001
1909	71,357,868	149,852,559	146,579,779	7,152,665	225,090,312
1910	94,751,054	118,061,415	115,483,542	6,970,170	217,204,766
1911	35,686,180	141,481,852	138,952,372	5,264,800	179,903,352
1912	19,577,499	152,420,624	146,999,168	544,925	167,121,592
1913	19,883,313	96,908,170	94,327,654	82,999	114,293,966
1914	23,649,637	33,444,503	32,730,320	296,846	56,676,803
1915	18,185,140	86,247,995	83,986,988	819,282	102,991,410
1916	35,086,100	24,943,660	24,262,435	11,310,817	70,659,352
1917	41,292,876	109,279,997	103,664,970	11,585,974	156,543,820
1918	37,070,340	155,810,003	149,663,889	10,480,531	197,214,760
1919	19,573,856	115,317,160	112,024,518	10,214,753	141,813,127
1920	29,488,816	101,476,550	96,103,603	71,437,108	197,029,527
1921	14,234,039	77,882,834	71,733,828	62,602,534	148,570,401

EXPORTS OF LEAD.

Exports of lead, from foreign and domestic ores, classified according to destination; in tons of 2,000 lbs.

	1914.	1915.	1916.	1917.	1918.	1919.	1920.	1921.
Canada	4,110	24,364	38,078	34,292	15,820	2,075	1,722	209
Great Britain	34,381	51,223	10,325	26,791	66,597	23,213	2,691	12,926
Netherlands	8,359	3,452	3,164	308	.....	862	2,016	.....
France	560	11,787	847	1,786	873	3,328	1,031	840
Italy	660	4,600	336	1,941	1,574	.....	.....	.....
Russia	12,428	17,393	19,245	15,156	414	5	.....	.....
Japan	2,247	3,980	16,644	1,217	8,700	11,844	3,976	4,172
Other countries ...	17,522	10,125	21,741	9,849	7,269	10,159	8,657	8,189
Totals	**80,267**	**126,924**	**110,380**	**91,340**	**101,247**	**51,486**	**20,093**	**26,336**
Produced from:								
Domestic ore	58,722	88,306	100,500	53,688	41,831	10,510	2,730	1,624
Foreign ore	21,545	38,618	9,880	37,652	59,416	40,976	17,363	24,712

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COMPANY

METALS DIVISION

SPRINGFIELD, MASS., U.S.A.

Rolling Mill and Drop Forge Works,
Springfield, Mass.

Detroit Office
1825 Dime Savings Bank Bldg.

LEAD SPECIFICATIONS.

The tentative specifications (serial designation: B29—20T) for primary or virgin lead issued by the **American Society for Testing Materials** in 1919 and revised in 1920 provide that the lead be made from ore or similar raw material by direct processes of reduction and refining, and not produced from reworked metal. Under these specifications virgin pig lead is considered in three grades as follows:

Corroding Lead (Grade I.)

	Chemical composition.
Silver	not over 0.0015 per cent.
Copper	" " 0.0015 " "
Copper and silver together	" " 0.0025 " "
Arsenic	" " 0.0015 " "
Antimony and tin together	" " 0.0095 " "
Zinc	" " 0.001 " "
Iron	" " 0.002 " "
Bismuth	" " 0.05 " "
Lead (by difference)	99.9335 " "

Chemical Lead (Grade II.)

	Chemical composition (*)
Copper	0.04—0.10 per cent.
Bismuth	not over 0.005 " "
Total impurities other than copper	" " 0.05 " "

Common Lead (Grade III.)

(a) Desilverized Lead:	Chemical composition.
Silver	not over 0.002 per cent.
Copper	" " 0.0025 " "
Arsenic, antimony and tin together	" " 0.015 " "
Bismuth	" " 0.35 " "
Iron	" " 0.002 " "
Zinc	" " 0.002 " "
Lead (by difference)	99.6265 " "
(b) Soft Missouri lead:†	
Silver	not over 0.002 per cent.
Copper	" " 0.04 " "
Arsenic, antimony and tin together	" " 0.015 " "
Bismuth	" " 0.005 " "
Iron	" " 0.005 " "
Zinc	" " 0.002 " "
Lead (by difference)	99.931 " "

* This composition represents present requirements in the United States.

† Soft Missouri Lead is a trade name used to cover soft undesilverized lead.

U. S. SMELTING, REFINING & MINING CO.

ELECTROLYTIC LEAD

U·S·S·CO

COPPER

D·R·W

Sales Office

120 Broadway, New York City

COPPER - LEAD - CADMIUM - TELLURIUM
WHITE ARSENIC

Brands of Quality

LEAD PRICES IN NEW YORK.

Yearly high, low and average prices of Pig Lead in New York.

Year.	High.	Low.	Average.*
1892	4.22½	3.72½	4.09
1893	4.15	3.22½	3.73
1894	3.65	3.02½	3.29
1895	3.55	3.02½	3.23
1896 **Lowest**	3.25	**2.67½**	2.98
1897	4.40	3.00	3.58
1898	4.12½	3.55	3.78
1899	4.77½	3.92½	4.47
1900	4.75	3.75	4.41¼
1901	4.37½	4.00	4.36
1902	4.15	4.00	4.10
1903	4.70	4.10	4.26
1904	4.60	4.10	4.32
1905	6.25	4.45	4.70½
1906	6.35	5.35	5.66
1907	6.35	3.50	5.35
1908	4.60	3.65	4.23½
1909	4.75	3.95	4.30
1910	4.75	4.37½	4.49
1911	4.60	4.25	4.46
1912	5.15	4.00	4.48½
1913	4.85	4.00	4.40
1914	4.15	3.50	3.87
1915	7.62½	3.70	4.67½
1916	8.25	5.50	6.83
1917 **Highest**	**12.25**	**5.50**	8.71
1918	8.05	6.25	7.46
1919	8.00	4.80	5.81
1920	9.50	4.45	8.08
1921	5.37½	4.00	4.55
Average price for 30 years			**4.75½**

* Since 1901 average prices are based on quotations of American Smelting & Refining Company, but the high and low prices include the extreme fluctuations in the outside market.

American Smelting & Refining Co.

General Office:

120 Broadway, New York

Producers of

GOLD SILVER
LEAD COPPER
TIN ZINC
ZINC DUST ZINC OXIDE
TEST LEAD CADMIUM
CADMIUM SULPHIDE
BISMUTH THALLIUM
SELENIUM BLUE VITRIOL
ARSENIC NICKEL
C. P. LITHARGE
SULPHUR DIOXIDE
TELLURIUM

Sales Office:

EQUITABLE BUILDING

120 Broadway, New York

LEAD PRICES IN NEW YORK.

Monthly average prices of Pig Lead, New York delivery, based on American Smelting & Refining Company's quotations, 50 ton lots.

	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.	1921.
Jan.	4.20	4.70	4.50	4.44	4.35	4.11	3.74	5.94	7.56	6.66	5.80	8.32	4.75
Feb.	4.10	4.70	4.50	4.04	4.35	4.06	3.82	6.23	8.34	6.94	5.11½	8.75	4.54
Mar.	4.00½	4.61	4.50	4.07	4.35	3.97	4.03	6.83	8.98	7.25	5.25	9.21	4.02
Apr.	4.15½	4.50	4.50	4.20	4.40	3.82	4.20	7.50	9.00	7.09	5.07	9.25	4.29
May	4.28	4.42	4.50	4.20	4.36	3.90	4.23½	7.50	9.71	7.00	5.11	8.65	4.91
June	4.35	4.40	4.50	4.39½	4.35	3.90	5.87½	7.02	10.81	7.51	5.35	8.24	4.58½
July	4.35	4.40	4.50	4.73	4.37	3.90	5.74	6.54	11.00	8.04	5.64½	8.19	4.40
Aug.	4.38	4.40	4.50	4.56½	4.63	3.90	4.75	6.25	10.94½	8.05	6.00	8.83	4.40
Sept.	4.40	4.40	4.50	5.05	4.75	3.86	4.62	6.75	8.94	8.05	6.14	8.52	4.60½
Oct.	4.40	4.40	4.30	5.10	4.45	3.54	4.59½	7.00	6.84½	8.05	6.46	7.47	4.70
Nov.	4.40	4.44	4.32	4.69	4.34	3.68	5.15	7.00	6.14½	8.05	6.75	6.61½	4.70
Dec.	4.56	4.50	4.45	4.36	4.06	3.80	5.34½	7.44	6.25	6.82	7.07	4.94	4.70
Av.	4.30	4.49	4.46	4.48½	4.40	3.87	4.67½	6.83	8.71	7.46	5.81	8.08	4.55

"ST. JOE"

Chemical Pig Lead

"DOE RUN"

Super-refined Lead

99.994% PURE

MINED, SMELTED, REFINED

AND

SOLD BY

Sales Office:

61 BROADWAY, NEW YORK

LEAD PRICES IN ST. LOUIS.

Monthly average prices of Soft Missouri Lead in St. Louis.

	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.	1921.
Jan.	4.07½	4 60½	4.36	4.34	4.20	3.99½	3.57	5.80	7.58	6.70	5.36	8.32	4.78
Feb.	3.90	4.50	4.29½	3.99	4.20	3.95	3.72	6.17	9.04	6.94	4.83	8.62	4.29
Mar.	3.86½	4.36	4.25	4.06	4.21	3.83½	3.98	7.46	9.53	7.10	5.01	8.93½	4.02½
Apr.	4.09	4.24½	4.29	4.14	4.25½	3.70	4.11	7.67	9.26	6.76½	4.78½	8.71	4.30
May	4.22	4.19½	4.24	4.09	4.22	3.81	4.16	7.28	10.52	6.70	4.80	8.52	4.81½
June	4.35	4.22	4.30	4.31	4.21	3.80	5.76	6.77	11.71	7.53½	5.06½	8.36	4.34
July	4.24	4.30	4.42	4.60	4.25	3.75	5.52	6.20	10.66	7.75	5.42	8.58	4.28
Aug.	4.25	4.31	4.43½	4.46	4.56	3.73¼	4.59	6.19	10.59	7.75	5.60½	8.89	4.23
Sept.	4.26	4.29	4.37	4.94	4.62	3.67	4.53	6.71	8.82	7.75	5.81	8.23	4.41
Oct.	4.26	4.27	4.18	4.91	4.31	3.39½	4.51½	6.87½	6.78	7.75	6.22	7.08½	4.47
Nov.	4.27	4.33	4.23	4.50	4.18	3.58	5.08	6.96	6.28	7.75	6.68	6.16	4.37½
Dec.	4.51	4.38	4.36	4.19	3.94	3.67	5.26½	7.53	6.30	6.48½	6.96	4.75	4.39½
Av.	4.19	4.33	4.31	4.38	4.26	3.74	4.57	6.80	8.92	7.25	5.55	7.93	4.39

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Standard Composition and Brass Ingots

SPECIAL FORMULA INGOTS
ALUMINUM INGOTS
PIG LEAD — BABBITT
SOLDER — SPELTER

GIRARD SMELTING & REFINING COMPANY

Richmond and Tioga Streets
PHILADELPHIA, PENNSYLVANIA

GIRARD PIG LEAD

LEAD PRICES IN ST. LOUIS.

Price fluctuations of Soft Missouri Lead in the open market, St. Louis, by months and years.

	— 1920 —			— 1921 —		
	High.	Low.	Av.	High.	Low.	Av.
Jan. ...	8.50	7.50	8.32	4.95	4.60	4.78
Feb. ...	9.00	8.35	8.62	4.65	3.90	4.29
Mar. ...	9.15	8.75	8.93	4.35	3.90	4.03
Apr. ...	9.00	8.50	8.71	4.50	4.20	4.30
May ...	8.75	8.35	8.52	5.05	4.60	4.82
June ..	8.55	8.10	8.36	4.70	4.15	4.34
July ...	8.90	8.20	8.58	4.40	4.20	4.28
Aug. ...	9.15	8.70	8.89	4.25	4.20	4.23
Sept. ..	8.75	7.50	8.23	4.55	4.20	4.41
Oct. ...	7.75	6.60	7.08	4.55	4.40	4.47
Nov. ...	6.60	5.12½	6.16	4.45	4.35	4.37½
Dec. ...	5.10	4.45	4.75	4.45	4.35	4.39½

Extreme Prices for twenty years:

	High.	Low.	Average.
1902	4.05	3.85	3.98½
1903	4.60	3.95	4.18
1904	4.62½	4.00	4.27½
1905	5.90	4.35	4.72
1906	6.10	5.25	5.17½
1907	6.12½	3.45	5.25½
1908	4.52½	3.55	4.10
1909	4.80	3.75	4.19
1910	4.70	4.15	4.33
1911	4.50	4.10	4.31
1912	5.02½	3.90	4.38
1913	4.72½	3.85	4.26
1914 **Lowest** ...	4.10	3.35	3.74
1915	7.50	3.50	4.57
1916	8.25	5.45	6.80
1917 **Highest** ..	12.00	5.42½	8.92
1918	7.75	5.70	7.25
1919	7.50	4.60	5.55
1920	9.15	4.45	7.93
1921	5.05	3.90	4.39
Average price for 20 years			**5.11½**

CHARLESTON LEAD WORKS

MANUFACTURERS

CHARLESTON, SOUTH CAROLINA

CHEMICAL LEAD, SHEET LEAD, LEAD PIPE,
LEAD TRAPS, BENDS, ETC. INGOT LEAD,
PIG LEAD, SOLDER, BABBITT METAL, TYPE METAL

LEAD PRICE CHANGES.

American Smelting & Refining Company's quotations for 50 ton lots f.o.b. New York.

1914—		
High		4.15
Low		3.50
1915—		
High		7.00
Low		3.70
1916—		
High		7.50
Low		5.50
1917—		
High		11.00
Low		5.50
1918—		
High		8.05
Low		6.00
1919—		
Jan.	21	5.50
"	31	5.25
Feb.	7	5.00
"	20	5.10
"	25	5.25
April	9	5.00
May	16	5.10
"	19	5.25
June	11	5.40
July	14	5.50
"	18	5.75
"	24	6.00
Sept.	15	6.25
Oct.	16	6.50
"	23	6.75
Dec.	5	6.90
"	12	7.00
"	18	7.15
"	26	7.50
1920—		
Jan.	2	7.75
"	3	8.00
"	12	8.25
"	14	8.50
1920—		
Feb.	7	8.75
"	24	9.00
Mar.	5	9.25
May	7	8.50
June	15	8.25
"	16	8.00
July	21	8.50
Aug.	12	9.00
Sept.	13	8.50
"	23	8.00
"	29	7.75
Oct.	15	7.25
Nov.	8	7.00
"	15	6.50
"	22	6.00
"	30	5.50
Dec.	3	5.00
"	20	4.75
1921—		
Feb.	15	4.60
"	18	4.50
"	19	4.40
"	24	4.20
"	25	4.00
Mar.	28	4.10
"	31	4.25
April	26	4.35
"	28	4.50
May	4	4.75
"	10	5.00
June	6	4.75
"	10	4.50
"	22	4.40
Sept.	2	4.50
"	9	4.60
"	20	4.65
"	23	4.70

JOPLIN LEAD ORE PRICES.

Average monthly prices of lead ore in the Joplin district.

	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.	1921.
Jan.	56.45	58.09	52.89	48.89	46.35	75.68	90.78	81.83	60.04	89.06	49.22
Feb.	55.93	51.25	53.42	49.74	46.51	84.04	107.09	83.63	51.95	101.63	41.35
Mar.	53.80	53.41	53.10	49.47	48.47	91.10	117.42	85.15	61.56	108.69	38.97
Apr.	57.17	54.48	52.40	44.53	50.31	100.57	109.58	82.54	58.11	108.93	46.20
May	57.16	50.33	52.50	45.67	50.62	96.56	116.71	81.33	57.15	102.34	57.26
June	57.70	54.72	51.67	45.89	63.70	78.26	125.96	90.20	59.32	93.74	43.43
July	58.14	58.86	51.55	45.75	60.00	72.46	114.61	98.76	64.39	94.09	43.44
Aug.	60.68	56.86	53.93	45.78	47.50	65.51	105.07	100.28	64.15	108.03	50.00
Sept.	59.61	61.92	57.21	45.46	50.00	69.26	89.19	100.00	71.00	94.46	56.62
Oct.	56.67	62.45	52.31	40.44	50.00	78.23	78.29	100.00	79.66	60.99	58.54
Nov.	57.45	56.12	51.32	44.32	63.75	86.30	70.37	99.75	86.19	58.93	53.49
Dec.	61.82	52.00	47.55	46.41	72.25	91.69	74.86	74.20	88.04	47.34	56.33
Av.	57.71½	55.87	52.49	46.03	54.12	82.47	99.99	89.81	66.79	89.02	51.59

LEAD PRICES IN LONDON.

Monthly average prices of foreign lead in London.

	1919.	1920.	1921.
Jan. .	£34 10s 0d	£47 7s 2d	£23 12s 7d
Feb. .	26 13 0	50 12 9	21 0 0
Mar. .	26 16 11	47 1 9	19 2 10
Apr. .	24 8 7	40 4 0	20 16 10
May .	23 18 6	39 3 2	23 7 4
June .	22 12 2	35 1 4	22 9 2
July .	23 14 2	35 9 0	23 5 10
Aug. .	25 1 7	36 8 10	23 5 1
Sept. .	25 12 7	35 7 6	22 19 6
Oct. .	28 15 11	35 2 2	23 10 9
Nov. .	34 16 1	32 5 6	24 4 11
Dec. .	41 7 8	24 11 10	24 19 7
Av. ...	£28 3s 11d	£38 5s 4d	£22 14s 6d

Extreme prices and annual averages for twenty years:

	High.	Low.	Average.
1902..	£11 17s 6d	£10† 2s 6d	£11 5s 3d
1903..	13 15 0	10 18 9	11 11 7
1904..	13 2 6	11 7 6	11 19 8
1905..	17 17 6	11 18 9	13 14 5
1906..	20 5 0	15 7 6	17 7 0
1907..	22 5 0	13 0 0	19 1 9
1908..	15 2 6	12 7 6	13 10 5
1909..	14 2 6	12 6 3	13 1 8
1910..	13 17 6	12 6 3	12 19 1
1911..	15 18 9	12 15 0	13 19 3
1912..	23 15 0	15 10 0	17 15 10
1913..	21 10 0	15 7 6	18 6 2
1914..	24 0 0	17 10 0	18 11 2
1915..	30 5 0	18 6 3	22 17 8
1916..	36 10 0	27 15 0	30 19 6
1917..	30 10 0	29 10 0	30 0 0
1918..	40 10 0	28 10 0	30 2 8
1919..	46 5 0	22 0 0	28 3 11
1920..	*52 7 6	21 10 0	38 5 4
1921..	26 0 0	16 10 0	22 14 6

* Highest. † Lowest.

"HORSE HEAD" SLAB ZINC

The Uniformly Pure Metal

Dependability is paramount in Brass manufacture. "Horse Head" Slab Zinc averages better than 99.94% pure, and contains no impurities that induce brittleness.

THE NEW JERSEY ZINC COMPANY

(Established 1848)

160 Front Street, New York

CHICAGO: Mineral Point Zinc Company, 1111 Marquette Building.

PITTSBURGH: The New Jersey Zinc Co. (of Pa.) 1439 Oliver Building.

CLEVELAND: The New Jersey Zinc Sales Co. 1138 Guardian Building.

The World's Standard for Zinc Products

See Our Advertisement Page 382.

WORLD'S PRODUCTION OF ZINC.

According to the American Bureau of Metal Statistics; in short tons of 2,000 lbs.

	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.
Australia ...	2,530	4,614	5,038	5,151	5,318	3,975	6,101	3,751	4,320
Austria-Hung.	21,604	23,921	16,640	10,469	12,783	13,885	13,224	.....	.....
Belgium.....	220,618	225,050	160,809	56,929	25,269	11,340	10,188	21,886	91,517
Canada.....	.....	.....	.....	.....	2,973	9,982	12,571	12,323	18,508
France.....	70,824	74,815	46,805	21,136	22,324	25,268	20,218	11,902	21,659
Great Britain	63,069	73,000	55,982	57,772	57,997	57,214	42,979	42,126	27,550
Germany....	296,658	307,238	260,072	204,263	196,173	205,523	189,434	93,670	107,406
Italy	.....	.....	.....	.....	284	404	1,299	1,413	1,292
Japan	.....	992	6,481	23,293	42,970	60,299	43,979	21,837	11,995
Jugo-Slavia & Czechoslovakia		.....	... ..	.....	.....	.....	.....	4,419	6,612
Netherlands.	26,373	26,804	18,230	12,265	13,335	4,473	750	.....	2,238
Norway	8,957	10,234	1,876	2,176	2,019	1,931	2,044	3,731	2,024
Poland	9,657	8,386	10,488	6,039	8,234	9,184	5,392	2,730	3,069
Spain	4,482	3,650	9,676	7,055	7,163	8,265	11,020	11,020	6,943
Sweden	1,653	2,204	2,535	9,477	11,020	8,816	4,518	2,557	1,598
Tasmania	.....	.....	.....	.....	.....	56	3,918	5,374	6,502
United States	346,592	352,952	370,200	507,004	679,833	682,225	525,217	471,556	479,772
Totals ...	1,073,017	1,113,860	964,832	923,029	1,087,695	1,102,840	892,852	710,295	793,005

United Metals Selling COMPANY

25 BROADWAY, NEW YORK

Sales Agents for Anaconda Electrolytic Zinc

ZINC 99.90% PURE
(Produced at the refineries of the Anaconda Copper Mining Co. at Great Falls, Montana.)

Electrolytic Copper N E C & B M Brands

Best Select. Copper A B S & M A Brands

Pig Lead-- International [I. L. R. Co.]
Desilverized Common

Electrolytic Zinc Anaconda Electric
Highest Grade and Purity

Selenium, Arsenic, Nickel Salts
Tellurium, Copper Sulphate

U. S. ZINC (Spelter) PRODUCTION.

(Tons of 2,000 lbs.)

1880	23,239*
1881	30,000*
1882	33,765*
1883	36,872*
1884	38,544*
1885	40,688*
1886	42,641*
1887	50,340*
1888	55,903*
1889	58,860*
1890	63,683*
1891	80,873*
1892	87,260*
1893	78,832
1894	75,328
1895	89,686*
1896	81,499
1897	99,980*
1898	115,399*
1899	129,051*
1900	123,886*
1901	140,822*
1902	156,927*
1903	159,219*
1904	186,702*
1905	203,849*
1906	224,770*
1907	249,860*
1908	210,424
1909	255,760*
1910	269,184*
1911	286,526*
1912	338,806*
1913	346,676*
1914	353,049*
1915	489,519*
1916	667,456*
1917	669,573*
1918	517,927
1919	465,743
1920	463,377
1921 (est)	196,500

Totals.

1873-80	129,915
1881-90	451,296
1891-00	961,794
1901-10	2,057,517
1873-10	3,600,522
1911-20	4,598,652
1873-20	8,199,174

* Record years.

Note—Since 1904 includes zinc made from foreign ore.

AMERICAN ZINC, LEAD & SMELTING COMPANY

SLAB ZINC

Also

And

SOFT Missouri LEAD

Sales Office:

120 Broadway, New York

PRODUCTION OF ZINC ACCORDING TO GRADES.

In tons of 2,000 lbs.	1914.	1915.	1916.	1917.	1918.	1919.	1920.	1921.
Grade A (high grade)..	19,385	54,056	73 495	97,707	129,344	45,377	80,713	24,084
Grade B (intermediate).	32,076	69,751	94 825	69,189	68,987	39,173	33,893	4,996
Grade C (select and brass special	68,551	93,131	100 875	148,749	98,584	140,917	59,811	47,814
Grade D (prime west.)..	253,582	302,345	428 014	370,763	230,930	260,024	310,331	141,179
Total	373,594	519,283	697 119	686,408	527,845	485,491	484,748	218,073

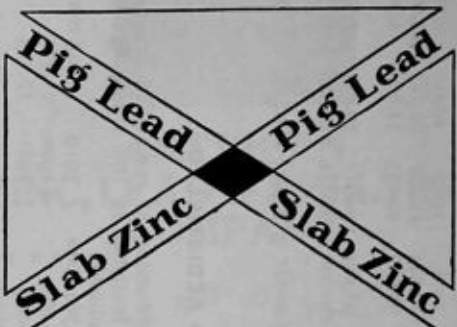
PRODUCTION OF ELECTROLYTIC AND REDISTILLED SECONDARY ZINC.

The production of **Electrolytic** zinc, included in the above figures was as follows:

1915..	252 tons	1919..	27,056 tons
1916..	10,229 "	1920..	51,626 "
1917..	25,209 "	1921..	11,559 "
1918..	38,916 "		

The production of **redistilled secondary** zinc included in the above figures was as follows:

1915..	29,764 tons	1919..	19,748 tons
1916..	29,663 "	1920..	21,371 "
1917..	16,835 "	1921..	17,573 "
1918..	9,918 "		



We invite your inquiries when in the market

HENRY GREVE
PRESIDENT

E. J. GREVE
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SECY.

ESTABLISHED 1860

JOHN WAHL COMMISSION CO.

SAINT LOUIS, MO.

PRODUCTION OF ZINC (Spelter) IN THE UNITED STATES.

Production of Primary Zinc (Spelter) in the United States from domestic and foreign ores, according to the States in which smelted; in tons of 2,000 lbs.

	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.	1921.
Domestic...	323,907	337,252	343,418	458,135	564,338	584,597	492,405	452,272	450,045	194,000
Foreign....	14,899	9,424	9,631	31,384	104,005	84,976	25,522	13,471	13,332	2,500
Arkansas...	(a)	(a)	(a)	(a)	7,503	25,660	26,753	31,437	31,481	(a)
Colorado...	9,043	8,554	8,083	8,767	8,709	(a)	(a)	(a)	(a)	.....
Illinois.....	88,397	106,654	127,946	159,958	181,433	172,489	141,844	118,458	109,056	48,000
Kansas.....	101,104	74,106	44,510	101,423	141,286	76,048	29,149	43,942	41,044	(a)
Missouri...	7,085	5,085	3,550	6,754	8,317	(a)	(a)	.....	.....	.....
Oklahoma..	76,925	83,214	91,367	109,208	168,206	204,394	139,066	121,988	110,500	40,000
Pennsylvania	18,254	26,934	28,095	44,167	76,545	86,995	77,342	67,521	74,234	36,000
Other States	37,998	42,129	49,498	59,242	76,344	103,987	103,773	82,397	97,062	72,500
Totals ..	338,806	346,676	353,049	489,519	668,343	669,573	517,927	465,743	463,377	196,500

(a) Included with "Other States."

Production of redistilled secondary Zinc (spelter) in the U. S.; in tons of 2,000 lbs.

1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.	1921.
12,784	14,043	26,064	19,720	20,545	29,764	28,776	16,835	9,918	19,748	21,371	17,573

E. L. Murphy & Co.

METAL BROKERS

327 South La Salle Street

CHICAGO

Tin, Zinc, Lead

Copper

Antimony

Aluminum

Correspondent ot

C. S. Trench & Co., New York

U. S. MONTHLY ZINC STATISTICS, 1920—1921.

	Production		Deliveries		Stocks*		No. of Retorts Operating*	
	1920.	1921.	1920.	1921.	1920.	1921.	1920.	1921.
January	43,441	25,916	40,615	21,021	40,311	75,953	105,827	44,781
February	43,921	17,769	47,139	15,702	37,093	78,020	107,733	37,782
March	48,256	15,741	54,330	12,771	31,019	80,990	108,841	35,297
April	45,399	16,550	43,908	17,959	32,510	79,581	110,669	39,673
May	45,415	18,026	48,590	13,886	29,335	83,721	99,733	40,043
June	41,009	19,443	43,490	13,275	26,854	89,889	96,094	35,789
July	40,194	15,495	38,009	12,976	29,039	92,408	89,141	30,349
August	38,226	14,621	37,687	20,480	29,578	86,549	78,031	29,576
September	36,819	14,367	23,497	19,781	42,900	81,135	82,217	29,429
October	35,335	14,538	27,005	24,849	51,230	70,824	76,150	27,949
November	33,318	21,135	20,158	24,910	64,390	67,049	63,779	46,444
December	28,439	22,013	21,771	22,454	71,058	66,608	58,629	42,369

* At end of month.

IRVING
National Bank

MARKET AND FULTON OFFICE

81 Fulton Street

New York City

LEWIS E. PIERSON . . Chairman of Board
ALEXANDER GILBERT Vice-Chairman of Board
HARRY E. WARD . . President
WILLIAM M. ROSENDALE . . Vice-President
ALBERT D. BERRY Assistant Cashier
WILLIAM H. MILLIKEN Assistant Cashier

PROGRESSIVE
CONSERVATIVE
SUCCESSFUL

Will extend every facility that good banking will justify--

SAFE DEPOSIT VAULTS

PRODUCTION OF ZINC PIGMENTS IN UNITED STATES.

Year.	Zinc Oxide. Tons.	Zinc Oxide. Value.	Zinc Lead and Leaded Zinc Oxide. Tons.	Zinc Lead and Leaded Zinc Oxide. Value.	Lithopone Tons.	Lithopone Value.
1852-1879	170,000	$12,000,000	.....	.....	.....	.....
1880-1889	143,077	10,801,338	.....	.....	.....	.....
1890-1899	254,102	18,724,890	.....	.....	.....	.....
1900-1909	614,728	50,260,199	61,283	$4,882,206	37,714	$2,806,614
1910	58,481	5,238,945	6,823	621,120	12,655	916,512
1911	63,827	5,816,370	6,765	561,560	16,866	1,243,108
1912	84,002	7,482,409	11,410	953,800	24,220	1,702,119
1913	75,700	7,161,528	9,421	745,698	29,685	2,170,445
1914	82,809	7,850,350	11,317	977,431	32,819	2,490,530
1915	109,261	11,984,470	18,758	1,724,145	46,494	3,760,472
1916	100,339	18,816,378	23,003	3,053,060	51,291	5,798,927
1917	107,586	21,589,976	23,450	3,728,976	63,713	7,406,896
1918	100,286	20,560,247	26,714	4,480,565	62,403	7,923,276
1919	117,639	20,591,877	27,591	4,009,024	78,365	10,218,850
1920	99,444	17,859,736	30,460	4,467,532	89,373	12,484,925
Total	2,180,000	$236,000,000	257,000	$30,200,000	545,600	$58,900,000

THE HEGELER ZINC COMPANY

DANVILLE, ILL.

Smelters of

SLAB

ZINC

(SPELTER)

Manufacturers of

SULPHURIC ACID

60° and 66°

ZINC SMELTING CAPACITY IN THE UNITED STATES.

The total number of available retorts at the zinc smelting plants in the United States at the end of 1921 amounted to 155,187 and were distributed among the following producers:

	Total retorts.
American Metal Co.	28,736
American Zinc, Lead & Smelting Co.	10,484
American Zinc Products Co.	2,560
Athletic Mining & Smelting Co.	2,496
Eagle-Picher Lead Co.	7,200
Grasselli Chemical Co.	18,360
Hegeler Zinc Co.	5,400
Victory Metal Co.	3,000
Illinois Zinc Co.	5,520
Matthiessen & Hegeler Zinc Co.	6,174
Missouri Zinc Smelting Co.	500
National Zinc Co.	4,256
New Jersey Zinc Co.	22,500
Quinton Spelter Co.	2,016
U. S. Steel Corporation	13,552
U. S. Zinc Co.	15,713
United Zinc Smelting Corp.	1,152
Weir Smelting Co.	5,568
Total	**155,187**

Note.—The above does not include the capacity of the electrolytic plants which is approximately 70,000 tons of slab zinc per annum.

Comparison of Operations.

The following table shows the number of retorts in operation at the close of each year as compared with the total number of retorts:

	Operating.	Total.
1921	41,425	155,187
1920	58,629	140,584
1919	100,830	158,294
1918	123,033	202,426
1917	136,639	225,949
1916	204,693	219,418
1915	156,568	156,568
1914	94,468	115,114
1913	105,684	111,458
1912	99,400	107,948

Timothy F. Allen
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STOCK BROKERS

100 Broadway, New York

Members N. Y. Stock Exchange over 25 years

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Orders executed in all markets

Branch Office

Harriman Nat. Bank Bldg.
527 Fifth Ave., N. Y.

Tel. Murray Hill 3833.

CONSUMPTION OF ZINC IN THE UNITED STATES.

Based on the annual report of the U. S. Geological Survey, in tons of 2,000 lbs.:

Year.	Tons.	Year.	Tons.
1898	108,199	1910	245,884
1899	124,585	1911	280,059
1900	99,399	1912	340,341
1901	141,697	1913	295,370
1902	152,682	1914	299,983
1903	154,381	1915	364,855
1904	180,911	1916	459,317
1905	200,439	1917	413,643
1906	220,781	1918	423,792
1907	226,969	1919	323,964
1908	214,167	1920	323,044
1909	270,730	1921 (est.)	203,600

STOCKS OF ZINC IN THE UNITED STATES.

Stocks of zinc (spelter) at smelters and in bonded warehouses.

Year.	On Jan. 1. Tons.	Year.	On Jan. 1. Tons.	On June 30. Tons.
1898 ..	5,709	1911 ..	23,232	17,788
1899 ..	3,695	1912 ..	9,081	6,414
1900 ..	2,798	1913 ..	4,522	21,856
1901 ..	5,813	1914 ..	40,659	64,039
1902 ..	1,905	1915 ..	20,095	5,884
1903 ..	3,361	1916 ..	14,253	23,879
1904 ..	6,880	1917 ..	17,598	33,147
1905 ..	2,863	1918 ..	53,721	44,502
1906 ..	3,463	1919 ..	41,241	59,651
1907 ..	3,824	1920 ..	36,793	29,892
1908 ..	26,366	1921 ..	71,037	94,747
1909 ..	19,622	1922 ..	70,321	
1910 ..	11,206			

THE AMERICAN ZINC PRODUCTS CO.

GREENCASTLE, INDIANA

Manufacturers of

SHEET ZINC

SLAB ZINC [Spelter]

ROLLED ZINC PLATES

Corrugated and Perforated ZINC SHEETS

ZINC Roofing Products

ALUMINUM SHEETS

SMELTER: Fort Smith, Ark.

ROLLING MILLS: Greencastle, Ind.

New York Office, 50 Church St.

ROLLED ZINC.

The production, imports, exports and consumption of rolled zinc in the United States.

	1916.	1917.	1918.	1919.	1920.	1921.
Zinc sheets:						
Quantity ..... lbs.	65,836,170	75,730,006	79,745,237	56,514,868	56,812,989	28,580,904
Value	$12,280,644	$13,854,600	$12,611,294	$ 6,023,773	$ 6,625,660	$ 2,844,406
Average value	18.65c	18.29c	15.81c	10.66c	11.70c	10.00c
Boiler plates and special sheets:						
Quantity ..... lbs.	3,198,695	6,900,293	14,223,673	5,083,137	3,950,489	2,545,755
Value	$ 564,814	$ 1,111,240	$ 1,912,578	$ 521,389	$ 402,035	$ 192,987
Average value	17.66c	16.10c	13.45c	10.26c	10.20c	7.60c
Zinc strips:						
Quantity ..... lbs.	28,039,105	35,802,652	45,255,915	46,995,742	45,704,052	29,673,527
Value	$ 5,008,229	$ 5,738,285	$ 6,305,106	$ 4,902,407	$ 5,262,538	$ 2,902,815
Average value	17.86c	16.00c	13.93c	10.43c	11.50c	9.80c
Total rolled zinc	**97,073,968**	**118,432,951**	**139,224,825**	**108,593,747**	**106,467,530**	**60,800,186**
Total value	$17,853,687	$20,704,125	$20,828,978	$11,447,569	$12,290,233	$ 5,940,208
Average value	18.39c	17.48c	15.04c	10.54c	11.50c	9.80c
Zinc sheets imported:						
Quantity ..... lbs.	.....	.....	.....	.....	7,572	13,375,245
Value	.....	.....	.....	.....	$ 614	$ 496,445
Average foreign value	.....	.....	.....	.....	8.10c	3.70c
Rolled zinc exported:						
Quantity ..... lbs.	25,024,182	33,027,991	27,750,910	39,524,516	23,704,197	3,631,647
Value	$ 4,540,146	$ 5,730,792	$ 4,566,756	$ 5,212,002	$ 2,832,993	$ 425,618
Average value	18.14c	17.35c	16.46c	13.16c	12.00c	11.70c
Domestic consumption, lbs.	**72,049,786**	**85,404,960**	**111,473,915**	**69,069,231**	**82,770,905**	**70,543,784**

Note—The notable feature of 1921 in the rolled zinc industry was the importation of large quantities of zinc sheets, for only a few tons had been imported each year since 1915.—Editor.

To meet competition you must sell quality commodities. Durability of such articles becomes assured when made from

"HORSE HEAD" ROLLED ZINC

(It Cannot Rust)

This metal can be easily formed (drawn and spun). Its ductility recommends its use. This grade requires no annealing.

Horse Head Rolled Zinc is produced commercially in strips and plates of widths and gauges to meet your needs.

LET US FIGURE WITH YOU.

THE NEW JERSEY ZINC COMPANY

(Established 1848)

160 Front Street, New York

CHICAGO: Mineral Point Zinc Company, 1111 Marquette Building.

PITTSBURGH: The New Jersey Zinc Co. (of Pa.) 1439 Oliver Building.

CLEVELAND: The New Jersey Zinc Sales Co. 1138 Guardian Building.

New Jersey Zinc

The World's Standard for Zinc Products

See Our Advertisement Page 364.

TABLE SHOWING ZINC GAUGE AS COMPARED WITH OTHER GAUGES.

(Zinc gauge can be maintained only approximately)

English & V M Gauges		Rolled Zinc Gauge			American or Brown & Sharpe Gauges	
Gauge No.	Thickness in in.	No.	Sq. ft. in lbs.	Thickness in in.	No.	Approximate Thickness in in.
1	0.004	3	.22	.006	34	.0063
2	.006	..	...	.....	..	.....
3	.007	..	...	.....	33	.0070
4	.008	4	.30	.008	32	.0079
		..	...	.....	31	.0089
5	.010	5	.37	.010	30	.0100
		..	...	.....	29	.0112
6	.011	6	.45	.012	28	.0126
7	.013	7	.52	.014	27	.0141
8	.015	8	.60	.016	26	.0159
		..	...	.....	25	.0179
9	.018	9	.67	.018	24	.0201
10	.020	10	.75	.020	23	.0225
11	.023	11	.90	.024	22	.0253
12	.026	12	1.05	.028	21	.0284
13	.029	13	1.20	.032	20	.0319
14	.032	14	1.35	.036	19	.0353
15	.038	15	1.50	.040	18	.0403
16	.043	16	1.68	.045	17	.0452
17	.048	17	1.87	.050	16	.0508
18	.053	18	2.06	.055	15	.0570
19	.058	19	2.25	.060	14	.0640
20	.063	20	2.62	.070	13	.0719
21	.070	21	3.00	.080	12	.0808
22	.077	22	3.37	.090	11	.0907
23	.084	23	3.75	.100	10	.1018
24	.091	24	4.70	.125	9	.1144
		..	....	.....	8	.1284
		..	....	.....	7	.1442
		..	....	.....	6	.1620
		..	....	.....	5	.1819
		..	....	.....	4	.2043
		..	....	.....	3	.2294
25	.098	25	9.40	.250	2	.2576
		..	....	.....	1	.2893
		..	....	.....	0	.3249
26	.105	26	14.00	.375	000	.4096
		27	18.75	.500	..	.....
		28	37.50	1.000	..	.....

BALL BROS. CO.

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ZINC

Long lengths in Rolls for Automatic Feeding to Stamping Presses or Forming Machines

Sheets and Discs cut to size

Sides and Bottoms for DRY BATTERIES

Superior Quality for Drawing, Spinning and Stamping

ZINC BOILER HULL PLATES

EXPORTS OF ZINC (Spelter) AND ZINC SHEETS.

As reported by the Bureau of Foreign and Dome tic Commerce; in tons of 2,000 pounds.

Destination:	Metal produced from domestic & foreign ore.		Rolled in Sheets, strips, etc.		Totals.	
	1920.	1921.	1920.	1921.	1920.	1921.
Canada	196	242	1,697	807	1,893	1,049
Great Britain	67,513	...	1,874	178	69,387	178
France	24,716	280	902	...	25,618	280
Italy	621	3	799	23	1,420	26
Japan	2,369	1,939	1,113	96	3,482	2,035
Other countries	6,762	545	5,468	712	12,230	1,257
Totals	102,177	3,009	11,853	1,816	114,030	4,825

EXPORTS OF ZINC AND ZINC SHEETS COMBINED, 1914-1921.

Destination:	1914.	1915.	1916.	1917.	1918.	1919.	1920.	1921.
Canada	4,089	11,723	10,924	13,453	8,048	3,746	1,893	1,049
Great Britain	43,744	59,648	79,376	96,294	35,242	59,489	69,387	178
France	10,365	31,319	71,275	63,497	35,513	34,492	25,618	280
Italy	1,651	9,720	18,014	20,466	7,667	12,090	1,420	26
Russia	4,819	12,091	11,910	10,681	.....	.....	.....	.....
Japan	456	657	882	1,360	5,287	20,043	3,482	2,035
Other countries	5,258	6,220	13,984	12,725	8,556	11,904	12,230	1,257
Totals	70,382	131,378	206,365	218,476	100,313	141,764	114,030	4,825

EXPORTS OF DOMESTIC ZINC ORE AND ZINC (Spelter).

Exports of domestic zinc ore and of plates, sheets, pigs or bars of domestic manufacture; in tons of 2,000 lbs.

	Zinc Ore		Plates, sheets pigs or bars,	
	Tons.	Value.	Tons.	Value.
1906 ..	27,720	$733,300	4,670	$583,526
1907 ..	20,352	579,490	563	75,194
1908 ..	26,108	877,745	2,640	250,254
1909 ..	12,455	412,300	2,566	263,010
1910 ..	19,711	649,425	3,990	426,560
1911 ..	18,281	642,884	6,872	810,099
1912 ..	23,349	823,997	6,634	864,292
1913 ..	17,713	631,991	7,783	955,667
1914 ..	11,110	388,464	64,807	8,540,668
1915 ..	832	35,276	118,603	29,537,680
1916 ..	70	3,992	163,135	51,311,047
1917 ..	1,179	63,043	153,796	38,336,559
1918 ..	55	2,480	80,244	17,036,378
1919 ..	nil	.....	129,508	22,736,230
1920 ..	nil	.....	85,897	15,328,137
1921 ..	nil	.....	3,569	630,602

IMPORTS OF ZINC ORE AND ZINC (Spelter)—Short tons.

	ZINC ORE.		SPELTER.	
	Total ore.	Zinc content.	Blocks, or pigs and scrap.	
	Tons.	Tons.	Tons.	Value.
1906 ..	55,414	.....	1,043	$243,868
1907 ..	103,117	.....	1,761	227,632
1908 ..	53,757	.....	813	82,730
1909 ..	114,850	.....	9,536	818,597
1910 ..	72,626	25,439	1,244	132,151
1911 ..	39,116	15,933	614	93,533
1912 ..	43,940	17,567	11,447	1,341,617
1913 ..	31,416	13,497	5,388	608,712
1914 ..	31,962	12,132	472	53,144
1915 ..	158,852	57,669	904	131,468
1916 ..	385,964	148,147	684	119,000
1917 ..	188,925	72,494	256	25,849
1918 ..	63,305	24,809	35	4,953
1919 ..	43,437	17,009	70	4,500
1920 ..	58,726	22,487	†15	1,082
1921 ..	6,731	2,705	6,739	571,543

† Exclusive of reshipments of domestic zinc.

ZINC ORE PRODUCTION.

Recoverable zinc content of zinc ore shipped from United States mines, in tons of 2,000 lbs.:

	1918.	1919.	1920.
Arkansas	951	189	329
Arizona	1,135	859	700
California	2,781	236	550
Colorado	44,567	25,723	25,000
Idaho	22,581	7,997	14,000
Kentucky	315	36	9
Joplin District:			
Kansas	30,197	47,636	61,069
Oklahoma	161,401	178,410	219,188
S. W. Missouri.	55,918	31,468	24,422
Central and S. E. Missouri	74	72	19
Montana	104,629	84,382	102,000
Nevada	8,362	4,502	4,500
New Hampshire	14	.....	.....
New Jersey	98,470	92,912	77,371
New Mexico	12,025	3,797	5,300
New York	3,776	5,120	5,654
Tennessee	21,071	23,747	19,217
Utah	9,200	2,216	3,000
Virginia	951	.....	.....
Washington	19	.....	204
Wisconsin District:			
Wisconsin	50,014	40,765	27,286
Illinois	3,792	6,788	4,720
Total	632,243	556,855	595,000

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Works at West Norfolk, Virginia

JOPLIN ZINC AND LEAD ORE SHIPMENTS.

Shipments of zinc and lead ores from the Joplin district.

	ZINC ORES.		LEAD ORES.		Combined.
	Tons.	Value.	Tons.	Value.	Value.
1921	320,035	$7,611,208	68,688	$3,442,820	$11,054,028
1920	561,333	25,761,385	93,562	8,588,620	34,350,005
1919	447,837	19,349,721	73,070	4,922,961	24,272,682
1918	389,988	19,887,063	68,738	6,168,062	26,055,125
1917	452,983	29,696,612	63,931	6,377,838	36,074,450
1916	379,469	31,466,332	53,326	4,488,986	35,955,318
1915	314,942	23,968,916	46,035	2,514,313	26,483,229
1914	264,549	10,032,481	42,816	1,978,451	12,010,932
1913	287,164	11,965,027	47,661	2,492,976	14,458,003
1912	299,408	15,539,520	45,306	2,540,249	18,079,777
1911	268,517	10,493,926	45,803	2,685,303	13,179,329
1910	296,671	11,919,583	44,416	2,335,432	14,255,015
1909	301,206	12,192,770	44,186	2,420,878	14,613,648
1908	259,598	8,917,073	39,119	2,152,896	11,069,969
1907	286,587	12,521,522	42,034	2,898,405	15,419,927
1906	278,929	12,079,602	39,188	3,049,573	15,129,175
1905	252,435	11,334,320	31,679	1,968,480	13,302,800
1904	267,240	9,601,200	34,362	1,886,150	11,487,350
1903	234,873	7,920,520	28,656	1,550,870	9,471,390
1902	262,545	7,973,770	31,625	1,457,120	9,430,890

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99.70 Pure

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ZINC ORE PRICES.

Monthly average prices of zinc blende ore at Joplin, Mo. To and including 1915 the figures are those of the Engineering and Mining Journal; thereafter our own averages are used.

	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.	1921.
Jan.	40.44	43.54	52.22	38.71	51.01	99.82	74.87	57.02	43.45	56.83	27.14
Feb.	39.16	43.31	44.34	41.15	65.93	108.90	82.78	55.00	41.78	51.21	22.78
Mar,	38.62	49.25	44.62	38.54	62.73	99.10	82.83	50.14	41.55	51.27	21.92
April	37.54	50.36	40.92	36.75	56.03	106.45	71.35	42.10	38.87	48.21	23.05
May	37.04	53.27	41.76	36.68	69.42	90.14	75.44	47.79	37.80	43.63	24.00
June	37.15	54.38	40.30	38.41	101.84	74.26	74.18	52.08	42.28	44.04	21.33
July	38.32	56.59	40.88	35.58	104.14	67.72	69.77	54.81	52.24	46.29	20.92
Aug.	40.35	53.27	44.54	41.02	79.87	59.11	70.00	53.30	49.00	47.52	20.81
Sept.	41.53	57.07	44.30	41.33	78.49	56.60	68.94	53.18	43.11	46.24	20.57
Oct.	40.92	55.97	40.07	38.46	81.72	64.34	64.86	54.70	44.37	40.90	23.92
Nov.	42.61	53.98	39.99	41.63	97.85	85.41	60.74	56.20	45.85	36.81	25.25
Dec.	40.76	52.39	37.50	44.95	92.64	87.26	61.12	44.60	49.21	31.51	27.00
Av.	39.90	51.95	42.62	39.43	78.47	83.26	70.52	51.68	43.63	46.07	23.78

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Unequalled facilities for the prompt and proper execution of your orders—large or small.

Buy all metal residues and drosses.

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Denver	Philadelphia	Seattle
Detroit	Pittsburgh	Vancouver, B. C

ZINC PRICES IN NEW YORK.

High, low and average prices of Prime Western Zinc (spelter) in New York.

Year.	High.	Low.	Average.
1892	4.90	4.35	4.63
1893	4.50	3.55	4.08
1894	4.00	3.25	3.52
1895 **Lowest** ..	4.35	**3.10**	3.63
1896	4.25	3.60	3.94
1897	4.35	3.75	4.12
1898	5.30	3.87½	4.57
1899	7.00	4.45	5.75
1900	4.80	4.10	4.40
1901	4.50	3.90	4.08½
1902	5.62½	4.10	4.90
1903	6.25	4.70	5.62
1904	6.12½	4.75	5.17
1905	6.65	5.30	5.99½
1906	6.85	6.00	6.27½
1907	7.25	4.35	6.20½
1908	5.17½	4.35	4.74
1909	6.50	4.75	5.52
1910	6.35	5.25	5.66
1911	7.00	5.50	5.91
1912	7.65	6.45	7.11
1913	7.35	5.10	5.80
1914	6.20	4.75	5.30
1915 **Highest** .	**27.50**	5.70	14.44
1916	21.17½	8.37½	13.75
1917	11.05	7.67½	9.11
1918	9.85	6.82½	8.31
1919	9.30	6.35	7.39
1920	9.85	6.00	8.13
1921	6.10	4.25	5.15
Average price for 30 years			**6.11**

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SHEET ZINC
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America's Pioneer Zinc Rollers

ZINC (Spelter) PRICES IN NEW YORK.

Monthly average price of Prime Western Zinc in New York.

	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.	1921.
Jan.	5.15	6.24	5.60	6.55	7.23	5.33	6.52	18.18	9.97	7.88	7.47	9.57	5.93
Feb.	4.96	5.86	5.70	6.70	6.49	5.46	8.86	20.09	10.49	7.91	6.71	9.17	5.37
Mar.	4.83	5.75	5.67	6.93	6.29	5.35	10.12	18.10	10.82	7.60	6.53	8.97	5.20
Apr.	4.98	5.64	5.54	6.87	5.79	5.22	11.51	18.61	9.73	7.00	6.51	8.62	5.25
May	5.09	5.38	5.52	6.89	5.51	5.16	15.82	15.93	9.48	7.34	6.46	8.07	5.36
June	5.41	5.36	5.67	7.05	5.23	5.12	22.62	12.80	9.45	8.04	6.92	7.93	4.94
July	5.42	5.35	5.79	7.23	5.41	5.03	20.80	9.70	8.82	8.75	7.91	8.17	4.77
Aug.	5.70	5.36	6.04	7.13	5.80	5.63	14.45	9.10	8.48	9.08	7.85	8.29	4.69
Sept.	5.78	5.59	6.04	7.55	5.83	5.52	14.49	9.23	8.26	9.67	7.55	8.07	4.75
Oct.	6.18	5.69	6.24	7.61	5.47	4.99	14.07	10.01	8.12	9.13	7.84	7.54	5.11
Nov.	6.42	5.98	6.63	7.50	5.34	5.15	17.04	11.92	7.90	8.74	8.18	6.86	5.18
Dec.	6.31	5.77	6.51	7.36	5.22	5.67	16.91	11.28	7.77	8.56	8.75	6.32	5.24½
Av.	5.52	5.66	5.91	7.11	5.80	5.30	14.44	13.75	9.11	8.31	7.39	8.13	5.15

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ZINC (Spelter) PRICES IN ST. LOUIS.

Monthly average prices of Prime Western Zinc, East St. Louis delivery.

	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.	1921.
Jan. ...	5.03	6.00	5.35	6.39	7.04	5.14	6.33	18.01	9.82	7.71	7.12	9.22	5.44
Feb. ...	4.81	5.52	5.40	6.53	6.25	5.27	8.62	19.92	10.31	7.73	6.36	8.82	4.95
Mar. ...	4.65	5.53	5.46	6.74	6.08	5.15	9.80	17.91	10.65	7.42	6.18	8.62	4.73½
Apr. ...	4.84	5.36	5.30	6.66	5.59	5.03	11.22	18.44	9.55	6.81	6.16	8.26	4.75
May	4.98	5.10	5.22	6.71	5.31	4.96	15.52	15.75	9.30	7.14	6.11	7.72	4.86
June ...	5.29	5.02	5.44	6.85	5.05	4.93	22.14	12.62	9.28	7.85	6.57	7.58	4.44
July ...	5.28	5.02	5.59	7.04	5.23	4.84	20.53	9.52	8.64	8.43	7.56	7.82	4.27
Aug. ...	5.61	5.13	5.88	6.94	5.64	5.45	14.19	8.92	8.30	8.73	7.50	7.95	4.19
Sept. ..	5.68	5.38	5.87	7.37	5.65	5.33	14.10	9.06	8.09	9.31	7.20	7.77	4.25
Oct.	6.08	5.50	6.07	7.39	5.27	4.81	13.89	9.83	7.95	8.77	7.49	7.25	4.61
Nov. ...	6.25	5.84	6.52	7.32	5.15	4.97	16.87	11.75	7.73	8.39	7.83	6.37	4.68
Dec.	6.14	5.59	6.28	7.19	5.03	5.49	16.72	11.11	7.59	8.21	8.40	5.84	4.84½
Av.	5.39	5.42	5.70	6.93	5.61	5.11	14.16	13.57	8.93	8.04	7.04	7.77	4.67

Quinton Spelter Co.

JOPLIN, MO.

WORKS, QUINTON, OKLA.

MANUFACTURERS OF

PRIME WESTERN

AND

BRASS SPECIAL

ZINC

The Reputation of Our Plant is Well Known

All correspondence regarding the purchase of zinc (spelter) should be addressed to the Joplin office.

ZINC PRICES IN ST. LOUIS.

Extreme price fluctuations and annual averages of prime Western zinc (spelter), East St. Louis delivery, for twenty years.

Year.	High.	Low.	Average.
1902 Lowest	5.35	3.87½	4.64
1903	5.70	4.45	5.25
1904	6.00	4.60	4.97
1905	6.55	5.07½	5.79
1906	6.65	5.75	6.10
1907	6.80	4.00	5.90
1908	5.05	4.20	4.62
1909	6.30	4.62½	5.39
1910	6.10	4.90	5.42
1911	6.85	5.20	5.70
1912	7.50	6.25	6.93
1913	7.17½	4.95	5.61
1914	6.00	4.60	5.11½
1915 Highest ...	27.00	5.55	14.16
1916	21.00	8.20	13.57
1917	10.87½	7.50	8.93½
1918	9.50	6.62½	8.04
1919	9.00	6.00	7.04
1920	9.50	5.50	7.77
1921	5.60	4.12½	4.67
Average for 20 years			6.78

HIGH GRADE ZINC PRICES.

Approximate yearly average prices of high grade zinc (99.90% pure) delivered at Eastern points.

1913	8.50c	1918	11.75c
1914	8.00	1919	8.12½
1915	31.00	1920	9.00
1916	22.12½	1921	6.83
1917	14.50		

Illinois Zinc Company

PERU, ILL.

Manufacturers of

Slab Zinc *Sheet Zinc*
Strip Zinc in Coils
Corrugated Zinc Sheets
Illinois Zinc Shingles
Formed Zinc Ridge Cap, Valleys
Zinc Dust
Sulphuric Acid
Electrolytic Zinc
Guaranteed 99.99% pure

Eastern Sales Office
280 Broadway
NEW YORK CITY
Telephone, Worth 1496

SHEET ZINC PRICE CHANGES.

Changes in the base price of Sheet Zinc f.o.b. smelter, with price of Zinc (spelter) East St. Louis, same date:

	Sheet Zinc	Zinc. (Spelter)
1905—		
High	7.75	6.55
Low	7.00	5.07½
1906—		
High	8.25	6.65
Low	7.65	5.75
1907—		
High	8.60	6.80
Low	7.00	4.00
1908—		
High	7.00	5.05
Low	7.00	4.20
1909—		
High	7.75	6.30
Low	6.75	4.62½
1910—		
High	7.75	6.10
Low	7.50	4.90
1911—		
High	8.50	6.85
Low	7.25	5.20
1912—		
High	9.00	7.50
Low	8.00	6.25
1913—		
High	9.00	7.17½
Low	7.00	4.95
1914—		
High	8.75	6.00
Low	7.00	4.60
1915—		
High ...	33.00	27.00
Low	8.75	5.55
1916—		
Jan. 26	24.00	19.00
Feb. 17	25.00	20.87½

	Sheet Zinc	Zinc. (Spelter)
1916—		
Apr. 22	25.50	18.75
May 15	24.50	15.50
" 23	23.50	14.87½
" 29	22.50	13.50
June 2	21.00	13.12½
" 13	20.00	13.37½
" 20	19.00	12.25
" 27	18.00	11.62½
July 6	17.00	9.37½
" 11	15.00	8.75
Oct. 26	16.00	10.12½
Nov. 10	17.00	11.12½
" 17	18.00	12.00
" 20	19.00	12.12½
" 24	20.00	12.87½
" 24	21.00	12.87½
1917—		
Apr. 25	20.00	8.87½
" 26	19.00	9.00
1918—		
Feb. 15	15.00	7.75
1919—		
Jan. 2	13.00	7.65
Feb. 6	11.00	6.37½
Mar. 19	10.00	6.15
July 23	10.50	8.00
Nov. 14	11.00	7.95
Dec. 16	11.50	8.17½
1920—		
Jan. 6	12.00	9.43¾
" 15	12.50	9.37½
Nov. 6	11.50	6.80
1921—		
Feb. 9	11.00	5.00
May 17	10.00	4.85
Nov. 14	9.00	4.72½
Dec. 27	8.50	4.82½

Established 1881

C. S. Trench & Co.

Metal Brokers

81 Fulton Street New York

Solicit your inquiries and orders for

TIN
LEAD
COPPER
SLAB ZINC
ANTIMONY
ALUMINUM

---

and offer their experience and information regarding the metal situation.

USES OF ZINC (Spelter).

No statistics are regularly issued concerning the use of zinc (spelter) but from approximate figures collected from time to time by Mr. W. R. Ingalls, it can be gathered that the percentages of zinc consumed in the United States for the principal purposes (prior to the war and during the war) were about as follows:

	1910-1913. Per cent.	1915-1918. Per cent.
Galvanizing	60 to 65	40 to 45
Brass making	17 to 20	35 to 40
Sheet rolling	10 to 12	11 to 14
Lead desilverization, castings and other purposes	5 to 7	6 to 8

Estimated High Records.

Galvanizing	1912	210,000 tons
Brass making	1916	175,000 "
Sheet rolling	1917	60,000 "

EXPORTS OF ZINC DROSS.

Exports of zinc dross from the United States according to quantity and value:

Year.	Pounds.	Value.
1909	14,138,898	$ 477,112
1910	9,457,304	380,950
1911	8,492,252	348,176
1912	410,568	17,985
1913	56,696	1,457
1914	5,071,067	240,944
1915	8,333,513	506,956
1916	96,575	10,301
1917	26,610,262	2,286,122
1918	31,631,364	2,238,913
1919	10,245,628	739,295
1920	4,890,963	316,637
1921	1,020,365	45,376

ZINC DUST.

Production of zinc dust was commenced in a commercial way in the United States in 1910 and the figures are given below together with those covering the imports.

Year.	Production.	Imports. Pounds.	Value.
1910	137,700	(a)	
1911	508,000	(a)	
1912	984,000	(b)2,534,332	(b)$143,815
1913	846,000	4,382,470	227,585
1914	2,007,735	4,704,107	218,338
1915	3,510,000	1,712,373	179,825
1916	5,217,827	1,867,702	333,344
1917	11,825,556	801,337	88,896
1918	13,989,939	23,046	2,661
1919	13,196,000	103,562	5,753
1920	22,678,000	33,364	6,207
1921	(d)	84,072	1,121

(a) Statistics not collected.
(b) Six months commencing July.
(d) Statistics not issued yet.

ZINC SPECIFICATIONS.

The specifications for primary or virgin zinc adopted by the **American Society for Testing Materials** on March 8, 1917, provide that the zinc be made from ore or similar raw material by a process of reduction and distillation, or by electrolysis, and not produced from re-worked metal, and shall be considered in five grades as follows:

	Maximum Impurities. (PER CENT.) Lead.	Iron.	Cadmium.	Total not over
High Grade*	0.07	0.03	0.07	0.10
Intermediate* ...	0.20	0.03	0.50	0.50
Brass Special* ..	0.60	0.03	0.50	1.00
Selected*	0.80	0.04	0.75	1.25
Prime Western ..	1.60	0.08	....	....

* It shall be free from aluminum.

The **Ordnance Department** specifications of March 8, 1918, provide that the chemical properties of the several grades of zinc shall be as follows:

	Grade A. Per Cent.	Grade B. Per Cent.	Grade C. Per Cent.
Zinc, minimum	99.50	99.35	98.00
Cadmium, maximum ..	.50	.50	.75
Iron, maximum	.03	.03	.08
Lead, maximum	.10	.25	1.00
Sum of cadmium, iron and lead maximum ..	.50	.65	1.50
Aluminum	none	none	traces
Other elements: tin, arsenic, sulphur, antimony, etc.	none	traces	traces

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The **Navy Department** specifications of June 1, 1918, provide that the chemical properties of the several grades of zinc shall be as follows:

	Grade A. Per Cent.	Grade B. Per Cent.	Grade C. Per Cent.
Zinc, minimum	99.85	99.35	98.00
Cadmium, maximum ..	.05	.50	.75
Iron, maximum	.03	.03	.08
Lead, maximum	.07	.20	1.00
Sum of cadmium, iron and lead, maximum	.10	.50	1.50
Aluminum, maximum	none	none	traces
Other elements: tin, arsenic, sulphur, antimony, etc.	none	traces	traces

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Note.—Both Ordnance Department and Navy Department specifications stipulate that ten grains of sample tested by Marsh tests shall not show more than a perceptible spot of arsenic on a cold porcelain surface.

PRODUCTION OF SECONDARY ZINC IN UNITED STATES.

(In tons of 2,000 lbs.)

	Re-distilled.	Re-melted.	In alloys other than brass.
1909		33,040	1,181
1910		41,223	2,709
1911		44,714	3,223
1912		52,251	3,912
1913	25,991	24,014	3,743
1914	20,545	22,424	3,914
1915	29,764	23,136	5,300
1916	28,776	21,037	2,600
1917	16,835	14,565	4,800
1918	9,918	17,190	11,082
1919	19,748	20,162	6,062
1920	21,371	21,479	7,650

SPELTER PRICES IN LONDON

Extreme fluctuations and annual averages of G. M. B. spelter in London.

	High.	Low.	Average.
1902..	£19 17s 6d	† £16 7s 6d	£18 10s 11d
1903..	23 18 9	19 15 0	20 19 5
1904..	25 10 0	21 2 6	22 11 10
1905..	29 2 6	23 5 0	25 7 7
1906..	29 10 0	24 0 0	27 1 6
1907..	28 2 6	19 10 0	23 16 9
1908..	21 17 6	18 0 0	20 3 6
1909..	23 6 3	21 1 3	22 2 11
1910..	24 5 0	21 12 6	23 0 0
1911..	27 17 6	22 17 6	25 3 2
1912..	27 12 6	25 0 0	26 3 3
1913..	26 10 0	20 5 0	22 14 3
1914..	40 0 0	21 5 0	23 6 8
1915..	*115 0 0	28 0 0	66 13 8
1916..	110 0 0	44 0 0	68 8 11
1917..	58 0 0	45 10 0	52 3 6
1918..	56 0 0	50 0 0	52 3 11
1919..	59 10 0	34 15 0	42 5 3
1920..	62 10 0	22 10 0	45 4 5
1921..	28 5 0	23 10 0	26 4 0

* Highest. † Lowest.

Aluminum Company of America

General Sales Office
2400 Oliver Building
Pittsburgh, Penna.

Producers of Aluminum

Manufacturers of:
Ingot and Sheet
Tubing
Rod and Wire
Rivets
Moulding
Extruded Shapes
Foil
Solders and Flux
Bronze Powder
Electrical Conductors

Export Sales Office
Aluminum Company of America
140 Nassau St., N. Y.

Canada
Northern Aluminum Company, Ltd.
Toronto

England
Northern Aluminium Company, Ltd.
London

PRODUCTION OF PRIMARY ALUMINUM IN UNITED STATES

The following table shows the growth of aluminum production in the United States since the beginning of the industry in 1883. Since 1904 the figures are based upon the estimates of the "Mineral Industry."

Year.	Production. Pounds.	Annual Increase. Pounds.	Per cent.
1883-90 .	149,265	.....	...
1891 ...	150,000	88,719	144.8
1892 ...	259,885	109,885	73.3
1893 ...	333,629	73,744	28.4
1894 ...	550,000	216,371	64.8
1895 ...	920,000	370,000	67.3
1896 ...	1,300,000	380,000	41.3
1897 ...	4,000,000	2,700,000	207.7
1898 ...	5,200,000	1,200,000	30.0
1899 ...	6,500,000	1,300,000	25.0
1900 ...	7,150,000	650,000	10.0
1901 ...	7,150,000	.....	...
1902 ...	7,300,000	150,000	2.1
1903 ...	7,500,000	200,000	2.7
1904 ...	7,700,000	200,000	2.6
1905 ...	11,350,000	3,650,000	47.4
1906 ...	14,350,000	3,000,000	26.4
1907 ...	26,000,000	11,650,000	81.2
1908 ...	13,000,000	*13,000,000	*50.0
1909 ...	15,000,000	2,000,000	15.4
1910 ...	12,000,000	*3,000,000	*20.0
1911 ...	28,600,000	16,600,000	138.3
1912 ...	40,000,000	11,400,000	39.8
1913 ...	64,900,000	24,900,000	62.2
1914 ...	90,000,000	25,100,000	38.6
1915 ...	99,000,000	9,000,000	10.0
1916 ...	139,000,000	40,000,000	40.4
1917 ...	200,000,000	61,000,000	43.8
1918 ...	225,000,000	25,000,000	12.5
1919 ...	198,000,000	*27,000,000	*12.0
1920 ...	198,000,000	.....	...

* Decrease.

ALUMINUM

Ingots Sheet

CHEMICO - ELECTROMETALLURGICAL
PRODUCTS TRADING CORPORATION
280 BROADWAY, NEW YORK

Sole agents in U. S. A. and Canada for all

FRENCH PRODUCERS

and

DET NORSKE NITRIDAKTIESELSKAP

STE. ALLUMINIO ITALIANO

WORLD'S PRODUCTION OF ALUMINUM.

As estimated by the Mineral Industry—in metric tons of 2,204.6 lbs.

	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.
United States	29,500	40,600	45,000	63,000	90,700	102,000	90,000	90,000
Canada	5,916	6,820	8,490	8,800	11,800	15,000	15,000	10,000
France	13,503	9,967	6,020	9,604	11,066	12,023	12,200	10,000
Great Britain	10,000	8,000	6,000	4,000	6,000	14,000	10,000	7,116
Norway	2,500	2,500	3,500	6,000	8,000	7,500	4,000	4,000
Switzerland	10,000	10,000	12,500	15,000	15,000	15,000	15,000	12,000
Austria-Hungary	5,000	4,000	2,500	5,000	5,000	8,000	5,000	2,000
Italy	874	937	904	1,126	1,740	1,715	1,673	1,200
Germany	800	800	2,000	8,000	15,000	25,000	15,000	10,000
Totals	78,093	82,924	86,914	120,230	164,306	200,328	167,874	146,316

VALUE OF ALUMINUM PRODUCED AND CONSUMED IN THE U. S.

	Domestic Production: Primary metal.	Secondary metal.	(b) Imports.	(c) Exports.	Apparent Consumption.
1913	$9,450,000	$2,199,480	$4,784,302	$ 966,094	$15,467,688
1914	10,080,000	1,673,140	4,074,583	1,546,510	14,281,213
1915	16,280,000	5,802,100	1,841,779	3,682,117	20,241,762
1916	33,900,000	23,430,200	1,785,870	15,417,134	43,698,936
1917	45,882,000	16,711,800	56,890	14,586,467	48,064,223
1918	41,159,000	10,113,600	554,586	10,869,388	40,957,798
1919	38,558,000	12,014,600	4,568,595	3,890,326	55,141,195
1920	41,375,000	9,489,100	13,077,022	5,630,781	58,310,341

(b) Imports for consumption, figures from Department of Commerce reports. Includes aluminum in crude form, leaf, sheets, plates, bars, strips, wire, rods, and all manufactures of; table, kitchen, and hospital ware. (c) Exports of aluminum and manufactures of; figures from Department of Commerce reports.

Arthur Seligman

165 Broadway, New York

METALS
AND
ORES

o

ALUMINUM

In All Forms

o

U. S. AGENCY OF

The BRITISH ALUMINIUM COMPANY, Ltd.

HEAD OFFICE

London, England.

ALUMINUM PRICES.

Approximate annual range in prices of 98%-99% aluminum in New York.

1900	32.00—33.00	1911	18.50—22.50
1901	31.00—33.00	1912	18.75—27.12½
1902	31.00—33.00	1913	18.50—27.12½
1903	31.00—33.00	1914	17.37½—21.50
1904	30.00—32.00	1915	18.75—60.00*
1905	33.00—35.00	1916	53.00—67.00*
1906	35.00—38.00	1917	35.00—64.00*
1907	36.00—50.00	1918	32.00—33.00
1908	22.00—34.00	1919	29.00—33.09
1909	22.00—24.00	1920	22.00—32.75
1910	22.00—24.00	1921	17.00—26.00

* During 1915, 1916 and 1917 the Aluminum Company of America sold consumers on annual contracts at much lower than the open market prices. The averages of these contract prices are estimated at 32.00c in 1915, 34.00c in 1916 and 37.00c in 1917.

PRODUCTION OF SECONDARY ALUMINUM IN THE UNITED STATES.

(Pounds)

	Remelted ingot.	Alloys.	Total.
1913	4,396,000	4,912,000	9,308,000
1914	5,582,000	3,462,000	9,044,000
1915	11,400,000	5,600,000	17,000,000
1916	25,800,000	12,800,000	38,600,000
1917	13,320,000	18,880,000	32,200,000
1918	12,100,000	18,000,000	30,100,000
1919	12,034,000	25,348,000	37,382,000
1920	10,000,000	21,000,000	31,000,000

AMALGAMATED METALS SELLING CO., LTD.

FORTY-TWO BROADWAY
NEW YORK

METALS — METAL PRODUCTS

FERRO ALLOYS — ORES

Trade Mark Registered

ALUMINUM

Sole U. S. Representatives

IMPORTS OF ALUMINUM.

	Crude, scrap, etc.		Mfrs. of	Total
	Pounds.	Value.	Value.	Value.
1911*	4,173,308	$ 598,272	$ 63,899	$ 662,171
1912	22,759,937	3,092,889	428,182	3,521,071
1913	23,185,775	3,905,977	1,090,229	4,996,206
1914	16,241,340	2,729,383	1,308,036	4,037,419
1915	8,534,834	1,511,988	301,863	1,813,851
1916	6,646,385	1,729,298	55,864	1,785,162
1917	58,703	18,084	57,461	75,545
1918	1,800,436	569,150	39,114	608,264
1919	17,644,004	5,810,557	318,407	6,128,964
1920	40,074,132	11,880,176	2,554,097	14,434,273
1921	30,577,790	6,707,892	2,061,577	8,769,469

* Six months commencing July.

EXPORTS OF ALUMINUM.

	Ingots, alloys, plates and sheets.		Mfrs. of	Total
	Pounds.	Value.	Value.	Value.
1911	—‡—		$1,158,603	$1,158,603
1912	—‡—		1,347,621	1,347,621
1913	—‡—		966,094	966,094
1914	—‡—		1,546,510	1,546,510
1915	—‡—		3,682,117	3,682,117
1916	—‡—		15,417,134	15,417,134
1917§	10,020,404	$4,571,172	10,015,275	14,586,467
1918	24,134,971	8,979,052	1,890,336	10,869,388
1919	5,020,352	1,744,896	2,145,430	3,890,326
1920	9,407,631	3,067,617	2,563,164	5,630,781
1921	2,196,108	801,075	2,307,782	3,108,857

‡ Included among "manufactures of" prior to July, 1917.

§ Six months commencing July.

"A Quality Product"

NATIONAL BRAND ALUMINUM

PIG — INGOT — SHOT

For Light, Strong, Sound Castings; for Smooth, Accurate Patterns. An aid in the Production of Good Steel Ingot.

THE NATIONAL SMELTING COMPANY

CLEVELAND, OHIO

ALUMINUM PRICES.

Monthly average prices based on open market quotations of pure aluminum (No. 1 Virgin 98-99%) in New York.

	1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.	1921.
Jan. ..	22.37	21.98	18.75	26.31	18.86	19.01	54.33	60.00	37.24	33.10	32.00	22.86
Feb. ..	24.00	21.49	18.75	26.20	18.80	19.20	57.50	58.05	37.25	32.26	31.83	24.50
Mar. .	23.94	21.25	18.94	26.72	18.30	18.94	60.52	59.23	32.79	29.81	31.50	23.44
Apr. ..	23.75	21.25	19.58	26.91	18.08	18.83	60.00	60.00	32.10	30.67	31.61	23.25
May ..	23.68	20.94	20.70	25.95	17.93	21.85	60.00	60.00	32.10	32.21	31.95	23.06
June .	23.02	20.06	21.92	24.79	17.82	29.66	62.09	59.85	33.10	32.83	32.00	22.75
July ..	22.80	20.00	22.99	23.34	17.59	32.50	60.15	54.33	33.10	32.57	32.00	22.62½
Aug. ..	22.35	19.98	23.75	22.73	20.38	34.00	59.48	48.48	33.10	32.23	32.21	20.22
Sept. .	22.25	19.80	24.50	22.00	19.28	46.75	61.90	42.60	33.10	32.50	31.44	19.02
Oct. ..	22.26	19.32	26.83	20.32	18.25	54.17	64.55	38.59	33.10	32.50	29.12	17.85
Nov. ..	22.78	19.25	27.06	19.49	18.83	57.85	64.80	36.85	33.10	32.50	27.80	17.50
Dec. ..	22.61	18.80	26.46	18.85	19.02	56.80	63.40	37.00	33.10	32.48	23.83	17.50
Av. ..	22.97	20.34	22.52	23.63	18.59	34.13	60.73	51.25	33.60	32.14	30.61	21.21½

ALUMINUM

QUALITY HIGHEST STANDARD

Notched Bar Ingot, Sheets Circles, Coils, Wire, Wire Rods, Tube Rods, Special Shapes

"Neuhausener Metal" of Swiss Origin

"RISING SUN"

TRADE MARK

J. E. DOCKENDORFF AND CO., INC.

Agents for the United States and Canada

New York
20 Broad Street

Detroit, Mich.
Book Building

SYMBOLS USED FOR DESIGNATING GRADES OF ALUMINUM.

American producers of Aluminum use symbols of numbers and the letter "S" to designate various grades and tempers of plates, sheets, wire and rods and numbers for Aluminum in ingots.

Notched bars and ingots and waffle ingots from the pure metal are furnished in two grades designated as:

No. 1 containing not less than 98 per cent. Aluminum.

No. 2 containing less than 98 per cent. Aluminum.

Alloys of Aluminum are designated by numbers instead of ingredients; the most popular are Nos. 12, 31 and 63.

On manufactured forms the number preceding the letter "S" designates the purity or alloy, viz.:

2 S is pure Aluminum.

3 S, 5 S, 15 S, etc., are alloys.

The number following the "S" designates the temper or degree of hardness; taken with the gauge of material each higher number denotes one gauge harder; thus:

2 S0 is pure Aluminum, dead soft,

2 S1 is one gauge or number hard,

2 S2 is two numbers hard, etc.,

the higher the number following the "S", the harder the temper up to full hard.

Tempers are also designated by quarter-hard, half-hard and three-quarters hard which means that the article is annealed at a period of manufacture to acquire the desired temper. Designating tempers this way the degree of hardness is divided into the number of gauges; if pure half hard, the material would be annealed at half gauge, as 16 gauge annealed at 8 gauge or 2S8; 20 gauge at 10 ga. or 2S10, etc. The same applies to other tempers as 16 gauge quarter hard is annealed at 12 ga. or 2S4 and 20 ga. at 15 ga. or 2S5, etc.

Material that is to be drawn, stamped, spun, etc., should be soft temper; for slight draw or stamp, temper should be quarter hard; if to be bent at a sharp angle or fold on itself and flat surface to be fairly rigid, temper should be half hard; if for slight bend balance to be rigid, temper should be three-quarters hard.

Cable Address:
CROWNSHIEL

CODES:
A1, A B C (4th, 5th, 5th Improved) Liebers
Liebers 5 Letter
Bentley's

CROWNSHIELD TRADING CORPORATION

30 Church St., New York

IMPORT

METALS - ORES

EXPORT

STEEL PRODUCTS

METALS

QUICKSILVER

PRODUCTION, IMPORTS AND EXPORTS OF QUICKSILVER.

	U. S. Production. Flasks of 75 lbs.	Value.	Imports Value.	Exports Value.
1909 ...	21,075	$888,710	$ 8,803	$266,243
1910 ...	20,601	958,153	381	91,077
1911 ...	21,256	977,989	251,386	13,995
1912 ...	25,064	1,053,941	39,920	13,360
1913 ...	20,213	813,171	75,361	43,574
1914 ...	16,548	811,680	271,984	70,753
1915 ...	21,033	1,804,631	282,752	225,509
1916 ...	29,932	3,768,139	515,919	670,475
1917 ...	36,159	3,808,266	448,032	998,470
1918 ...	32,883	4,060,064	533,622	338,620
1919 ...	21,415	1,933,560	791,226	817,328
1920 ...	13,070	1,041,156	971,510	129,993
1921 ...	Statistics not yet available.			18,869

QUICKSILVER PRICES IN NEW YORK.

Yearly and monthly average prices of Quicksilver in New York, according to the Engineering and Mining Journal, per flask of 75 pounds.

	1912.	1913.	1914.	1915.	1916.
Av...	$42.46	$39.54	$48.31	$87.01	$125.49
	1917.	**1918.**	**1919.**	**1920.**	**1921.**
Jan.	$81.04	$126.77	$105.50	$90.19	$48.44
Feb.	120.90	119.89	89.84	84.32	49.55
Mar.	113.30	121.63	71.56	92.61	46.80
Apr.	115.64	121.87	72.94	102.19	45.42
May	105.98	118.97	83.12	89.50	47.00
June	84.34	122.66	93.25	90.15	46.85
July	107.80	126.63	104.68	90.33	44.95
Aug.	115.00	125.56	107.08	83.81	45.03
Sept.	112.21	127.81	102.52	75.00	42.66
Oct.	100.94	127.18	86.35	67.20	39.84
Nov.	102.50	124.91	90.74	58.42	39.80
Dec.	115.00	117.70	98.27	49.58	49.21
Av.	$106.30	$123.47	$92.15	$81.12	$45.46

WORLD'S PRODUCTION OF ANTIMONY.

Owing to lack of data no complete statistics of the world's production of antimony are available, but the following table shows the approximate recoverable metal content of ore produced (antimonial lead ores not included) in 1913 and 1916, which saw the highest production during the war, together with such fragmentary reports as the U. S. Geological Survey has been able to obtain for 1920.

(In metric tons)

	1913.	1916.	1920.
United States	....	1,420	....
Canada	....	272	....
Mexico	2,340	829	1,572
Bolivia	30	15,077	‡
Peru	....	930	‡
Austria-Hungary ..	1,878	‡	‡
France	5,170	2,430	1,160†
Italy	360	4,334	38
Spain and Portugal	....	1,170†	‡
Algeria	186	8,940	‡
China	13,032	42,800	11,252
Australia	970	1,730	‡
Various	550	1,706	....
Total	24,516	84,000*	20,000*

* Estimated.

† Incomplete data; actual production probably larger.

‡ No data.

IMPORTS OF ANTIMONY.

(In pounds.)

	— 1920 —		— 1921 —	
	Ore.	Metal.	Ore.	Metal.
Jan.	.....	2,016,269	20,200	616,080
Feb.	26,141	2,766,932	149,507	269,696
Mar.	89,653	4,665,778	.....	1,776,484
Apr.	19,457	2,062,022	26,400	2,710,581
May	26,625	2,296,000	.....	891,180
June	.....	1,523,754	.....	3,367,600
July	152,720	2,267,058	.....	2,141,640
Aug.	146,284	2,570,743	.....	2,718,285
Sept.	685,581	1,020,012	.....	1,288,072
Oct.	32,452	1,621,529	.....	1,541,180
Nov.	71,591	354,699	.....	1,545,895
Dec.	112,937	1,782,325	.....	2,286,638
T'tl.	1,363,441	24,947,121	196,107	21,153,331

Years.	Crude and ore.	Metal and regulus.
1901	1,682,301	3,640,505
1902	3,129,069	5,388,739
1903	2,714,617	4,694,309
1904	2,488,518	4,268,045
1905	1,970,788	4,941,247
1906	1,972,658	10,305,734
1907	2,771,387	9,600,901
1908	3,287,218	8,089,915
1909	3,453,542	9,557,956
1910	1,346,962	7,955,945
1911	1,641,467	8,486,137
1912	1,562,066	13,936,873
1913	4,021,486	12,479,727
1914	*1,986,082	13,110,426
1915	*3,374,012	17,484,030
1916	*9,485,423	19,749,830
1917	*11,920,443	35,649,113
1918	*2,719,062	27,748,318
1919	*727,462	14,250,158
1920	*1,363,441	24,947,121
1921	*196,107	21,153,331

* Antimony contents.

ANTIMONY
"A. S. P."
BRAND

St. Helens Smelting Co.
Manchester, England

Smelted only from ore from their own mines. This is one of the finest *High Grade Antimony Metals* on the market.

The days are past for prejudice in favor of a name. You can buy no better than the *Best.*

Sole Agents U. S. A.

H. P. Winter & Co.
64 Wall Street New York

CONSUMPTION OF ANTIMONY IN THE UNITED STATES.

Compiled from data supplied by the U. S. Geological Survey, in tons of 2,000 pounds:

	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920	(b)1921.
Domestic output	....	.....	2,100	1,770	390	50	0	0	0
Contained in antimonial lead	2,508	2,693	3,425	3,496	2,759	2,566	1,943	2,033	1,300
Recovered in alloys	2,705	2,646	3,102	4,480	4,961	5,226	4,399	5,600	5,000
Imports:									
Metal and regulus	6,240	6,555	8,742	9,875	17,825	13,874	7,125	12,474	10,577
Crude and ore (c)	1,200	993	1,687	4,743	5,960	1,360	364	682	98
Totals	**12,653**	**12,887**	**19,056**	**24,364**	**31,895**	**23,076**	**13,831**	**20,789**	**16,975**
Exports	(a)	800	1,573	1,637	495	705	214	448	150
Available for consumption	**12,653**	**12.087**	**17,483**	**22,727**	**31,400**	**22,371**	**13,617**	**20,341**	**16,825**

(a) No data; (b)) estimated; (c) antimony contents.

PRODUCTION OF ANTIMONIAL LEAD IN THE UNITED STATES.

From foreign and domestic ore, in tons of 2,000 pounds.

	Total Antimonial lead.		Total Antimonial lead.	Antimony contents.		Total Antimonial lead	Antimony contents.
1902	9,169	1908	13,629	2,440	1915	23,224	3,425
1903	9,579	1909	12,896	2,360	1916	24,038	3,496
1904	11,001	1910	14,069	2,229	1917	18,646	2,759
1905	10,995	1911	14,078	2,254	1918	18,570	2,566
1906	10,546	1912	13,552	1,949	1919	13,874	1,943
1907	9,910	1913	16,665	2,508	1920	12,535	2.033
*Estimated.		1914	16,667	2,693	1921*	8,000	1,300

EDWARD HILL'S SON & CO.

64 Wall Street
NEW YORK

ANTIMONY METAL

COOKSON'S
R. M. M.
DOMESTIC

ORES

TIN
MANGANESE
ANTIMONY
TUNGSTEN
MOLYBDENUM
BISMUTH

CRUDE ANTIMONY (Needle)
CHINESE TIN
WHITE OXIDE OF ANTIMONY
ARSENIC
GOLDEN SULPHURET OF ANTIMONY
FULLER'S EARTH
PIG LEAD - SLAB ZINC

ANTIMONY PRICES.

Extreme price fluctuations and annual averages of Cookson's antimony in New York.

	High.	Low.	Average.
1895	8.50	7.75	
1896	8.25	7.25	
1897	8.50	7.00	
1898	9.75	8.00	
1899	12.00	10.00	
1900	11.10	10.00	10.80
1901	10.50	10.25	10.38
1902	10.25	9.25	9.94
1903	8.75	7.00	7.72
1904	10.00	7.00	7.78
1905	17.50	8.00	11.58
1906	28.00	14.00	22.85
1907	26.00	9.25	17.03
1908	9.50	8.00	8.56
1909	8.62½	7.87½	8.27
1910	8.50	7.50	8.24

Extreme price fluctuations and annual averages of ordinary grades (formerly Hungarian and French and latterly Chinese and Japanese brands) of antimony in New York.

	High.	Low.	Average.
1911	9.12½	6.90	7.48
1912	9.50	6.62½	7.63
1913	9.00	6.00	7.43
1914	18.00	5.30	8.53
1915	40.00	13.00	29.52
1916	45.00	10.50	25.33
1917	36.00	13.62½	20.73
1918	14.75	7.62½	12.55
1919	9.62½	6.50	8.16
1920	11.62½	5.20	8.38
1921	6.00	4.45	4.92

WAHCHANG'S
CHINESE ANTIMONY

W. C. C. BRAND

CHINESE NEEDLE ANTIMONY
(Crude) Lump and Powdered
WHITE ANTIMONY OXIDE
98-99 per cent. Soluble
TUNGSTEN CONCENTRATES
70 per cent. WO3 and over
CHINESE TIN, 99 and 96 per cent. Tin
ZINC AND LEAD ORES
MANGANESE ORES
Furnace and Chemical
BISMUTH ORES

IMPORTERS, EXPORTERS, and ENGINEERS

Wah Chang Trading Corporation

The world's largest antimony producers and largest importers in the U. S. A.

Main Office:

49th floor WOOLWORTH BUILDING, NEW YORK

Mines and Smelteries, Changsha, China.

CHINESE AND JAPANESE ANTIMONY.

Monthly average prices of Chinese and Japanese grade antimony (ordinary brands) in New York.

	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.	1921.
Jan. ...	7·57	7·50	7·15	6·89	8·77	6·03	15·24	42·26	16·46	14·23	7·59	10·53	5·22
Feb. ..	7·27	7·44	7·53	6·78	8·16	6·00	17·62	43·87	30·00	13·67	7·24	11·55	5·23
Mar. ..	7·11	7·33	8·75	6·78	7·91	5·94	20·93	44·71	32·75	13·12	6·83	10·97	5·30
Apr. ..	7·23	7·31	8·34	6·87	7·82	5·82	23·97	41·35	34·66	12·52	6·82	10·45	5·15½
May ..	7·24	7·30	8·06	6·98	7·75	5·78	34·71	32·20	25·57	12·41	7·56	9·44	5·25
June ..	7·14	7·30	7·38	7·07	7·62	5·62	36·53	20·40	19·77	12·99	8·37	7·93	5·06
July ..	7·14	7·29	7·32	7·37	7·55	5·44	35·98	14·55	15·81	13·18	8·81	7·43	4·68
Aug. ..	7·55	7·25	7·22	7·58	7·48	13·05	32·57	12·62	15·25	13·81	8·92	7·04	4·55
Sept. ..	7·52	7·22	7·13	8·00	7·31	9·79	28·50	11·57	14·95	13·93	8·53	7·10	4·53
Oct. ..	7·46	7·15	6·94	9·11	6·46	11·64	30·96	12·44	14·66	13·44	8·60	6·62	4·94
Nov. ..	7·53	7·13	6·94	9·11	6·28	14·14	37·88	13·65	13·90	9·10	9·06	6·05	4·66
Dec. ..	7·50	7·03	6·97	9·05	6·05	13·15	39·36	14·39	14·97	8·19	9·56	5·46	4·51
Av. ...	7·35	7·27	7·48	7·63	7·43	8·53	29·52	25·33	20·73	12·55	8·16	8·38	4·92

UNITED STATES NICKEL CO.

NEW BRUNSWICK, NEW JERSEY

Refiners of

NICKEL

SHOT
CUBE
INGOT
RONDELLE

Producers and Importers
of
NEW CALEDONIAN CHROME ORE

NICKEL.

Imports.

Imports of nickel and oxide, and nickel ore and matte:

	Nickel and oxide	Ore and matte.*	Combined Value.
	(Pounds.)		
1906	.....	34,082,042	$1,867,568
1907	.....	18,598,638	2,233,867
1908	.....	16,825,291	2,487,605
1909	.....	22,194,102	3,034,407
1910	.....	32,363,251	4,213,079
1911	.....	29,829,268	4,022,716
1912	.....	46,317,078	5,724,431
1913	.....	47,446,520	6,562,555
1914	.....	35,098,958	5,000,594
1915	.....	56,599,381	7,629,686
1916	.....	72,649,377	9,899,340
1917	.....	75,526,767	9,617,163
1918	13,942	73,193,205	11,520,775
1919	7,259,160	29,303,228	8,334,135
1920	6,905,968	41,586,108	10,657,193
1921	38,000	2,042,178	432,786

* Nickel content.
† Eleven months ending November.

Exports.

Exports of Nickel, Nickel Oxide and Matte.

	Pounds.	Value.
1906	10,620,410	$3,493,643
1907	8,772,578	2,845,663
1908	9,770,248	3,297,988
1909	12,048,737	4,101,976
1910	15,244,937	4,704,088
1911	25,099,586	8,283,777
1912	25,815,016	8,515,332
1913	29,173,088	9,686,794
1914	27,595,152	9,455,528
1915	26,418,550	10,128,514
1916	33,404,011	12,952,493
1917	21,992,820	8,936,620
1918	17,469,500	6,927,041
1919	3,810,656	1,697,544
1920	1,215,232	574,845
1921	425,851	103,372

MONEL METAL RESISTS:-

CORROSION
SUPERHEATED STEAM
HIGH TEMPERATURE
ALKALIES
MOST ACIDS

MONEL METAL CAN BE:-

MACHINED	SPUN
CAST	WELDED
FORGED	BRAZED
ROLLED	SOLDERED
DRAWN	PUNCHED

MONEL METAL IS PRODUCED IN ALL COMMERCIAL FORMS

WRITE FOR LITERATURE TO:

THE INTERNATIONAL NICKEL CO.
67 Wall Street, New York, N. Y.

ELECTROLYTIC NICKEL — 99.7%
SHOT — High and Low Carbon
INGOTS — 25 and 50 lb. sizes.
NICKEL OXIDE — 77.5%.

ALSO NICKEL IN FABRICATED FORMS.

NICKEL PRICES.

The following quotations on Nickel, Nickel Alloys and Monel Metal are issued by the International Nickel Company; in force April 1, 1922.

NICKEL.

Ingot.....35c per lb.; Shot.....35c per lb.; Electrolytic....38c per lb.

MONEL METAL

Shot	35c per lb.	Hot Rolled Rods	42c per lb. base
Blocks	35c per lb.	Hot Rolled Sheets	55c per lb. base
Ingots	38c per lb.		

EXPORTS OF NICKEL.

Exports of nickel, oxide and matte from the United States distributed according to destination; in pounds.

Destination:	1916.	1917.	1918.	1919.	1920.
France	2,823,132	1,232,142	2,233,736	1,346,119	72,912
Italy	2,715,521	5,470,042	5,100,847	525,940	.....
Netherlands	523,463	.....	.....	57,091	.....
Russia	8,916,241	168,000	.....	.....	.....
United Kingdom	16,674,487	14,409,272	7,803,178	747,437	69,622
Japan	245,920	275,018	2,063,933	582,946	352,834
Other countries	1,505,247	438,346	267,806	551,123	719,864
Totals	33,404,011	21,992,820	17,469,500	3,810,656	1,215,232

The exports of nickel, nickel oxide and matte in 1921 amounted to 425,851 lbs.

Manufactured by

The Mond Nickel Company, Ltd.

London England

Sole Agents For
U. S. A.

Lewis Lazarus & Sons

61 Broadway

New York

CANADIAN NICKEL PRODUCTION AND EXPORTS.

	Ore smelted Tons.	†Nickel Production Pounds.	Value.
1914	947,053	45,517,937	$13,655,381
1915	1,272,283	68,308,657	20,492,597
1916	1,521,689	82,958,564	29,035,497
1917	1,453,661	84,330,280	33,732,112
1918	1,559,892	92,507,293	37,002,917
1919	754,567	44,544,883	17,817,053
1920	1,086,159	61,335,706	24,534,282

† Refined nickel and estimated nickel contents of nickel oxides and nickel salts.

Exports.

Nickel in ore and matte and refined nickel:

	Pounds.	Value.
1914	46,528,327	$ 5,149,427
1915	66,410,442	7,394,446
1916	80,441,700	8,662,179
1917	81,272,400	8,708,650
1918	87,478,500	11,263,246
1919	41,016,400	8,077,593
1920	60,199,300	11,988,857

PRODUCTION OF BY-PRODUCT NICKEL IN UNITED STATES.

	Pounds.		Pounds.
1913	482,000	1917	804,000
1914	846,000	1918	882,000
1915	1,644,000	1919	1,022,000
1916	1,836,000	1920	698,000

USES OF NICKEL.

Approximate percentages of the principal uses of nickel in United States:

	Per cent.
Steel	77
Nickel silver	11
Anode (nickel plating)	2
Miscellaneous (coinage, etc.)	10

MAGNESIUM.

Production of metallic magnesium in the United States.

	Quantity, Pounds.	Average price.	Value.
1915	87,500	$5.00	$440,000
1916	75,400	4.13	311,462
1917	115,813	2.02	233,626
1918	284,118	1.81	615,217
1919	127,465	1.83	247,302
1920	*	1.60	*

* Permission to publish withheld.

MOLYBDENUM.

Molybdenum in ore and concentrates produced and sold in the United States.

	Quantity sold Pounds.	Value.
1914	1,297	$1,297
1915	181,769	114,866
1916	206,740	205,000
1917	350,200	495,350
1918	861,637	1,253,700

No figures published for 1919 and 1920.

COBALT.

Imports of cobalt ore, cobalt, oxide and zaffer.

	Quantity Pounds.	Value.
1914	344,556	$274,538
1915	208,047	219,111
1916	343,409	367,245
1917	500,200	645,771
1918	712,987	919,798
1919	208,980	329,033
1920	359,586	731,277

CADMIUM.

Production of metallic cadmium in the United States.

	Quantity, Pounds.	Average price.	Value.
1914	91,409	$.89	$81,205
1915	91,415	1.19	108,443
1916	135,212	1.56	210,931
1917	207,408	1.47	305,097
1918	127,164	1.48	188,203
1919	99,939	1.22	121,926
1920	129,283	1.17	151,261

WORLD'S PRODUCTION OF GOLD AND SILVER.

Value of the world's production of gold and silver according to figures issued by the Director of the Mint.

	Gold.	Silver.
1906	$402,503,000	$111,721,100
1907	412,966,600	121,577,100
1908	442,837,000	108,655,100
1909	454,059,100	110,364,400
1910	455,239,100	119,727,000
1911	461,980,500	122,143,800
1912	466,136,100	137,883,800
1913	459,939,900	135,246,400
1914	439,078,260	93,174,691
1915	468,724,918	95,587,526
1916	444,176,500	115,905,654
1917	419,422,100	155,941,628
1918	383,605,552	195,088,872
1919	365,788,796	197,788,277
1920	334,987,610	177,592,411
Totals	$6,411,445,036	$1,998,397,759

VALUE OF METALLIC PRODUCTS OF THE UNITED STATES.

(According to U. S. Geological Survey.)

1885	$172,218,000	1903	$588,753,000
1886	204,400,000	1904	501,114,000
1887	240,791,000	1905	702,585,000
1888	242,010,000	1906	886,180,000
1889	250,325,000	1907	904,108,000
1890	303,440,000	1908	550,768,000
1891	280,485,000	1909	754,944,000
1892	283,715,000	1910	749,879,000
1893	223,154,000	1911	680,907,000
1894	186,835,000	1912	862,008,000
1895	248,033,000	1913	878,869,000
1896	252,075,000	1914	686,639,000
1897	269,934,000	1915	991,730,000
1898	308,247,000	1916	1,620,745,000
1899	483,521,000	1917	2,086,234,000
1900	513,732,000	1918	2,153,318,000
1901	493,314,000	1919	1,351,600,000
1902	604,517,000	1920	1,724,300,000

REFINERS ASSAYERS SMELTERS

Platinum Palladium Iridium
Rhodium Ruthenium Osmium
Gold and Silver

MANUFACTURERS

Platinum in All Forms
Precious Metal Alloys
Manganin Constantan

PLATINUM

Wire, Sheet, Foil, Tubing
Contacts and Sparking Points
Jewelers Settings and Solders
Seamless Wedding Ring Blanks
Platinum Laboratory Apparatus
Scrap Purchased or Exchanged

GOLD and SILVER

Bullion, Sheet, Wire, Tubing
Solders and Alloys
Settings, Ring Blanks, Findings
Literature and quotations on request

BAKER & CO., INC.,

Refiners and Workers Platinum, Gold and Silver

NEWARK, N. J.

New York Chicago

U. S. GOLD PRODUCTION.

Figures issued by the Director of the Mint.

Year.	Fine ounces.	Value.
1907	4,374,827	$90,435,700
1908	4,574,340	94,560,000
1909	4,821,701	99,673,400
1910	4,657,017	96,269,100
1911	4,687,053	96,890,000
1912	4,520,719	93,451,500
1913	4,299,784	88,884,400
1914	4,572,976	94,531,800
1915	4,887,604	101,035,700
1916	4,479,057	92,590,300
1917	4,051,440	83,750,700
1918	3,320,784	68,646,700
1919	2,918,628	60,333,400
1920	2,476,166	51,186,900
1921	2,375,479	49,105,500
Total for 15 years	61,017,575	$1,261,345,100

U. S. SILVER PRODUCTION.

Figures issued by the Director of the Mint.

Year.	Fine ounces.	Commercial Value.
1907	56,514,700	$37,299,700
1908	52,440,800	28,050,600
1909	54,721,500	28,455,200
1910	57,137,900	30,854,500
1911	60,399,400	32,615,700
1912	63,766,800	39,197,500
1913	66,801,500	40,348,100
1914	72,455,100	40,067,700
1915	74,961,075	37,397,300
1916	74,414,802	48,953,000
1917	71,740,362	59,078,100
1918	67,810,139	66,485,129
1919	56,682,445	63,533,652
1920	55,361,573	60,801,955
1921	50,364,389	*50,364,389
Total for 15 yrs.	935,572,485	$663,502,525

* Computed at $1.00 per ounce in accordance with the Pittman Act which became effective June 1, 1920.

Established 1881

Irvington Smelting & Refining Works

Formerly Glorieux Smelting & Refining Works

Buyers, Smelters & Refiners of

Gold, Silver, Lead, Copper and Platinum Ores, Sweeps and Bullion.

Manufacturers of Copper Sulphate

Irvington, New Jersey

Lehigh Valley R. R. connection

New York Office:
CHARLES FNGELHARD
Hudson Terminal Bldgs., 30 Church Street

SILVER IMPORTS AND EXPORTS.

Imports.

1910	$45,878,168	1916	$32,263,289
1911	43,746,571	1917	53,340,477
1912	48,401,086	1918	71,375,699
1913	35,867,819	1919	89,410,018
1914	25,959,187	1920	88,060,041
1915	34,483,954	1921	63,242,671

Exports.

	Domestic.	Foreign.	Total.
1910			$57,360,973
1911			65,664,646
1912			**71,961,755**
1913			62,776,631
1914			51,603,060
1915	$47,467,235	$6,131,649	53,598,884
1916	64,985,637	5,609,400	70,595,037
1917	77,726,074	6,404,802	84,130,876
1918	239,972,503	12,873,961	252,846,464
1919	207,765,243	31,255,808	239,021,051
1920	85,016,071	28,600,153	113,616,224
1921	24,502,947	27,072,452	51,575,399

* Eleven months ending November.

GOLD IMPORTS AND EXPORTS.

1910	$59,222,518	$58,774,822
1911	57,445,184	37,183,074
1912	66,548,772	47,424,842
1913	63,704,832	91,798,610
1914	57,387,741	222,616,156
1915	451,954,590	31,425,918
1916	685,990,234	155,792,927
1917	552,454,374	371,883,884
1918	62,042,748	41,069,818
1919	76,534,046	368,185,248
1920	417,068,273	322,091,208
1921	691,267,448	23,891,377

TELEPHONE 7583 BARCLAY

CABLE ADDRESS, MATTHEY, NEW YORK

JOHNSON MATTHEY & COMPANY, Inc.

BULLION MERCHANTS

CHEMISTS AND METALLURGISTS

Dealers in Platinum, the Precious Metals and Rare Earths

JOHNSON MATTHEY & CO., LTD
Hatton Garden
London, E. C., Eng.

Official Assayers and Refiners to the
Bank of England

36th Floor
Woolworth Building
New York

SILVER PRICES IN NEW YORK.

Monthly average prices if Silver in New York, per fine ounce.

	1910.	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.†	1921.
Jan. ..	52·37	53·79	56·22	62·93	57·57	48·85	56·77	75·63	88·70	101·12	132·83	65·95
Feb. ..	51·53	52·22	59·04	61·64	57·51	48·48	56·75	77·58	85·72	101·12	131·29	59·32
Mar. ..	51·45	52·74	58·37	57·87	58·07	50·24	57·93	73·86	88·08	101·12	125·55	56·03
Apr. ..	53·22	53·33	59·23	59·49	58·52	50·25	64·41	73·87	95·35	101·12	119·53	59·34
May ..	53·87	53·31	60·88	60·36	58·17	49·91	74·27	74·74	99·50	107·11	102·58	59·85
June ..	53·46	53·04	61·29	58·99	56·47	49·03	65·02	76·97	99·50	110·44	90·82	58·51
July ..	54·15	52·63	60·60	58·72	54·68	47·52	62·94	79·01	99·62	106·39	91·93	60·26
Aug. ..	52·91	52·17	61·61	59·29	*54·34	47·16	66·08	85·41	100·29	111·37	96·18	61·60
Sept. .	53·30	52·43	63·08	60·64	53·29	48·68	68·51	100·74	101·12	114·54	93·65	66·15
Oct. ..	55·49	53·34	63·47	60·79	50·65	49·38	67·85	87·33	101·12	119·14	83·48	70·97
Nov. ..	55·64	55·72	62·79	58·99	49·08	51·71	71·60	85·89	101·12	127·91	77·64	68·23
Dec. ..	54·43	54·90	63·37	57·76	49·37	54·97	75·76	85·96	101·12	131·98	64·78	65·76
Av. ...	53·49	53·30	60·83	59·79	54·81	49·68	65·66	81·42	96·77	111·11	100·86	62·66½

† Since June 17th the averages are based on the price of foreign silver, the price on domestic silver being retained at $1.00 by Government purchases under the Pittman Act.

* Quotations suspended August 1st to 21st.

QUALITY AN FIRST

PLATINUM

PLATE — WIRE — SEAMLESS TUBING
ANY SIZE ANY HARDNESS

PLATINUM - IRIDIUM

Contacts—in any form—Rivets.
Also welded on screws or shanks.

PLATINUM

For chemical purposes. Crucibles, dishes, wares of all sorts, Gauze. Salts of the Platinum metals.

Alloys of Platinum & Palladium

With gold—Other alloys of the Precious Metals.

**PALLADIUM, IRIDIUM, OSMIUM
RHODIUM, RUTHENIUM
AND THEIR SALTS**

REFINERS, SMELTERS and ASSAYERS of PLATINUM, GOLD and SILVER

AMERICAN PLATINUM WORKS

**N. J. R. R. Ave. at OLIVER St.
NEWARK, N. J.**

New York Office:
CHARLES ENGELHARD
30 Church Street

WORLD'S PRODUCTION OF PLATINUM.

Estimated world's production of crude platinum, in troy ounces.

Country.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.
British India ..	57	58	37	18	9	4	....	....	....
Canada	30	50	30	100	60	80	40	30	25
Colombia	12,000	15,000	17,500	18,000	25,000	32,000	35,000	35,000	35,000
New So. Wales	610	442	244	56	82	259	607	213	*
Russia	300,000	250,000	241,200	124,000	63,900	50,000	25,000	30,000	35,000
Tasmania	779	1,262	1,019	247	222	332	1,607	1,607	2,009
United States..	721	483	570	742	750	605	647	824	613
Totals	**314,197**	**267,295**	**260,600**	**143,163**	**90,023**	**83,280**	**62,901**	**67,674**	**72,647**

* No basis for estimate.

CONSUMPTION OF PLATINUM.

Platinum metals used in the United States in 1920, by consuming industries, in troy ounces.

Industry.	Platinum.	Iridium.	Palladium.	Totals.	% of total.
Chemical	13,226	43	240	13,509	9·58
Electrical	23,029	2,673	1,784	27,486	19·49
Dental	6,413	114	8,898	15,425	10·94
Jewelry	77,267	3,108	593	80,968	57·40
Miscellaneous	3,119	116	418	3,653	2·59
Totals	**123,054**	**6,054**	**11,933**	**141,041**	**100.00**

ESTABLISHED
1842

BISHOP STANDARD PLATINUM

IN MANUFACTURED FORMS

SHEET - WIRE - CONTACTS

Alloys of Precious Metals

REFINING SMELTING

ASSAYING

J. BISHOP & CO.

PLATINUM WORKS

"THE FIRST PLATINUM WORKS IN U. S."

MALVERN, PA.

PLATINUM.

Recovery of new platinum by refiners in the United States:

	Quantity, Troy oz.	Value.
1905	318	$5,320
1906	1,439	45,189
1907	357	10,589
1908	750	14,350
1909	638	15,956
1910	773	25,277
1911	940	40,890
1912	1,005	45,778
1913	1,034	46,530
1914	3,430	154,350
1915	6,495	322,347
1916	24,518	2,044,801
1917	33,009	3,393,985
1918	54,399	5,763,574
1919	40,220	4,609,614
1920	36,015	3,994,064

IMPORTS OF PLATINUM.

Imports of platinum or crude platinum and unmanufactured products, ingots, bars, sheets, wire:

	Quantity, Troy oz.	Value.
1905	104,196	$1,985,107
1906	137,556	3,601,021
1907	74,208	2,509,926
1908	50,768	1,096,615
1909	118,851	2,557,574
1910	120,478	3,320,699
1911	122,300	4,722,752
1912	104,683	4,334,488
1913	117,947	4,938,706
1914	72,267	2,934,580
1915	61,437	2,340,476
1916	53,484	3,138,396
1917	30,316	2,414,773
1918	54,963	4,949,855
1919	54,550	5,229,309
1920	80,955	8,474,499
1921	61,941	4,115,235

This Trademark Stands for the Best There Is In

PLATINUM CONTACT POINTS

Welded Rivets and Screws
for all purposes

SILVER CONTACT POINTS

In Screw and Rivet Form

PLATINUM AND PLATINUM IRIDIUM

All percentages in Sheet and Wire

WELDED PLATINUM

ON WHITE, GREEN, RED OR
YELLOW GOLD SHEET
All Ratios from 1-2 to 1-50

18 KT. WHITE GOLD

In Any Form

THERMOSTATIC METAL

Welded Bi-Metallic Sheet (Invar on Copper Alloy) For heat regulating and compensating devices.

THE H. A. WILSON COMPANY

97 Chestnut St., NEWARK, N. J.

PLATINUM PRICES IN NEW YORK.

Monthly average prices of Platinum in New York according to the Engineering and Mining Journal, per troy ounce.

	1911.	1912.	1913.	1914.	1915.	1916.	1917.	1918.	1919.	1920.	1921.
Jan.	$39.06	$46.00	$45.50	$43.38	$41.10	$90.05	$87.83	$105.92	$104.85	$154.23	$73.40
Feb.	39.31	45.63	45.50	43.50	40.00	90.00	103.75	107.68	100.43	151.59	70.23
Mar.	41.00	45.50	45.50	43.50	39.50	90.75	103.33	108.00	99.20	138.56	72.46
April	41.35	45.50	45.50	43.50	38.63	83.10	103.77	108.00	99.85	127.04	73.40
May	42.81	45.50	45.50	43.50	38.50	80.50	105.00	106.27	102.60	97.50	73.74
June	42.88	45.50	45.50	43.50	38.00	78.13	104.75	105.00	105.80	85.19	74.94
July	42.95	45.50	45.50	43.50	38.00	63.60	103.88	105.00	105.90	83.94	70.44
Aug.	44.38	45.50	44.90	50.20	39.25	62.56	104.55	105.00	107.60	111.44	73.22
Sept.	45.31	45.50	43.96	50.00	50.00	84.25	104.13	105.00	128.70	115.20	75.96
Oct.	46.25	45.50	44.00	49.50	54.50	89.75	104.00	105.00	132.21	101.70	81.80
Nov.	46.13	45.50	43.70	45.45	62.63	101.25	104.52	105.00	136.74	84.75	82.61
Dec.	46.00	45.50	43.45	42.19	85.50	86.87	104.38	105.54	151.35	79.62	78.19
Av.	$43.12	$45.55	$44.88	$45.14	$47.13	$83.40	$102.82	$105.95	$114.61	$110.90	$75.03

R. & H. PLATINUM WORKS

REFINERS AND WORKERS OF
PLATINUM, GOLD AND SILVER

General Office :

709-717 SIXTH AVE., NEW YORK

Manufacturers of

Platinum
Sheet or Wire

Platinum Iridium
Rivets
Wire
Sheet

Contact Points
for all
Electrical purposes

All forms of
Platinum Ware

Platinum Chloride

Chloro Platinite
Potassium

Plant :

PERTH AMBOY, NEW JERSEY

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BUYERS' DIRECTORY

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S. L. Jones & Co., Inc., 44 Beaver St., N. Y.
Grasselli Chemical Co., Cleveland, O.
U. S. Smelt., Ref. & Min. Co., 120 Broadway, N. Y.

ACID (Muriatic)

American Metal Co., Ltd., 61 Broadway, N. Y.
American Smelting & Ref. Co. 120 B'way, N. Y.
S. L. Jones & Co., Inc., 44 Beaver St., N. Y.
Grasselli Chemical Co., Cleveland, O.
Internat'l Minerals & Metals Corp., 61 B'way, N.Y.
Mineral Point Zinc Co., Chicago, Ill.
New Jersey Zinc Co., 160 Front St., N. Y.

ACID (Sulphuric)

American Metal Co., Ltd., 61 Broadway, N. Y.
American Zinc, Lead & Smelt. Co., 120 B'way, N.Y.
The Cleveland-Cliffs Iron Co., Cleveland, O.
S. L. Jones & Co., Inc., 44 Beaver St., N. Y.
Grasselli Chemical Co., Cleveland, O.
Hegeler Zinc Co., Danville, Ill.
Illinois Zinc Co., Peru, Ill.
Internat'l Minerals & Metals Corp., 61 B'way, N.Y.
Adolph Lewisohn & Sons, 61 Broadway, N. Y.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.
Mineral Point Zinc Co., Chicago, Ill.
New Jersey Zinc Co., 160 Front St., N. Y.

ALUMINUM (Ingots)

Aluminum Company of America, Pittsburgh, Pa.
Amalgamated Metals Sell. Co., Ltd., 42 B'way, N.Y.
American Metal Co., Ltd., 61 Broadway, N. Y.
American Zinc Products Co., Greencastle, Ind.
S. Birkenstein & Sons, 389 W. Ontario St., Chi., Ill.
Chemico-Electrometallurgical Products Trad. Corp., 280 B'way, N. Y.
J. E. Dockendorff & Co., Inc., 20 Broad St., N. Y.
R. M. Easdale & Co., Glasgow, Scotland,

ALUMINUM (Ingots) (Ctd.)

Ellenwood & Doyle, Inc., 29 Great Jones St. N. Y.
Girard Smelting & Refining Co., Philadelphia, Pa.
Great Western Smelt. & Ref. Co., Chicago, Ill.
Chas. Hardy & Ruperti, Inc., 115 Broad St., N. Y.
Hendricks Bros. Inc., 49 Cliff St., N. Y.
Internat'l Minerals & Metals Corp., 61 B'way, NY
H. Kramer & Co., 1324 W. 21st St., Chicago, Ill.
C. W. Leavitt & Co., 30 Church St., N. Y.
Michigan Smelting & Refining Co., Detroit, Mich.
More-Jones Brass & Metal Co., St. Louis, Mo.
E. L. Murphy & Co., Webster Bldg., Chicago, Ill.
Nassau Smelt. & Ref. Wks., 603 W. 29th St., N. Y.
National Smelting Co., Cleveland, Ohio.
Philipp Bros., Inc., 29 Broadway, N. Y.
Richards & Co., Inc., Boston, Mass.
Rogers, Brown & Co., Cincinnati, Ohio.
A. Seligman, 165 Broadway, N. Y.
Senter-Robbins-Fox Corp., 217 B'way, N. Y.
E. J. Smith & Co., Kings Rd., Birmingham, Eng.
Tottenville Copper Co., Tottenville, N. Y.
C. S. Trench & Co., 81 Fulton St., N. Y.
Nathan Trotter & Co., Philadelphia, Pa.
Vernon Metal & Produce Co., 25 Beaver St., N. Y.

ALUMINUM (Sheets, wire, etc.)

Aluminum Co. of America, Pittsburgh, Pa.
Amalgamated Metals Sell. Co., Ltd., 42 B'way, N.Y.
American Zinc Products Co., Greencastle, Ind.
S. Birkenstein & Sons, 389 W. Ontario St. Chi., Ill.
Chemico-Electrometallurgical Prod. Trading Corp., 280 B'way, N. Y.
J. E. Dockendorff & Co., Inc., 20 Broad St., N. Y.
Ellenwood & Doyle, Inc., 29 Great Jones St. N. Y.
Chas. Hardy & Ruperti, Inc., 115 Broad St., N. Y.
Internat'l Minerals & Metals Corp., 61 B'way, NY
C. W. Leavitt & Co., 30 Church St., N. Y.
Michigan Smelting & Refining Co., Detroit, Mich.
E. L. Murphy & Co., Webster Bldg., Chicago, Ill.
Philipp Bros., Inc., 29 Broadway, N. Y.
Richards & Co., Inc., Boston, Mass.
A. Seligman, 165 Broadway, N. Y.
Senter-Robbins-Fox Corp., 217 B'way, N. Y.

ALUMINUM, Sheets, Wire, etc. (Duralumin)

Baush Machine Tool Co., Springfield, Mass.

ALUMINUM POWDER

Aluminum Co. of America, Pittsburgh, Pa.
Chas. Hardy & Ruperti Inc., 115 Broad St., N. Y.
Nassau Smelt. & Ref. Wks., 603 W. 29th St., N. Y.
Philipp Bros., Inc., 29 Broadway, N. Y.
Senter-Robbins-Fox Corp., 217 B'way, N. Y.
Tottenville Copper Co., Tottenville, N. Y.

ANODES (Nickel)

Senter-Robbins-Fox Corp., 217 B'way, N. Y.
Seymour Mfg. Co., Seymour, Conn.
E. J. Smith & Co., Kings Road, Birmingham, Eng.
U. S. Nickel Co., New Brunswick, N. J.

ANODES (Zinc)

Grasselli Chemical Co., Cleveland, O.
Great Western Smelt. & Ref. Wks., Chicago, Ill.
Mineral Point Zinc Co., Chicago, Ill.
Nassau Smelt. & Ref. Wks., 603 W. 29th St., N. Y.
New Jersey Zinc Co., 160 Front St., N. Y.
Senter-Robbins-Fox Corp., 217 B'way, N. Y.
Seymour Mfg. Co., Seymour, Conn.

ANTIMONY

Amalgamated Metals Sell. Co., Ltd., 42 B'way, N.Y.
American Metal Co., Ltd., 61 Broadway, N. Y.
Balfour, Williamson & Co., 67 Wall St., N. Y.
S. Birkenstein & Sons, 389 W. Ontario St., Chi., Ill.
Charleston Lead Works, Charleston, S. C.
China Commercial Co., Ltd., 2 Rector St., N. Y.
Ellenwood & Doyle, Inc., 29 Great Jones St. N. Y.
Girard Smelting & Refining Co., Philadelphia, Pa.
Great Western Smelt. & Ref. Co., Chicago, Ill.
Chas. Hardy & Ruperti, Inc., 115 Broad St., N. Y.
Hendricks Bros., Inc., 49 Cliff St., N. Y.
Edward Hill's Son & Co., 64 Wall St., N. Y.
Internat'l Minerals & Metals Corp., 61 B'way, NY
Intern'l Ores & Met. Selling Corp. 280 B'way N. Y.
S. L. Jones & Co., 44 Beaver St., N. Y.
H. Kramer & Co., 1324 W. 21st Pl. Chicago, Ill.
C. W. Leavitt & Co., 30 Church St., N. Y.
Michigan Smelt. & Ref. Co., Detroit, Mich.
Mitsui & Co., Ltd., 65 Broadway, N. Y.
More-Jones Brass & Metal Co., St. Louis, Mo.
E. L. Murphy & Co., Webster Bldg., Chicago, Ill.
Nassau Smelt. & Ref. Wks., 603 W. 29th St., N. Y.
Philipp Bros., Inc, 29 Broadway, N. Y.
Richards & Co., Inc., Boston, Mass.
St. Helen's Smelting Co., Manchester, England.
Senter-Robbins-Fox Corp., 217 B'way, N. Y.
Societe Generale Des Minerais, 31 Rue Du Marais, Brussels, Belgium. (Ores).
South China Devel. Synd. Ltd., 2 Rector St. (Ore)
Suzuki & Co., 220 Broadway, N. Y.
Tottenville Copper Co., Tottenville, N. Y.
C. S. Trench & Co., 81 Fulton St., N. Y.
Nathan Trotter & Co., Philadelphia, Pa.
Vernon Metal & Produce Co., 25 Beaver St., N. Y.
Wah Chang Trading Corp., Woolworth Bldg., N. Y.
H. P. Winter & Co., 64 Wall St., N. Y.

ANTIMONY (White oxide)

China Commercial Co., Ltd., 2 Rector St., N. Y.
Edward Hill's Son & Co., 64 Wall St., N. Y.

ANTIMONY (White oxide) (Ctd.)

C. W. Leavitt & Co., 30 Church St., N. Y.
Philipp Bros. Inc., 29 Broadway, N. Y.
Senter-Robbins-Fox Corp., 217 B'way, N. Y.
Wah Chang Trad. Corp., Woolworth Bldg., N. Y.
H. P. Winter & Co., 64 Wall St., N. Y.

ANTIMONIAL LEAD.

Amalgamated Metals Sell. Co., Ltd., 42 B'way, N.Y.
American Metal Co., Ltd., 61 Broadway, N. Y.
American Smelting & Refining Co., 120 B'way, N.Y.
Balbach Smelt. & Ref Co, 280 Broadway, N. Y.
S. Birkenstein & Sons, 389 W. Ontario St., Chi., Ill.
Charleston Lead Works, Charleston, S. C.
Eagle Picher Lead Co., Chicago, Ill.
R. M. Easdale & Co., Glasgow, Scotland.
Ellenwood & Doyle, Inc., 29 Great Jones St. N. Y.
Girard Smelt. & Ref. Co., Philadelphia, Pa.
Great Western Smelt. & Ref. Co., Chicago, Ill.
Chas. Hardy & Ruperti, Inc., 115 Broad St. N. Y.
Internat'l Minerals & Metals Corp., 61 B'way, NY
Intern'l Ores & Met. Selling Corp., 280 B'way, N. Y.
H. Kramer & Co., 1324 W. 21st Pl. Chicago, Ill.
C. W. Leavitt & Co., 30 Church St., N. Y.
Michigan Smelt. & Ref. Co., Detroit, Mich.
More-Jones Brass & Metal Co., St. Louis, Mo
E. L. Murphy & Co., Webster Bldg., Chicago, Ill.
Nassau Smelt. & Ref. Wks., 603 W. 29th St., N. Y.
Philipp Bros., Inc., 29 Broadway, N. Y.
Richards & Co., Inc., Boston, Mass.
A. Seligman, 165 Broadway, N. Y.
Senter-Robbins-Fox Corp., 217 B'way, N. Y.
E. J. Smith & Co., Kings Rd., Birmingham, Eng.
Tottenville Copper Co., Tottenville, N. Y.
United Metals Selling Co., 25 B'way, N. Y.
U. S. Smelt., Ref. & Min. Co., 120 B'way, N. Y.

ARSENIC (Metallic)

American Metal Co., Ltd., 61 Broadway, N. Y.
American Smelt. & Ref. Co., 120 Broadway, N. Y.
Great Western Smelt. & Ref. Co., Chicago, Ill.
Edward Hill's Son & Co., 64 Wall St., N. Y.
Internat'l Minerals & Metals Corp., 61 B'way, N.Y.
S. L. Jones & Co., 44 Beaver St., N. Y.
Tottenville Copper Co., Tottenville, N. Y.
United Metals Selling Co., 25 B'way, N. Y.
U. S. Smelt., Ref. & Min. Co., 120 Broadway, N. Y.

BABBITT METALS

Ajax Metal Co., 46 Richmond St., Phila., Pa.
Amalgamated Metals Sell. Co., Ltd., 42 B'way, N.Y.
Balbach Smelt. & Ref. Co., 280 Broadway, N. Y.
Bethlehem Steel Co., Bethlehem, Pa.
S Birkenstein & Sons, 389 W Ontario St., Chi, Ill.
Charleston Lead Works, Charleston, S. C.

BABBITT METALS (Ctd.)

Eagle-Picher Lead Co., Chicago, Ill.
R. M. Easdale & Co., Glasgow, Scotland.
Ellenwood & Doyle, Inc., 29 Great Jones St. N. Y.
Girard Smelt. & Ref. Co., Philadelphia, Pa.
Great Western Smelt. & Ref. Co., Chicago, Ill.
H. Kramer & Co., 1324 W. 21st Pl.., Chicago, Ill.
Michigan Smelt. & Ref. Co., Detroit, Mich.
More-Jones Brass & Metal Co., St. Louis, Mo.
Nassau Smelt. & Ref. Wks., 603 W. 29th St., N. Y.
F. R. Phillips & Sons Co., Philadelphia, Pa.
Senter-Robbins-Fox Corp., 217 B'way, N. Y.
Richards & Co., Inc., Boston, Mass.
E. J. Smith & Co., Kings Road, Birmingham, Eng.
Tottenville Copper Co., Tottenville, N. Y.

BARS AND BANDS (Steel)

Bethlehem Steel Co., Bethlehem, Pa.
Brier Hill Steel Co., Youngstown, O.
B'lyn Galv. & Mfg. Co., Inc., 120 Liberty St., N. Y.
Carnegie Steel Co. Pittsburgh, Pa.
Egleston Bros., Inc., 166 South St., N. Y.
Harrisburg Pipe & Pipe Bend. Co., Harrisburg, Pa.
Hickman, Williams & Co., Chicago, Ill.
Inland Steel Co., Chicago, Ill.
Interstate Iron & Steel Co., Chicago, Ill.
Jones & Laughlin Steel Co., Pittsburgh, Pa.
S. L. Jones & Co., 44 Beaver St., N. Y.
The McConway & Torley Co., Pittsburgh, Pa.
Midvale Steel & Ordnance Co., Philadelphia, Pa.
B. Nicoll & Co., Inc., 149 Broadway, N. Y.
Ohio Falls Iron Co., New Albany, Ind.
Page Steel & Wire Co., Pittsburgh, Pa.
F. R. Phillips & Sons Co., Philadelphia, Pa.
Pittsburgh Steel Co., Pittsburgh, Pa.
Republic Iron & Steel Co., Youngstown, O.
Schrock & Squires, Inc., 291 Pearl St., N. Y.
Sharon Steel Hoop Co., Sharon, Pa.
The Trumbull Steel Co., Warren, Ohio.
West Leechburg Steel Co., Pittsburgh, Pa.
Youngstown Sheet & Tube Co., Youngstown, O.

BARS (Cold drawn iron and steel)

Bethlehem Steel Co., Bethlehem, Pa.
Egleston Bros. & Co., Inc., 166 South St., N. Y.
Interstate Iron & Steel Co., Chicago, Ill.
Jones & Laughlin Steel Co., Pittsburgh, Pa.
S. L. Jones & Co., 44 Beaver St., N. Y.
Midvale Steel & Ordnance Co., Philadelphia, Pa.
B. Nicoll & Co., Inc., 149 Broadway, N. Y.
Page Steel & Wire Co., Bridgeport, Conn.
F. R. Phillips & Sons Co., Philadelphia, Pa.
Republic Iron & Steel Co., Youngstown, O.
Schrock & Squires, Inc., 291 Pearl St., N. Y.

BARS (Iron)

Bethlehem Steel Co., Bethlehem, Pa.
B'klyn Galv. & Mfg. Co., 120 Liberty St., N. Y.
Crownshield Trading Corp., 30 Church St., N. Y.
Egleston Bros., & Co., Inc., 166 South St., N. Y.
Hickman, Williams & Co., Chicago, Ill.
Interstate Iron & Steel Co., Chicago, Ill.
S. L. Jones & Co., Inc., 44 Beaver St., N. Y.
Midvale Steel & Ordnance Co., Philadelphia, Pa.
B. Nicoll & Co., Inc., 149 Broadway, N. Y.
Ohio Falls Iron Co., New Albany, Ind.
Page Steel & Wire Co., Bridgeport, Conn.
F. R. Phillips & Sons Co., Philadelphia, Pa.
Reeves Mfg. Co., Dover, O.
Republic Iron & Steel Co., Youngstown, O.
Schrock & Squires, Inc., 291 Pearl St., N. Y.
Wheeling Steel Products Co., Wheeling, W. Va.
Youngstown Sheet & Tube Co., Youngstown, O.

BARS (Low phosphorus)

Bethlehem Steel Co., Bethlehem, Pa.
Hickman, Williams & Co., Chicago, Ill.
Interstate Iron & Steel Co., Chicago, Ill.
S. L. Jones & Co., 44 Beaver St., N. Y.
Midvale Steel & Ordnance Co., Phila., Pa.
B. Nicoll & Co., Inc., 149 Broadway, N. Y.
Page Steel & Wire Co., Bridgeport, Conn.
Republic Iron & Steel Co., Youngstown, O.
Rogers, Brown & Co., 30 Church St., N. Y.
Frank Samuel, Philadelphia, Pa.
Walter-Wallingford & Co., Cincinnati, O.

BARS (Reinforcing concrete)

Bethlehem Steel Co., Bethlehem, Pa.
Brooklyn Galv. & Mfg. Co., 120 Liberty St., N. Y.
Carnegie Steel Co. Pittsburgh, Pa.
Egleston Bros. & Co., Inc., 166 South St., N Y.
Harrisburg Pipe & Pipe Bending Co. Harrisb'g Pa.
Hickman, Williams & Co., Chicago, Ill.
Illinois Steel Co., 208 S. La Salle St., Chicago, Ill.
Inland Steel Co., 38 So. Dearborn St., Chicago, Ill.
Interstate Iron & Steel Co, Chicago, Ill.
S. L. Jones & Co., 44 Beaver St., N. Y.
Jones & Laughlin Steel Co., Pittsburgh, Pa.
Midvale Steel & Ordnance Co., Philadelphia, Pa.
The McConway & Torley Co., Pittsburgh, Pa.
Ohio Falls Iron Co., New Albany, Ind.
F. R. Phillips & Sons Co., Philadelphia, Pa.
Republic Iron & Steel Co., Youngstown, O.
Schrock & Squires, Inc., 291 Pearl St., N. Y.
Youngstown Sheet & Tube Co., Youngstown, O.

BARRELS (Steel)

Wheeling Steel Products Co., Wheeling, W. Va.

BARYTES

American Metal Co., Ltd., 61 Broadway, N. Y.
Chas. Hardy & Ruperti, Inc. 115 Broad St., N. Y.
Internat'l Minerals & Metals Corp., 61 B'way, N.Y.
Int'l Ores & Metals Selling Corp., 280 B'way, N.Y.
E. J. Lavino & Co., Philadelphia, Pa.
Edward Hill's Son & Co., 64 Wall St., N. Y.
Rogers, Brown & Co., Cincinnati, O.

BATTERY SHEETS (Zinc)

Ball Bros. Co., Muncie, Ind.
Internat'l Minerals & Metals Corp., 61 B'way, N.Y.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.
Mineral Point Zinc Co., Chicago, Ill.
New Jersey Zinc Co., 160 Front St., N. Y.

BAUXITE

Amalgamated Metals Sell. Co. Ltd., 42 B'way, N.Y.
Chas. Hardy & Ruperti, Inc., 115 Broad St., N. Y.
Internat'l Minerals & Metals Corp., 61 B'way, N.Y.
Int'l Ores & Metals Selling Corp., 280 B'way, N. Y.
E. J. Lavino & Co., Bullitt Bldg., Phila., Pa.
C. W. Leavitt & Co., 30 Church St., N. Y.
Mitsui & Co., Ltd., 65 Broadway, N. Y.

BEARINGS (Car Journal and Mill)

Ajax Metal Co., 46 Richmond St., Phila., Pa
Eureka Brass Co., St. Louis, Mo.
Great Western Smelt. & Ref. Co., Chicago, Ill.
Michigan Smelting & Refining Co., Detroit, Mich.
More-Jones Brass & Metal Co., St. Louis, Mo.
Nassau Smelt. & Ref. Wks., 603 W. 29th St., N. Y.
Richards & Co., Inc., Boston, Mass.
The Shoop Bronze Co., Tarentum, Pa.

BENZOL PLANTS

The Brier Hill Steel Co., Youngstown, O.
Inland Steel Co., 38 So. Dearborn St., Chicago, Ill.
Midvale Steel & Ordnance Co., Philadelphia, Pa.
Republic Iron & Steel Co., Youngstown, O.
Wheeling Steel Products Co., Wheeling, W. Va.

BESSEMER STEEL

Bethlehem Steel Co., Bethlehem, Pa.
Carnegie Steel Co. Pittsburgh, Pa.
Cooper, Claypool & Co., Ltd., Pittsburgh, Pa.
Dickerson, Van Dusen & Co., 32 Cliff St., N. Y.
Jones & Laughlin Steel Co., Pittsburgh, Pa.
Midvale Steel & Ordnance Co., Philadelphia, Pa.
Naylor & Co., 120 B'way, N. Y.
F. R. Phillips & Sons Co., Phila. Pa.
Republic Iron & Steel Co., Youngstown, O
Schrock & Squires, Inc., 291 Pearl St., N. Y.
Wheeling Steel Products Co., Wheeling, W. Va.

BILLETS (Steel)

Allegheny Steel Co., Pittsburgh, Pa.
Andrews Steel Co., Newport, Ky.
Bethlehem Steel Co., Bethlehem, Pa.
Brier Hill Steel Co., Youngstown, O.
Carnegie Steel Co. Pittsburgh, Pa.
Cooper, Claypool & Co., Ltd., Pittsburgh, Pa.
Egleston Bros. & Co., Inc., 166 South St., N. Y.
Follansbee Bros. & Co., Pittsburgh, Pa.
Harrisburg Pipe & Pipe Bend. Co., Harrisburg, Pa.
Hickman, Williams & Co., Pittsburgh, Pa.
Illinois Steel Co., 208 S. La Salle St., Chicago, Ill.
Inland Steel Co., Chicago, Ill.
Interstate Iron & Steel Co., Chicago, Ill.
S. L. Jones & Co., Inc., 44 Beaver St., N. Y.
Jones & Laughlin Steel Co., Pittsburgh, Pa.
Mark Mfg. Co., 111 W. Washington St., Chicago, Ill.
The McConway & Torley Co., Pittsburgh, Pa.
Midvale Steel & Ordnance Co., Philadelphia, Pa.
Naylor & Co. 120 B'way, N. Y.
B. Nicoll & Co., Inc., 149 Broadway, N. Y.
Ohio Falls Iron Co., New Albany, Ind.
F. R. Phillips & Sons Co., Philadelphia, Pa.
Pittsburgh Steel Co., Pittsburgh, Pa.
Republic Iron & Steel Co., Youngstown, O.
Schrock & Squires, Inc., 291 Pearl St., N. Y.
Sharon Steel Hoop Co., Sharon, Pa.
Trumbull Steel Co., Warren, Ohio.
Walter Wallingford & Co., Cincinnati, O.
Wheeling Steel Products Co., Wheeling, W. V.
Youngstown Sheet & Tube Co., Youngstown, O.

BISMUTH

Amalgamated Metals Sell. Co., Ltd., 42 B'way, N.Y.
American Metal Co., Ltd., 61 Broadway, N. Y.
American Smelt. & Ref. Co., 120 Broadway, N. Y.
S. Birkenstein & Sons, 389 W. Ontario St., Chi., Ill.
China Commercial Co., Ltd., 2 Rector St., N. Y.
Ellenwood & Doyle, Inc., 29 Great Jones St., N. Y.
Great Western Smelt. & Ref. Co., Chicago, Ill.
Chas. Hardy & Ruperti, Inc., 115 Broad St., N. Y.
Edward Hill's Son & Co., 64 Wall St., N. Y.
Internat'l Minerals & Metals Corp., 61 B'way, N.Y.
Int'l. Ores & Metals Selling Corp., 280 B'way, N.Y.
Johnson Matthey & Co., Inc., Woolworth Bldg., NY
S. L. Jones & Co., Inc., 44 Beaver St., N. Y.
Michigan Smelt. & Ref. Co., Detroit, Mich.
Mitsui & Co., Ltd., 65 Broadway, N. Y.
More-Jones Brass & Metal Co., St. Louis, Mo.
Philipp Bros., Inc., 29 Broadway, N. Y.
Richards & Co., Inc., Boston, Mass.
South China Devel. Synd. Ltd,, 2 Rector St. (Ore) N. Y.
Nathan Trotter & Co., Philadelphia, Pa.
Wah Chang Trading Corp., Woolworth Bldg, N. Y.

BLOOMS, CHARCOAL IRON

Interstate Iron & Steel Co., Chicago, Ill. (Steel)
Midvale Steel & Ordnance Co., Phila., Pa.
B. Nicoll & Co., Inc., 149 Broadway, N. Y.
Pittsburgh Steel Co., Pittsburgh, Pa.
Reeves Mfg. Co., Dover, O.

BOILER TUBES

Allegheny Steel Co., Brackenridge, Pa. (L. W. steel).
American Brass Co., Waterbury, Conn.
Boiler Tube Co., of America, Park Bldg., Pitts., Pa. Pittsburgh, Pa.
Egleston Bros. & Co., Inc., 166 South St., N. Y.
E. F. Keating Co., 452 Water St., N. Y.
Mark Mfg. Co. 11 W. Washington St., Chicago, Ill.
Midvale Steel & Ordnance Co., Philadelphia, Pa.
National Tube Co., Pittsburgh, Pa.
B. Nicoll & Co., Inc., 149 Broadway, N. Y.
Parkesburg Iron Co., Parkesburg, Pa.
Youngstown Sheet & Tube Co., Youngstown, O.

BOLTS AND NUTS

American Bridge Co., 30 Church St., N. Y.
Bethlehem Steel Co., Bethlehem, Pa.
Brooklyn Galv. & Mfg. Co., 120 Liberty St., N. Y.
Crownshield Trading Corp., 30 Church St., N. Y.
Illinois Steel Co., 208 S. La Salle St., Chicago, Ill.
Inland Steel Co., Chicago, Ill.
Midvale Steel & Ordnance Co., Philadelphia, Pa.
B. Nicoll & Co., Inc., 149 Broadway, N. Y.
F. R. Phillips & Sons Co., Philadelphia, Pa.
Republic Iron & Steel Co., Youngstown, O.
Richards & Co., Inc., Boston, Mass.

BRASS (Sheets, rods, wire, etc.)

Amalgamated Metals Sell. Co., Ltd., 42 B'way, N. Y.
The American Brass Co., Waterbury, Conn.
Baltimore Tube Co., Inc., Baltimore, Md.
Bethlehem Steel Co., Bethlehem, Pa.
Bristol Brass Corp., Bristol, Conn.
Crownshield Trading Corp., 30 Church St., N. Y.
Dallas Brass & Copper Co., Chicago, Ill.
Detroit Copper & Brass Roll. Mills, Detroit, Mich.
Ellenwood & Doyle, Inc., 29 Great Jones St. N. Y.
Great Western Smelting & Refining Co., Chi., Ill.
Nassau Smelt. & Ref. Wks., 603 W. 29th St., N. Y.
Richards & Co., Inc., Boston, Mass.
Riverside Metals Co., Riverside, N. J.
Scovill Mfg. Co., Waterbury, Conn.
Senter-Robbins-Fox Corp., 217 B'way, N. Y.
Seymour Mfg. Co., Seymour, Conn.
E. J. Smith & Co., Kings Rd., Birmingham, Eng.
Stamford Roll. Mills, Inc., 347 Madison Ave., N. Y.
Standard Underground Cable Co., Pittsburgh, Pa.
Western Cartridge Co., E. Alton, Ill. (sheets only)

BRIDGE BUILDERS

American Bridge Co., 30 Church St., N. Y.
Bethlehem Steel Co., Bethlehem, Pa.
Phoenix Iron Co., 22 S. 15th St., Phila. Pa.

BRITANNIA METAL

Girard Smelt. & Ref. Co., Philadelphia, Pa.
Great Western Smelting & Refining Co., Phila., Pa.
Nassau Smelt. & Ref. Wks., 603 W. 29th St., N. Y.
Richards & Co., Inc., Boston, Mass.
Senter-Robbins-Fox Corp., 217 B'way, N. Y.
E. J. Smith & Co., Kings Road, Birmingham, Eng.
Standard Rolling Mills, Inc., Brooklyn, N. Y.
Tottenville Copper Co., Tottenville, N. Y.

CADMIUM

Amalgamated Metals Sell. Co., Ltd., 42 B'way, N.Y.
American Metal Co., Ltd., 61 B'way, N. Y.
American Smelt. & Ref. Co., 120 Broadway, N. Y.
S. Birkenstein & Sons, 389 W. Ontario St. Chi., Ill
Grasselli Chemical Co., Cleveland, O.
Great Western Smelt. & Ref. Co., Chicago, Ill.
Internat'l Minerals & Metals Corp., 61 B'way, N.Y.
Michigan Smelt. & Ref. Co., Detroit, Mich.
Philipp Bros., Inc., 29 Broadway, N. Y.
Richards & Co., Inc., Boston, Mass.
U. S. Smelt. Ref. & Min. Co., 120 Broadway, N. Y.

CANS AND METAL CONTAINERS

American Can Co., 120 Broadway, N. Y.
Wheeling Steel Products Co., Wheeling, W. Va.

CARS

Bethlehem Steel Co., Bethlehem, Pa.
Midvale Steel & Ordnance Co., Philadelphia, Pa.
F. R. Phillips & Sons Co., Phila., Pa.

CAR FLOATS

American Bridge Co., 30 Church St., N. Y.
Bethlehem Steel Co., Bethlehem, Pa.

CASTINGS (Aluminum, brass and bronze)

Ajax Metal Co., 46 Richmond St., Phila., Pa.
Bethlehem Steel Co., Bethlehem, Pa.
Bristol Brass Corporation, Bristol, Conn.
Eureka Brass Co., St. Louis, Mo.
More-Jones Brass & Metal Co., St. Louis, Mo.
Riverside Metal Co., Riverside, N. J.
Scovill Mfg. Co., Waterbury, Conn.
Shoop Bronze Co., 344-354 W. 6th Av,. Tarentum, Pa.
E. J. Smith & Co., Kings Rd., Birmingham, Eng.

CASTINGS (Blast Furnace)

Bethlehem Steel Co., Bethlehem, Pa.
Eureka Brass Co., St. Louis, Mo.
More-Jones Brass & Metal Co., St. Louis, Mo.
U. S. Cast Iron Pipe & Fdy. Co., Burlington, N. J.

CASTINGS (Die Castings)

Amalgamated Metals Sell. Co., Ltd., 42 B'way, N.Y.
Michigan Smelting & Ref. Co., Detroit, Mich.
Riverside Metal Co., Riverside, N. J.
Senter-Robbins-Fox Corp., 217 B'way, N. Y.

CASTINGS (Gun metal)

Ajax Metal Co., 46 Richmond St., Phila., Pa
Bethlehem Steel Co., Bethlehem, Pa.
Eureka Brass Co., St. Louis, Mo.
More-Jones Brass & Metal Co., St. Louis, Mo.
Senter-Robbins-Fox Corp., 217 B'way, N. Y.
Shoop Bronze Co., Tarentum, PPa.
E. J. Smith & Co., Kings Road, Birmingham, Eng.

CASTINGS (Monel and Nickel)

International Nickel Co., 67 Wall St., N. Y.

CASTINGS (Steel)

Allegheny Steel Co., Pittsburgh, Pa.
American Bridge Co., 30 Church St., N. Y .
Am. Steel Foundries, McCormick Bldg., Chicago, Ill.
Bethlehem Steel Co., Bethlehem, Pa.
B'klyn Galv. & Mfg. Co., 120 Liberty St., N. Y.
Hickman, Williams & Co., Chicago, Ill.
The McConway & Torley Co., Pittsburgh, Pa.
Midvale Steel & Ordnance Co., Philadelphia, Pa.
Schrock & Squires, Inc., 291 Pearl St., N. Y.

CHAIN

Bethlehem Steel Co., Bethlehem, Pa.
B'klyn Galv. & Mfg. Co., Inc., 120 Liberty St., N.Y.
Crownshield Trading Corp., 30 Church St., N. Y.
Dallas Brass & Copper Co., Chicago, Ill.
Jones & Laughlin Steel Co., Pittsburgh, Pa.

CHARCOAL IRON BOILER TUBES

Boiler Tube Co., of America, Park Bldg., Pitts., Pa.
E. F. Keating Co., 452 Water St., N. Y.
Midvale Steel & Ordnance Co., Philadelphia, Pa.
B. Nicoll & Co., Inc., 149 Broadway, N. Y.
Parkesburg Iron Co., Parkesburg, Pa.

CHEMICALS (Industrial)

Amalgamated Metals Sell. Co., Ltd., 42 B'way, N.Y.
Cleveland Cliffs Iron Co., Cleveland, Ohio.
Crownshield Trading Corp., 30 Church St., N. Y.
Grasselli Chemical Co., Cleveland, O.
Chas. Hardy & Ruperti, Inc., 115 Broad St., N. Y.
Edward Hill's Sons & Co., 64 Wall St., N. Y.
Internat'l Minerals & Metals Corp., 61 B'way, N.Y.
Inter'l Ores & Metals Selling Corp., 280 B'way, N.Y.
S. L. Jones & Co., Inc., 44 Beaver St., N. Y
New Jersey Zinc Co, 160 Front St., N. Y.
Philipp Bros., Inc., 29 Broadway, N. Y.
Suzuki & Co., 220 Broadway, N. Y.

CHROME BRICK

American Refractories Co., 315 Union Arcade Bldg., Pittsburgh, Pa.
Harbison-Walker Refractories Co., Pittsburgh, Pa.
E. J. Lavino & Co., Philadelphia, Pa.

CHROME ORE

American Refractories Co., 315 Union Arcade Bldg., Pittsburgh, Pa.
Crocker Bros., 21 E. 40th St., N. Y.
A. C. Daft, Oliver Bldg., Pittsburgh, Pa.
Grasselli Chemical Co., Cleveland, O.
Harbison-Walker Refractories, Co. Pittsburgh, Pa.
Chas. Hardy & Ruperti, Inc., 115 Broad St., N. Y.
Internat'l Minerals & Metals Corp., 61 B'way, N.Y.
Int'l Ores & Metals Selling Corp., 280 B'way, N.Y.
E. J. Lavino & Co., Philadelphia, Pa.
C. W. Leavitt & Co., 30 Church St., N. Y.
Mitsui & Co., Ltd., 65 Broadway, N. Y.
Naylor & Co., 120 Broadway, N. Y.
B. Nicoll & Co., Inc., 149 Broadway, N. Y.
Rogers, Brown & Co., Cincinnati, O.
Frank Samuel, Philadelphia, Pa.
Arthur Seligman, 165 Broadway, N. Y.
Senter-Robbins-Fox Corp., 217 B'way, N. Y.
U. S. Nickel Co., New Brunswick, N. J.
Wah Chang Trading Corp., Woolworth Bldg., N. Y.
Walter-Wallingford & Co., Cincinnati, O.

CHROMIUM

American Metal Co., Ltd., 61 Broadway, N. Y.
Chas. Hardy & Ruperti, Inc., 115 Broad St., N. Y.
Inter'l Ores & Metals Selling Corp., 280 B'way, N.Y.
E. J. Lavino & Co., Philadelphia, Pa.
C. W. Leavitt & Co., 30 Church St., N. Y.
Metal & Thermit Corp., 120 Broadway, N. Y.
Naylor & Co., 120 Broadway, N. Y.
B. Nicoll & Co., Inc., 149 Broadway, N. Y.
Rogers, Brown & Co., Cincinnati, Ohio.
Frank Samuel, Harrison, Bldg., Philadelphia, Pa.
Senter-Robbins-Fox Corp., 217 B'way, N. Y.
Walter-Wallingford & Co., Cincinnat, Ohio.

COAL

The Alabama Co., Birmingham, Ala.
Bethlehem Steel Co., Bethlehem, Pa.
The Cleveland Cliffs Iron Co., Cleveland, O.
Cooper, Claypool & Co., Ltd., Pittsburgh, Pa.
M. A. Hanna & Co., Cleveland, O.
Hickman, Williams & Co., Chicago, Ill.
Hillman Coal & Coke Co., Pittsburgh, Pa.
Keystone Coal & Coke Co., Greensburg, Pa.
Robert C. Lea & Co., 21 S. 12th St., Phila., Pa.
B. Nicoll & Co., Inc., 149 Broadway, N. Y.
Penn'a. Coal & Coke Corp., 17 Battery Pl. N. Y.

COAL (Ctd.)

Pilling & Co., Philadelphia, Pa.
Reeves Mfg. Co., Dover, O.
Rogers, Brown & Co., Cincinnati, O.
Shenango Furnace Co., Pittsburgh, Pa.
W. P. Snyder & Co., Pittsburgh, Pa.
Walter-Wallingford & Co., Cincinnati, O.
Washington Coal & Coke Co., Pittsburgh, Pa.
Wentz-Co., Land Title Bldg., Philadelphia, Pa.
Westmoreland Fuel Co., Greensburg, Pa.
Yolande Coal & Coke Co., Brown-Marx Bldg., Birmingham, Ala.

COAL PROPERTIES.

Hillman Coal & Coke Co., Pittsburgh, Pa.

COBALT

Amalgamated Metals Sell. Co., Ltd., 42 Bway, N.Y.
American Metal Co., Ltd., 61 Broadway, N. Y.
The Chemical Products Co., Washington, D. C.
A. C. Daft, Oliver Bldg., Pittsburgh, Pa.
Internat'l Minerals & Metals Corp., 61 B'way, N.Y.
E. J. Lavino & Co., Philadelphia, Pa.
Metal & Thermit Corp., 120 Broadway, N. Y.
Philipp Bros., Inc., 29 Broadway, N. Y.
Richards & Co., Inc., Boston, Mass.
Frank Samuel, Harrison Bldg., Philadelphia, Pa.
Senter-Robbins-Fox Corp., 217 Broadway, N. Y.
Tottenville Copper Co., Tottenville, N. Y.

COKE

The Alabama Co., Birmingham, Ala.
Belgian-Amer. Coke Ovens Corp., 25 Broad St. N.Y.
Bethlehem Steel Co., Bethlehem, Pa.
The Cleveland-Cliffs Iron Co., Cleveland, O.
Cooper, Claypool & Co., Ltd., Pittsburgh, Pa.
Crocker Bros., 21 E. 40th St., N. Y.
M. A. Hanna & Co., Cleveland, O.
Hickman, Williams & Co., Cincinnati, O.
Hillman Coal & Coke Co., Pittsburgh, Pa.
Keystone Coal & Coke Co., Greensburg, Pa.
Robt. C. Lea & Co., 21 S. 12th St., Phila., Pa.
B. Nicoll & Co., Inc., 149 Broadway, N. Y.
Pickands, Brown & Co., Chicago, Ill.
Penn'a. Coal & Coke Corp., 17 Battery Pl., N. Y.
Pilling & Co., Philadelphia, Pa.
Republic Iron & Steel Co., Youngstown, O.
Rogers, Brown & Co., Cincinnati, O.
Shenango Furnace Co., Pittsburgh, Pa.
W. P. Snyder & Co., Pittsburgh, Pa.
Straub-Atkinson Coal & Coke Co., Pittsburgh, Pa.
Walter-Wallingford & Co., Cincinnati, Ohio.
Washington Coal & Coke Co., Pittsburgh, Pa.
Wentz Company, Land Title Bldg., Phila., Pa.
Westmoreland Fuel Co., Greensburgh, Pa.
Yolande Coal & Coke Co., Brown-Marx Bldg. Birmingham, Ala.

COKE BY-PRODUCT RECOVERY APPARATUS

George J. Hagan Co., Pittsburgh, Pa.
Belgian-Amer. Coke Ovens Corp., 25 Broad St., N.Y.

CONCRETE REINFORCEMENT FABRIC

Inland Steel Co., Chicago, Ill.
B. Nicoll & Co., Inc., 149 Broadway, N. Y.
Pittsburgh Steel Co., Pittsburgh, Pa.
Republic Iron & Steel Co., Youngstown, O.

CONDENSER TUBING

Aluminum Co. of America, Pittsburgh, Pa.
American Brass Co., Waterbury, Conn.
Baltimore Tube Co., Inc., Baltimore, Md.
Crownshield Trading Corp., 30 Church St., N. Y.
Dallas Brass & Copper Co., Chicago, Ill.
Detroit Copper & Brass Roll. Mills, Detroit, Mich.
Senter-Robbins-Fox Corp., 217 Broadway, N. Y.
Scovill Mfg. Co., Waterbury, Conn.
E. J. Smith & Co., Kings Rd., Birmingham, Eng.

COPPER (Ingots, wire bars, slabs, etc.)

Amalgamated Metals Sell. Co., Ltd., 42 B'way, N.Y.
American Ins. Wire & Cable Co., Chicago, Ill.
American Metal Co., Ltd., 61 Broadway, N. Y.
American Smelt. & Ref. Co., 120 Broadway, N. Y.
Balbach Smelt. & Ref. Co., 280 Broadway, N. Y.
H. B. Barnard & Sons, London, E. C. England.
S. Birkenstein & Sons, 389 W. Ontario St. Chi., Ill.
Calumet & Hecla Co., Inc., 25 Broadway, N. Y.
Consolidated Min. & Smelt. Co. of Canada, Drummond Bldg., Montreal, Canada.
Crownshield Trading Corp., 30 Church St., N. Y.
R. M. Easdale & Co., Glasgow, Scotland,
Ellenwood & Doyle, Inc., 29 Great Jones St. N. Y.
Girard Smelt. & Ref. Co., Philadelphia, Pa.
Great Western Smelt. & Ref. Co., Chicago, Ill.
Chas. Hardy & Ruperti, Inc., 115 Broad St., N. Y.
Hendricks Bros., Inc., 49 Cliff St., N. Y.
Internat'l Minerals & Metals Corp., 61 B'way, NY
Inter'l Ores & Metals Selling Corp, 280 B'way, N.Y.
H. Kramer & Co., 1324 21st Pl., Chicago, Ill.
C. W. Leavitt & Co., 30 Church St., N. Y.
Adolph Lewisohn & Sons, 61 Broadway, N. Y.
Michigan Smelt. & Ref. Co., Detroit, Mich.
Mitsui & Co., Ltd., 65 Broadway, N. Y.
Mohawk Mining Co., 15 William St., N. Y.
More-Jones Brass & Metal Co., St. Louis, Mo.
E. L. Murphy & Co., Webster Bldg., Chicago, Ill.
Nassau Smelt. & Ref. Wks., 603 W. 29th St., N. Y.
Nichols Copper Co., 25 Broad St., N. Y.
B. Nicoll & Co., 149 Broadway, N. Y.
Phillip Bros., Inc., 29 Broadway, N. Y.
Phelps Dodge Corp., 99 John St., N. Y.
Quincy Mining Co., 32 Broadway, N. Y.
Richards & Co., Inc., Boston, Mass.
Scovill Mfg. Co., Waterbury, Conn.
A. Seligman, 165 Broadway, N. Y.

COPPER (Ingots, wire bars, slabs, etc.) (Ctd.)

Senter-Robbins-Fox Corp., 217 Broadway, N. Y.
E. J. Smith & Co., Kings Rd., Birmingham, Eng.
Societe Generale Des Minerais, 31 Rue Du Marais, Brussels, Belgium.
Suzuki & Co., 220 Broadway, N. Y.
Tottenville Copper Co., Tottenville, N. Y.
C. S. Trench & Co., 81 Fulton St., N. Y.
Nathan Trotter & Co., Philadelphia, Pa.
United Metals Selling Co., 42 Broadway, N. Y.
Vernon Metal & Produce Co., 25 Beaver St., N. Y.
L. P. Yandell, 15 William St., N. Y.

COPPER (Sheets, wire, rods, tubes, rivets, etc.)

Amalgamated Metals Sell. Co., Ltd., 42 B'way, N.Y.
American Brass Co., Waterbury, Conn.
American Ins. Wire & Cable Co., Chicago, Ill.
American Smelting & Refining Co., 120 B'way, N.Y.
Anaconda Copper Mining Co., Chicago, Ill.
Baltimore Tube Co., Inc., Baltimore, Md.
Crownshield Trading Corp., 30 Church St. N. Y.
Dallas Brass & Copper Co., Chicago, Ill.
Detroit Copper & Brass Roll. Mills, Detroit, Mich.
Ellenwood & Doyle, Inc., 29 Great Jones St. N. Y.
Follansbee Bros. Co., Pittsburgh, Pa.
Hendricks Bros., Inc., 49 Cliff St., N. Y.
More-Jones Brass & Metal Co., St. Louis, Mo.
National Brass & Copper Co., Lisbon, Ohio.
Richards & Co., Inc., Boston, Mass.
Rome Wire Co., Rome, N. Y.
Scovill Mfg. Co., Waterbury, Conn.
Senter-Robbins-Fox Corp., 217 Broadway, N. Y.
Stamford Rolling Mills Co., Inc., 347 Madison Ave., N. Y.
Standard Underground Cable Co., Pittsburgh, Pa.

CORRUGATED & FORMED ROOFINGS (Steel)

Allegheny Steel Co., Pittsburgh, Pa.
American Sheet & Tin Plate Co., Pittsburgh, Pa.
American Zinc Prod. Co., Greencastle, Ind. (zinc)
Andrews Steel Co., Newport, Ky.
Apollo Steel Co., Apollo, Pa.
Bethlehem Steel Co., Bethlehem, Pa.
Brier Hill Steel Co., Youngstown, O.
B'klyn Galv. & Mfg. Co., Inc., 120 Liberty St, N.Y.
Crownshield Trading Corp., 30 Church St., N. Y.
Dickerson, Van Dusen & Co., 32 Cliff St., N. Y.
Egleston Bros. Inc., 166 South St., N. Y.
Falcon Steel Co., Niles, O.
Falcon Tinplate Co., Niles, Ohio.
Follansbee Bros. Co., Pittsburgh, Pa.
Fuller Bros. & Co., 139 Greenwich St., N. Y.
Inland Steel Co., Chicago, Ill.
Newport Rolling Mill Co., Newport, Ky.

CORRUGATED & FORMED ROOFING (Steel) (Ctd.)

F. R. Phillips & Sons Co., Phila., Pa.
Reeves Manufacturing Co., Dover, O.
Republic Iron & Steel Co., Youngstown, O.
Richards & Co., Inc., Boston, Mass.
Seneca Iron & Steel Co., Buffalo, N. Y.
The Trumbull Steel Co., Warren, Ohio.
Wheeling Steel Products Co., Wheeling, W. Va.
Youngstown Sheet & Tube Co., Youngstown, O.

COTTON TIES

Carnegie Steel Co., Pittsburgh, Pa.
Crownshield Trading Corp., 30 Church St., N. Y.
Midvale Steel & Ordnance Co., Philadelphia, Pa.
B. Nicoll & Co., Inc., 149 Broadway, N. Y.
Pittsburgh Steel Co., Pittsburgh, Pa.
F. R. Phillips & Sons, Co., Phila., Pa.
Sharon Steel Hoop Co., Sharon, Pa.

CROSS TIES (Steel)

Allegheny Steel Co., Pittsburgh, Pa.
Bethlehem Steel Co., Bethlehem, Pa.
Carnegie Steel Co., Pittsburgh, Pa.
Crownshield Trading Corp., 30 Church St., N. Y.
Midvale Steel & Ordnance Co., Philadelphia, Pa.

CRUCIBLES

J. Bishop & Co., Platinum Works, Malvern, Pa.
Johnson, Matthey & Co., Ltd., Woolworth Bldg., N. Y.
Mitsui & Co., Ltd., 65 Broadway, N. Y.
Richards & Co., Inc., Boston, Mass.

CUPRO NICKEL

Amalgamated Metals Sell. Co., Ltd., 42 B'way, NY
American Brass Co., Waterbury, Conn.
Bristol Brass Corp., Bristol, Conn.
R. M. Easdale & Co., Glasgow, Scotland,
The International Nickel Co., 67 Wall St., N. Y.
Nassau Smelt. & Ref. Wks., 603 W. 29th St., N. Y.
Riverside Metal Co., Riverside, N. J.
Scovill Mfg. Co., Waterbury, Conn.
Senter-Robbins-Fox Corp., 217 Broadway, N. Y.
Seymour Mfg. Co., Seymour, Conn.
E. J. Smith & Co., Kings Road, Birmingham, Eng.
Stamford Roll. Mills., Inc., 347 Madison Ave., N.Y.
Tottenville Copper Co., Inc., Tottenville, N. Y.
Western Cartridge Co., E. Alton, Ill.

DRAWING STEEL (Strip)

Bethlehem Steel Co., Bethlehem, Pa.
Brier Hill Steel Co., Youngstown, O.
Dickerson, Van Dusen & Co., 32 Cliff St., N. Y.
Egleston Bros. & Co., Inc., 166 South St., N. Y.
Follansbee Bros. Co., Pittsburgh, Pa.
Harrisburg Pipe & Pipe Bending Co. Harrisb'g Pa.

DRAWING STEEL (Strip) (Ctd.)

B. Nicoll & Co., Inc., 149 Broadway, N. Y.
Pittsburgh Steel Co., Pittsburgh, Pa.
Republic Iron & Steel Co., Youngstown, O.
Schrock & Squires, Inc., 291 Pearl St., N. Y.
Sharon Steel Hoop Co., Sharon, Pa.
Trumbull Steel Co., Warren, O.
West Leechburg Steel Co., Pittsburgh, Pa.

DROP FORGINGS (Duralumin)

Baush Machine Tool Co., Springfield, Mass.

DROP FORGINGS (Steel & Brass)

Amer. Steel Foundries, McCormick Bldg, Chicago, Ill. (Steel)
Bethlehem Steel Co., Bethlehem, Pa.
Illinois Steel Co., 208 S. LaSalle St., Chicago, Ill.
Scovill Mfg. Co., Waterbury, Conn. (Brass)
Scranton Forging Co., Scranton, Pa. (Steel)

DURALUMIN (Sheets, forgings, etc.)

Baush Machine Tool Co., Springfield, Mass.

EAVE TROUGH AND CONDUCTOR PIPE

Amer. Zinc Products Co., Greencastle, Ind. (Zinc)
Brier Hill Steel Co., Youngstown, O.
Brooklyn Galv. & Mfg. Co., 120 Liberty St., N. Y.
Dickerson, Van Dusen & Co., 32 Cliff St., N. Y.
Ellenwood & Doyle, Inc., 29 Great Jones St. N. Y.
Follansbee Bros. Co., Pittsburgh, Pa.
Fuller Bros. & Co., 139 Greenwich St., N. Y.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.
Newport Rolling Mill Co., Newport, Ky.
Reeves Manufacturing Co., Dover, O.
Republic Iron & Steel Co., Youngstown, O.
Richards & Co., Inc., Boston, Mass.

ENGINEERS (Contracting)

Geo. J. Hagan Co., Pittsburgh. Pa.
Phoenix Iron Co., 22 S. 15th St., Phila. Pa.

EXTRUDED METAL (Brass & Bronze)

Aluminum Co. of America, Pitts. Pa. (Aluminum)
American Brass Co., Waterbury, Conn.
Dallas Brass & Copper Co., Chicago, Ill.
Detroit Copper & Brass Roll. Mills, Detroit, Mich.
Scovill Mfg. Co., Waterbury, Conn.
Senter-Robbins-Fox Corp., 217 Broadway, N. Y.
E. J. Smith & Co., Kings Road, Birmingham, Eng.
Standard Underground Cable Co., Pittsburgh, Pa.

FERBERITE

Chemical Products Co., 621 Alabama Ave., S. E. Washington, D. C.
Chas. Hardy & Ruperti, Inc., 115 Broad St., N. Y.
E. J. Lavino & Co., Philadelphia, Pa.
Naylor & Co., 120 Broadway, N. Y.

FERRO-ALLOYS

Amalgamated Metals Selling Co., Ltd., 42 B'way,NY
American Manganese Mfg. Co., Philadelphia, Pa.
American Metal Co., Ltd., 61 Broadway, N. Y.
The Baltimore Electro Alloys Co., Baltimore, Md.
China Commercial Co., Ltd., 2 Rector St., N. Y.
Cleveland-Cliffs Iron Co., Cleveland, Ohio.
Crocker Bros., 21 E. 40th St., N. Y.
A. C. Daft, Oliver Bldg., Pittsburgh, Pa.
Chas. Hardy & Ruperti, Inc., 115 Broad St., N. Y.
Hickman, Williams & Co., Chicago, Ill.
Internat'l Minerals & Metals Corp., 61 B'way, NY
Inter'l Ores & Metals Selling Corp., 280 B'way, N.Y.
Keokuk Electro Metals Co., Chicago, Ill.
E. J. Lavino & Co., Philadelphia, Pa.
Robt. C. Lea & Co., 21 S. 12th St., Phila., Pa.
C. W. Leavitt & Co., 30 Church St., N. Y.
Metal & Thermit Corp., 120 Broadway, N. Y.
Mitsui & Co., Ltd., 65 Broadway, N. Y.
Naylor & Co., 120 Broadway, N. Y.
Philipp Bros., Inc., 29 Broadway, N. Y.
Richards & Co., Inc., Boston, Mass.
Rogers, Brown & Co., Cincinnati, O.
Frank Samuel, Harrison Bldg., Philadelphia, Pa.
Senter-Robbins-Fox Corp., 217 Broadway, N. Y.
Southern Ferro Alloys Co., Chattanooga, Tenn.
Vernon Metal & Produce Co., 25 Beaver St., N. Y.
Walter-Wallingford & Co., Cincinnati, O.

FERRO-CHROME

Amalgamated Metals Sell. Co., Ltd., 42 B'way, N.Y.
The Baltimore Electro Alloys Co., Baltimore, Md.
A. C. Daft, Oliver Bldg., Pittsburgh, Pa.
Chas. Hardy & Ruperti, Inc., 115 Broad St., N. Y.
Internat'l Minerals & Metals Corp., 61 B'way, NY
Inter'l Ores & Metals Selling Corp., 280 B'way, N.Y.
E. J. Lavino & Co., Philadelphia, Pa.
C. W. Leavitt & Co., 30 Church St., N. Y.
Metal & Thermit Corp., 120 Broadway, N. Y.
Mitsui & Co., Ltd., 65 Broadway, N. Y.
Naylor & Co. 120 B'way, N. Y.
Rogers, Brown & Co., Cincinnati, O.
Frank Samuel, Harrison Bldg., Philadelphia, Pa.
Senter-Robbins-Fox Corp., 217 Broadway, N. Y.
Walter-Wallingford & Co., Cincinnati, O.

FERROMANGANESE

Amalgamated Metals Sell. Co., Ltd., 42 B'way, N.Y.
American Manganese Mfg. Co., Philadelphia, Pa.
American Metal Co., Ltd., 61 Broadway, N. Y.
Bethlehem Steel Co., Bethlehem, Pa.
Carnegie Steel Co. Pittsburgh, Pa.
China Commercial Co., Ltd., 2 Rector St., N. Y.
The Cleveland Cliffs Iron Co., Cleveland, O.

FERROMANGANESE (Ctd.)

Crocker Bros., 21 E. 40th St., N. Y.
A. C. Daft, Oliver Bldg., Pittsburgh, Pa.
Chas. Hardy & Ruperti, Inc., 115 Broad St., N. Y.
Hickman, Williams & Co., Pittsburgh, Pa.
Internat'l Minerals & Metals Corp., 61 B'way, NY
Inter'l Ores & Metals Selling Corp., 280 B'way, N.Y.
E. J. Lavino & Co., Philadelphia, Pa.
Robt. C. Lea & Co., 21 S. 12th St., Phila., Pa.
C. W. Leavitt & Co., 30 Church St., N. Y.
E. E. Marshall, Bullitt Bldg., Philadelphia, Pa.
Mitsui & Co., 120 Broadway, N. Y.
Naylor & Co. 120 B'way, N. Y.
Pickands, Brown & Co., Chicago, Ill.
Richards & Co., Inc., Boston, Mass.
Rogers, Brown & Co., Cincinnati, O.
Frank Samuel, Harrison Bldg., Philadelphia, Pa.
Senter-Robbins-Fox Corp., 217 Broadway, N. Y.
Walter-Wallingford & Co., Cincinnati, O.

FERRO-PHOSPHORUS

Crocker Bros., 21 E. 40th St., N. Y.
Hickman, Williams & Co., Pittsburgh, Pa.
C. W. Leavitt & Co., 30 Church St., N. Y.
Rogers, Brown & Co., Cincinnati, O.
Frank Samuel, Harrison Bldg., Philadelphia, Pa.
Senter-Robbins-Fox Corp., 217 Broadway, N. Y.
Walter-Wallingford & Co., Cincinnati, O.

FERRO-SILICON

Amalgamated Metals Sell. Co., Ltd., 42 B'way, N.Y.
American Manganese Mfg. Co., Philadelphia, Pa.
The Baltimore Electro Alloys Co., Baltimore, Md.
Bethlehem Steel Co., Bethlehem, Pa.
The Cleveland-Cliffs Iron Co., Cleveland, O.
Crocker Bros., 21 E. 40th St., N. Y.
A. C. Daft, Oliver Bldg., Pittsburgh, Pa.
Chas. Hardy & Ruperti, Inc., 115 Broad St., N. Y.
Hickman, Williams & Co., Pittsburgh, Pa.
Internat'l Minerals & Metals Corp., 61 B'way, N. Y.
Inter'l Ores & Metals Selling., 280 B'way, N. Y.
Keokuk Electro Metals Co., 134 S. La Salle St., Chicago, Ill. (Bessemer)
E. J. Lavino & Co., Philadelphia, Pa.
Robt. C. Lea & Co., 21 So. 12th St., Phila., Pa.
C. W. Leavitt & Co, 30 Church St., N. Y.
Naylor & Co., 120 Broadway, N. Y.
Philipp Bros., Inc., 29 Broadway, N. Y.
Pickands, Brown & Co., Chicago, Ill.
Richards & Co., Inc., Boston, Mass.
Rogers, Brown & Co., Cincinnati, O.
Frank Samuel, Harrison Bldg., Philadelphia, Pa.
A. Seligman, 165 Broadway, N. Y.
Senter-Robbins-Fox Corp., 217 Broadway, N. Y.

FERRO-SILICON (Ctd.)
Southern Ferro Alloys Co., Chattanooga, Tenn.
Walter-Wallingford & Co., Cincinnati, O.

FERRO-TUNGSTEN
Amalgamated Metals Sell. Co., Ltd., 42 B'way, NY
American Metal Co., Ltd., 61 B'way, N. Y.
The Chemical Products Co., Washington, D. C.
China Commercial Co., Ltd. 2 Rector St., N. Y.
A. C. Daft, Oliver Bldg., Pittsburgh, Pa.
Chas. Hardy & Ruperti, Inc., 115 Broad St., N. Y.
Hickman, Williams & Co., Chicago, Ill.
Internat'l Minerals & Metals Corp., 61 B'way, N.Y.
Inter'l Ores & Metals Selling Corp., 280 B'way, N.Y.
E. J. Lavino & Co., Philadelphia, Pa.
C. W. Leavitt & Co., 30 Church St., N. Y.
Metal & Thermit Corp., 120 Broadway, N. Y.
Mitsui & Co., Ltd., 65 Broadway, N. Y.
Naylor & Co., 120 Broadway, N. Y.
Philipp Bros., Inc., 29 Broadway, N. Y.
Frank Samuel, Harrison Bldg., Philadelphia, Pa.
Senter-Robbins-Fox Corp., 217 Broadway, N. Y.
Wah Chang Trad. Corp., Woolworth Bldg., N. Y.

FIRE BRICK
Amer. Enam. Brick & Tile Co., 52 Vand'blt Av. N.Y.
Ashland Fire Brick Co., W. Ashland, Ky.
Harbison-Walker Refractories Co., Pittsburgh, Pa.
Ironton Fire Brick Co., Ironton, O.
Kier Fire Brick Co., Pittsburgh, Pa.
E. J. Lavino & Co., Philadelphia, Pa.
Star Clay Products Co., Pittsburgh, Pa.

FIRE CLAY
Ashland Fire Brick, W. Ashland, Ky.
Harbison-Walker Refractories Co., Pittsburgh, Pa.
Ironton Fire Brick Co., Ironton, Ohio.
Kier Fire Brick Co., Pittsburgh, Pa.
Star Clay Prodlucts Co., Pittsburgh, Pa.

FLOOR PLATES
Bethlehem Steel Co., Bethlehem, Pa.
Carnegie Steel Co., Pittsburgh, Pa.

FLUOR SPAR
Crocker Bros., 21 E. 40th St., N. Y.
A. C. Daft, Oliver Bldg., Pittsburgh, Pa.
Chas. Hardy & Ruperti, Inc., 115 Broad St., N. Y.
Hickman, Williams & Co., Cincinnati, O.
Internat'l Minerals & Metals Corp., 61 B'way, N.Y.
S. L. Jones & Co., 44 Beaver St., N. Y.
E. J. Lavino & Co., Philadelphia, Pa.
Naylor & Co., 120 Broadway, N. Y.
Rogers, Brown & Co., Cincinnati, O.
Frank Samuel, Harrison Bldg., Philadelphia, Pa.
Wah Chang Trading Corp., Woolworth Bldg., N. Y.
Walter-Wallingford & Co., Cincinnati, O.

FLUX (Soldering and tinning)

Aluminum Co. of America, Pittsburgh, Pa.
Grasselli Chemical Co., Cleveland, O.
Great Western Smelting & Ref. Co., Chicago, Ill.
Richards & Co., Inc., Boston, Mass.

FORGINGS (Duralumin)

Baush Machine Tool Co., Springfield, Mass.

FORGINGS (Iron and steel)

American Bridge Co., 30 Church St., N. Y. (Hydraulic Pressed.)
Amer. Steel Foundries, McCormick Bldg., Chi., Ill.
Bethlehem Steel Co., Bethlehem, Pa.
Carnegie Steel Co., Pittsburgh, Pa.
Egleston Bros. & Co., Inc., 166 South St., N. Y.
Harrisburg Pipe & Pipe Bending Co. Harrisb'g Pa.
Illinois Steel Co., 208 S. La Salle St., Chicago, Ill.
Jones & Laughlin Steel Co., Pittsburgh, Pa.
Schrock & Squires, Inc., 291 Pearl St., N. Y.
Scranton Forging Co., Scranton, Pa. (steel)

FOUNDRY SUPPLIES

Star Clay Products Co., Pittsburgh, Pa.
Westmoreland Fuel Co., Greensburg, Pa.

FURNACES (Annealing, heat treating, forging, boiler, etc.)

Baush Machine Tool Co., Springfield, Mass.
George J. Hagan Co., Pittsburgh, Pa.

FURNACES (Electric)

Ajax Metal Co., Philadelphia, Pa.
American Bridge Co., 30 Church St., N. Y.
Geo. J. Hagan Co., Pittsburgh. Pa.
C. W. Leavitt & Co., 30 Church St., N. Y.

FURNACES (Metallurgical)

George J. Hagan Co., Pittsburgh, Pa.
C. W. Leavitt & Co., 30 Church St., N. Y.
Nichols Copper Co., 25 Broad St., N. Y.

GAS PRODUCERS

George J. Hagan Co., Pittsburgh, Pa.

CUPREOUS PYRITES

American Metal Co., Ltd., 61 Broadway, N. Y.
Grasselli Chemical Co., Cleveland, O.
Intern'l Minerals & Metals Corp., 61 B'way, N. Y.
Inter'l Ores & Metals Selling Corp., 280 B'way, N.Y.
Robert C. Lea & Co., 21 S. 12th St., Phila., Pa.
Naylor & Co., Inc., 120 Broadway, N. Y.
Societe Generale Des Minerais, 31 Rue Du Marais, Brussels, Belgium. (Ores).

GOLD (Bars)

American Platinum Wks., Newark, N. J.
American Smelt. & Ref. Co., 120 Broadway, N. Y.

GOLD (bars) (Ctd.)

Baker & Co., Inc., 54 Austin St., Newark, N. J.
Balbach Smelt. & Ref. Co., 280 Broadway, N. Y.
Internat'l Minerals & Metals Corp., 61 B'way, N.Y.
Irvington Smelt. & Ref. Wks., Irvington, N. J.
Johnson Matthey & Co., Inc., Woolworth Bldg., NY

GRAPHITE

Inter'l Ores & Metals Selling Corp., 280 B'way, N.Y.
S. L. Jones & Co., 44 Beaver St., N. Y.
Mitsui & Co., Ltd., 65 Broadway, N. Y.
Rogers, Brown & Co., Cincinnati, O.

HOOPS (Steel)

B'klyn Galv. & Mfg. Co., Inc., 120 Liberty St., NY
Carnegie Steel Co., Pittsburgh, Pa.
Crownshield Trading Corp., 30 Church St., N. Y.
Egleston Bros., Inc., 166 South St., N. Y.
Follansbee Bros. Co., Pittsburgh, Pa.
Fuller Bros. & Co., Inc., 139 Greenwich St., N. Y.
Jones & Laughlin Steel Co., Pittsburgh, Pa.
Midvale Steel & Ordnance Co., Philadelphia, Pa.
B. Nicoll & Co., Inc., 149 Broadway, N. Y.
Ohio Falls Iron Co., New Albany, Ind.
F. R. Phillips & Sons Co., Phila., Pa.
Pittsburgh Steel Co., Pittsburgh, Pa.
Schrock & Squires, Inc., 291 Pearl St., N. Y.
Sharon Steel Hoop Co., Sharon, Pa
The Trumbull Steel Co., Warren, Ohio.
West Leechburg Steel Co., Pittsburgh, Pa.
Youngstown Sheet & Tube Co., Youngstown, O.

INGOT BRASS AND COMPOSITION

Ajax Metal Co., 46 Richmond St., Phila., Pa
Amalgamated Metals Sell. Co., Ltd., 42 B'way, NY
Balbach Smelt. & Ref. Co., 280 Broadway, N. Y.
Bethlehem Steel Co., Bethlehem, Pa.
S. Birkenstein & Sons, 389 W. Ontario St., Chi., Ill.
R. M. Easdale & Co., Glasgow, Scotland.
Girard Smelt. & Ref. Co., Philadelphia, Pa.
Great Western Smelt. & Ref. Co., Chicago, Ill.
Internat'l Minerals & Metals Corp., 61 B'way, NY
H. Kramer & Co., 1324 W. 21st St., Chicago, Ill.
Michigan Smelt. & Ref. Co., Detroit, Mich.
More-Jones Brass & Metal Co., St. Louis, Mo.
Nassau Smelt. & Ref. Wks., 603 W. 29th St., N. Y.
Richards & Co., Inc., Boston, Mass.
Riverside Metal Co., Riverside, N. J.
Senter-Robbins-Fox Corp., 217 B'way, N. Y.
Scovill Mfg. Co., Waterbury, Conn.
E. J. Smith & Co., Kings Road, Birmingham, Eng.
Tottenville Copper Co., Tottenville, N. Y.

INGOTS (Steel)

Allegheny Steel Co., Brackenridge, Pa.
Andrews Steel Co., Newport, Ky.

INGOTS (Steel) (Ctd.)

Bethlehem Steel Co., Bethlehem, Pa.
Carnegie Steel Co., Pittsburgh, Pa.
Cooper, Claypool & Co., Ltd., Pittsburgh, Pa.
Hickman, Williams & Co., Pittsburgh, Pa.
Illinois Steel Co., 208 S. La Salle St., Chicago, Ill.
Inland Steel Co., Chicago, Ill.
Interstate Iron & Steel Co., Chicago, Ill.
Jones & Laughlin Steel Co., Pittsburgh, Pa.
The McConway & Torley Co., Pittsburgh, Pa.
Mark Mfg., Co., 111 W. Washington St., Chi., Ill.
Midvale Steel & Ordnance Co., Philadelphia, Pa.
Naylor & Co., 120 Broadway, N. Y.
B. Nicoll & Co., Inc., 149 Broadway, N. Y.
F. R. Phillips & Sons Co., Philadelphia, Pa.
Pickands, Brown & Co., Chicago, Ill.
Pittsburgh Steel Co., Pittsburgh, Pa.
Republic Iron & Steel Co., Youngstown, O.
Sharon Steel Hoop Co., Sharon, Pa.
Trumbull Steel Co., Warren, Ohio.
Walter-Wallingford & Co., Cincinnati, O.
West Leechburg Steel Co., Pittsburgh, Pa.
Wheeling Steel Products Co., Wheeling, W. Va.
Youngstown Sheet & Tube Co., Youngstown, O.

IRIDIUM

American Metal Co., Ltd., 61 Broadway, N. Y.
American Platinum Wks., Newark, N. J.
Baker & Co., Inc., 54 Austin St., Newark, N. J.
J. Bishop & Co., Platinum Works, Malvern, Pa.
Chas. Hardy & Ruperti, Inc., 115 Broad St., N. Y.
Inter'l Ores & Metals Selling Corp., 280 B'way, N.Y.
Irvington Smelt. & Ref. Wks., Irvington, N. J.
Johnson Matthey & Co., Inc., Woolworth Bldg., NY
S. L. Jones & Co., 44 Beaver St., N. Y.
Mitsui & Co. Ltd., 65 Broadway, N. Y.
Philipp Bros. Inc., 29 B'way. N. Y.
R. & H. Platinum Wks., 709 6th Ave., N. Y.
Frank Samuel, Harrison Bldg., Phila., Pa.
Wah Chang Trading Corp., Woolworth, Bldg., N. Y.
The H.A. Wilson Co., 97 Chestnut St., Newark, N.J.

IRON ORE

American Manganese Mfg. Co., Philadelphia, Pa.
American Metal Co., Ltd., 61 Broadway, N. Y.
Bethlehem Steel Co., Bethlehem, Pa.
The Cleveland-Cliffs Iron Co., Cleveland, O.
M. A. Hanna & Co., Cleveland, O.
Hickman, Williams & Co., Cincinnati, O.
Inter'l Ores & Metals Selling Corp., 280 B'way, N.Y.
C. W. Leavitt & Co., 30 Church St., N. Y.
Robt. C. Lea & Co., 21 S. 12th St, Phila., Pa.
E. J. Lavino & Co., Philadelphia, Pa.
E. E. Marshall, Bullitt Bldg., Philadelphia, Pa.
Naylor & Co., 120 Broadway, N. Y.

IRON ORE (Ctd.)

B. Nicoll & Co., Inc., 149 Broadway, N. Y.
Pilling & Co., R. E. Trust Bldg., Phila., Pa.
Pittsburgh Steel Co., Pittsburgh, Pa.
Clement K. Quinn & Co., Duluth, Minn.
Republic Iron & Steel Co., Youngstown, O.
Rogers, Brown & Co., Cincinnati, O.
Frank Samuel Harrison Bldg., Philadedphia, Pa.
John A Savage & Co., Duluth, Minn.
Shenango Furnace Co., Pittsburgh, Pa.
W. P. Snyder & Co., Pittsburgh, Pa.
Walter-Wallingford & Co., Cincinnati, O.

IRON ORE PROPERTIES

J. H. Hillman & Sons Co., Pittsburgh, Pa.
B. Nicoll & Co., Inc., 149 Broadway, N. Y.
John A. Savage & Co., Duluth, Minn.

LEAD (Pig lead)

Amalgamated Metals Sell. Co., Ltd., 42 B'way, NY
American Metal Co., Ltd., 61 Broadway, N. Y.
American Smelt. & Ref. Co., 120 Broadway, N. Y.
American Zinc, Lead & Sm. Co., 120 B'way, N. Y.
Balbach Smelt. & Ref. Co., 280 Broadway, N. Y.
H. B. Barnard & Sons, London, E. C., England.
S. Birkenstein & Sons, 389 W. Ontario St., Chi., Ill.
Charleston Lead Works, Charleston, S. C.
Consolidated Min. & Smelt. Co. of Canada, Drummond Bldg., Montreal, Canada.
Dickerson, Van Dusen & Co., 32 Cliff St., N. Y.
Eagle-Picher Lead Co., Chicago, Ill.
R. M. Easdale & Co., Glasgow, Scotland.
Ellenwood & Doyle, Inc., 29 Great Jones St. N. Y.
Girard Smelting & Refining Co., Philadelphia, Pa.
Great Western Smelt. & Ref. Co., Chicago, Ill.
Chas. Hardy & Ruperti, Inc., 115 Broad St., N. Y.
Hendricks Brothers, Inc., 49 Cliff St., N. Y.
Edward Hill's Son & Co., 64 Wall St., N. Y.
International Lead Ref. Co., 25 Broadway, N. Y.
Internat'l Minerals & Metals Corp., 61 B'way, N.Y.
Inter'l Ores & Metals Selling Corp., 280 B'way, N.Y.
H. Kramer & Co., 1324 W. 21st Pl.., Chicago, Ill.
Lewis Lazarus & Sons, 61 B'way, N. Y.
C. W. Leavitt & Co., 30 Church St., N. Y.
Michigan Smelt. & Ref. Co., Detroit, Mich.
More-Jones Brass & Metal Co., St. Louis, Mo.
E. L. Murphy & Co., Webster Bldg., Chicago, Ill.
Nassau Smelt. & Ref. Wks., 603 W. 29th St., N. Y.
B. Nicoll & Co., Inc., 149 Broadway, N. Y.
Philipp Bros., Inc., 29 Broadway, N. Y.
Richards & Co., Inc., Boston, Mass.
St. Joseph Lead Co., 61 Broadway, N. Y.
Arthur Seligman, 165 Broadway, N. Y.
Senter-Robbins-Fox Corp., 217 B'way, N. Y.

LEAD (Pig lead) (Ctd.)

E. J. Smith & Co., Kings Road, Birmingham, Eng.
Societe Generale Des Minerais, 31 Rue Du Marais, Brussels, Belgium.
Suzuki & Co., 220 Broadway, N. Y.
Tottenville Copper Co., Tottenville, N. Y.
C. S. Trench & Co., 81 Fulton St., N. Y.
Nathan Trotter & Co., Philadelphia, Pa.
United Metals Selling Co., 25 B'way, N. Y.
U. S. Smelt., Ref. & Min. Co., 120 Broadway, N. Y.
Vernon Metal & Produce Co., 25 Beaver St., N. Y.
John Wahl Commission Co., St. Louis, Mo.

LEAD (Foil)

Standard Rolling Mills, Inc., Brooklyn, N. Y.

LIMESTONE

American Zinc, Lead & Smelt. Co., 120 B'way, N Y
Bethlehem Steel Co., Bethlehem, Pa.
Robt. C. Lea & Co., 21 S. 12th St., Phila., Pa.

LITHARGE

American Smelt. & Ref. Co., 120 B'way, N. Y.
Eagle-Picher Lead Co., Chicago, Ill.
Chas. Hardy & Ruperti, Inc., 115 Broad St., N. Y.
Edward Hill's Son & Co., 64 Wall St., N. Y.

LITHOPONE

Eagle-Picher Lead Co., Chicago, Ill.
Grasselli Chemical Co., Cleveland, O.
Edward Hill's Son & Co., 64 Wall St., N. Y.
Inter'l Ores & Metals Selling Corp., 280 B'way, N.Y.
S. L. Jones & Co., Inc., 44 Beaver St., N. Y.
Mineral Point Zinc Co., Chicago, Ill.
New Jersey Zinc Co., 160 Front St., N. Y.
Philipp Bros., Inc., 29 Broadway, N. Y.

MACHINERY (Second-hand)

Bethlehem Steel Co., Bethlehem, Pa.

MAGNESITE (Calcined)

American Refractories Co., Pittsburgh, Pa.
Harbison-Walker Refractories Co., Pittsburgh, Pa.
Chas. Hardy & Ruperti, Inc., 115 Broad St., N. Y.
Hickman, Williams & Co., Philadelphia, Pa.
Edward Hill's Son & Co., 64 Wall St., N. Y.
Inter'l Ores & Metals Selling Corp., 280 B'way, N.Y.
S. L. Jones & Co., Inc., 44 Beaver St., N. Y.
E. J. Lavino & Co., Philadelphia, Pa.
C. W. Leavitt & Co., 30 Church St., N. Y.
Naylor & Co. 120 B'way, N. Y.
Rogers, Brown & Co., Cincinnati, O. (Dead burned)
Frank Samuel, Harrison Bldg., Philadelphia, Pa.
Senter-Robbins-Fox Corp., 217 B'way, N. Y.

MAGNESITE BRICK

American Refractories Co., Pittsburgh, Pa.
Harbison-Walker Refractories Co., Pittsburgh, Pa.

MAGNESITE (Brick) (Ctd.)

Inter'l Ores & Metals Selling Corp., 280 B'way, N.Y.
E. J. Lavino & Co., Philadelphia, Pa.

MAGNESIUM ALLOYS

Aluminum Co. of America, Pittsburgh, Pa.
S. Birkenstein & Sons, Chicago, Ill.
E. J. Lavino & Co., Philadelphia, Pa.
C. W. Leavitt & Co., 30 Church St., N. Y.
Senter-Robbins-Fox Corp., 217 B'way, N. Y.

MAGNESIUM METAL

Aluminum Co., of America, Pittsburgh, Pa.
S. Birkenstein & Sons, Chicago, Ill.
C. W. Leavitt & Co., 30 Church St., N. Y.
E. J. Lavino & Co., Philadelphia, Pa.
Nassau Smelt. & Ref. Wks., 603 W. 29th St., N. Y.
Philipp Bros., Inc., 29 Broadway, N. Y.
Richards & Co., Inc., Boston, Mass.
Senter-Robbins-Fox Corp., 217 Broadway, N. Y.

MAGNESIUM POWDER

Aluminum Co. of America, Pittsburgh, Pa.
Johnson, Matthey & Co., Inc., Woolworth Bldg., N. Y.
E. J. Lavino & Co., Philadelphia, Pa.
Philipp Bros., Inc., 29 Broadway, N. Y.
Richards & Co., Inc., Boston, Mass.
Senter-Robbins-Fox Corp., 217 B'way, N. Y.

MANGANESE ALLOYS

The Ajax Metal Co., 46 Richmond St., Phila., Pa.
Amalgamated Metals Sell. Co., Ltd., 42 B'way, N.Y.
China Commercial Co. Ltd., 2 Rector St., N. Y.
Inter'l Ores & Metals Selling Corp., 280 B'way, N.Y.
E. J. Lavino & Co., Philadelphia, Pa.
Metal & Thermit Corp., 120 Broadway, N. Y.
Frank Samuel, Harrison Bldg., Phila., Pa.
Senter-Robbins-Fox Corp., 217 B'way, N. Y.
E. J. Smith & Co., Kings Rd., Birmingham, Eng.
Walter-Wallingford & Co., Cincinnati, O.

MANGANESE DIOXIDE

Amalgamated Metals Sell. Co., Ltd., 42 B'way, N.Y.
China Commercial Co., Ltd., 2 Rector St., N. Y.
Chas. Hardy & Ruperti, Inc., 115 Broad St., N. Y.
Inter'l Ores & Metals Selling Corp., 280 B'way, N.Y.
E. J. Lavino & Co., Philadelphia, Pa.
C. W. Leavitt & Co., 30 Church St., N. Y.
Mitsui & Co., Ltd., 65 Broadway, N. Y.
Naylor & Co. 120 B'way, N. Y.
Philipp Bros., Inc., 29 Broadway, N. Y.
Frank Samuel, Harrison Bldg, Phila., Pa.
Senter-Robbins-Fox Corp., 217 Broadway, N. Y.
South China Devel. Synd. Ltd., 2 Rector St., N. Y.
Wah Chang Trading Corp., Woolworth Bldg., N. Y.

MANGANESE ORE

Amalgamated Metals Sell. Co., Ltd., 42 B'way, N.Y.
American Metal Co., Ltd., 61 Broadway, N. Y.
China Commercial Co., 2 Rector St., N. Y.
A. C. Daft, Oliver Bldg, Pittsburgh, Pa.
Chas. Hardy & Ruperti, Inc., 115 Broad St., N. Y.
Hickman, Williams & Co., Pittsburgh, Pa.
Edward Hill's Son & Co., 64 Wall St., N. Y.
Intern'l Minerals & Metals Corp., 61 B'way, N. Y.
Inter'l Ores & Metals Selling Corp., 280 B'way, N.Y.
E. J. Lavino & Co., Philadelphia, Pa.
Robert C. Lea & Co., 21 S. 12th St., Phila., Pa.
C. W. Leavitt & Co., 30 Church St., N. Y.
Mitsui & Co., Ltd., 65 Broadway, N. Y.
Naylor & Co., 120 Broadway, N. Y.
B. Nicoll & Co., Inc., 149 B'way, N. Y.
Philipp Bros., Inc., 29 Broadway, N. Y.
Rogers, Brown & Co., Cincinnati, O.
Frank Samuel, Philadelphia, Pa.
Senter-Robbins-Fox Corp., 217 Broadway, N. Y.
South China Devel. Synd. Ltd., 2 Rector St., N. Y.
Wah Chang Trading Corp., Woolworth Bldlg, N. Y.

MANGANIFEROUS ORES

American Manganese Mfg., Co., Phila., Pa.
Cleveland Cliffs Iron Co., Cleveland, Ohio.
Hickman Williams & Co., Chicago, Ill.
Inter'l Ores & Metals Selling Corp., 280 B'way, N.Y.
E. J. Lavino & Co., Philadelphia, Pa.
Robt. C. Lea & Co., 21 S. 12th St., Phila., Pa.
Naylor & Co., 120 Broadway, N. Y.
B Nicoll & Co., Inc., 149 Broadway, N. Y.
Clement K. Quinn & Co., Duluth, Minn.
Rogers, Brown & Co., Cincinnati, O.
Frank Samuel, Harrison Bldg., Phila., Pa.
John A. Savage & Co., Duluth, Minn.
Senter-Robbins-Fox Corp., 217 Broadway, N. Y.

MANGANIN

Baker & Co., Inc., 54 Austin St., Newark, N. J.

METAL LATH & EXPANDED METAL

American Sheet & Tinplate Co., Pittsburgh, Pa.
Dickerson, Van Dusen & Co., 32 Cliff St., N. Y.
Ellenwood & Doyle, Inc., 29 Great Jones St. N. Y.
Pittsburgh Steel Co., Pittsburgh, Pa.
Wheeling Steel Products Co., Wheeling, W. Va.
Youngstown Sheet & Tube Co., Youngstown, Ohio.

METAL SHINGELS, Etc.

Anaconda Copper Min. Co., 111 W. Washington St. Chicago, Ill.
Brier Hill Steel Co., Youngstown, O.
Ellenwood & Doyle, Inc., 29 Great Jones St., N. Y.

METAL SHINGLES, Etc. (Ctd.)

Illinois Zinc Co., Peru, Ill.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.
Mineral Point Zinc Co., Chicago, Ill.
New Jersey Zinc Co., 160 Front St., N. Y.
Newport Rolling Mill Co., Newport, Ky.
Reeves Manufacturing Co., Dover, O.
Richards & Co., Inc., Boston, Mass.
The Trumbull Steel Co., Warren, O.
Wheeling Steel Products Co., Wheeling, W. Va.

MOLYBDENUM

Amalgamated Metals Sell. Co., Ltd., 42 B'way, N.Y.
American Metal Co., Ltd., 61 Broadway, N. Y.
J. Bishop & Co., Platinum Works, Malvern, Pa.
Chemical Products Co., 621 Alabama Av., S. E., Washington, D. C.
China Commercial Co., Ltd., 2 Rector St., N. Y.
Chas. Hardy & Ruperti, Inc., 115 Broad St., N. Y.
Edward Hill's Son & Co., 64 Wall St., N. Y.
Internat'l Minerals & Metals Corp., 61 B'way, NY
Inter'l Ores & Metals Selling Corp., 280 B'way, N.Y.
E. J. Lavino & Co., Philadelphia, Pa.
Mitsui & Co., Ltd., 65 Broadway, N. Y.
Naylor & Co., 120 Broadway, N. Y.
Philipp Bros., Inc., 29 Broadway, N. Y.
Frank Samuel, Harrison Bldg., Philadelphia, Pa.
Senter-Robbins-Fox Corp., 217 Broadway, N. Y.
South China Devel. Synd. Ltd., 2 Rector St., N. Y. (Ore)
Suzuki & Co., 220 B'way, N. Y.
Wah Chang Trading Corp., Woolworth Bldg., N. Y.

MONEL METAL (Bars, Ingot, Sheets, Tubes, etc.)

Amalgamated Metals Sell. Co., Ltd., 42 B'way, N.Y.
The American Brass Co., Waterbury, Conn.
International Nickel Co., 67 Wall St., N. Y.
Nassau Smelt. & Ref. Wks., 603 W. 29th St., N. Y.
E. J. Smith & Co., Kings Rd., Birmingham, Eng.
Tottenville Copper Co., Tottenville, N. Y.

MOULDS (Ingots)

Allegheny Steel Co., Brackenridge, Pa.
Bethlehem Steel Co., Bethlehem, Pa.

MUNTZ METAL

Amalgamated Metals Sell. Co., Ltd., 42 B'way, N.Y.
The American Brass Co., Waterbury, Conn.
Baltimore Tube Co,, Inc., Baltimore, Md.
Bristol Brass Corp., Bristol, Conn
Dallas Brass & Copper Co., Chicago, Ill.
Detroit Copper & Brass Roll. Mills, Detroit, Mich.
More-Jones Brass & Metal Co., St. Louis, Mo.
Nassau Smelt. & Ref. Wks., 603 W. 29th St., N. Y.
Scovill Mfg. Co., Waterbury, Conn.

MUNTZ METAL (Ctd.)

Senter-Robbins-Fox Corp., 217 Broadway, N. Y.
E. J. Smith & Co., Kings Rd., Birmingham, Eng.
Stamford Rolling Mills, Inc., 347 Madison Ave. NY
Tottenville Copper Co., Tottenville, N. Y.

NAILS (Cement Coated)

B'klyn Galv. & Mfg. Co., Inc., 120 Liberty St., N.Y.
Fuller Bros. & Co., 139 Greenwich St., N. Y.
Interstate Iron & Steel Co., Chicago, Ill.
Jones & Laughlin Steel Co., Pittsburgh, Pa.
Midvale Steel & Ordnance Co., Phila., Pa.
F. R. Philipps & Sons Co., Phila., Pa.
Pittsburgh Steel Co., Pittsburgh, Pa.
Wheeling Steel Products Co., Wheeling, W. Va.
Youngstown Sheet & Tube Co., Youngstown, O.

NAILS (Cut)

B'klyn Galv. & Mfg. Co., Inc., 120 Liberty St., N.Y.
Crownshield Trading Corp., 30 Church St., N. Y.
Fuller Bros. & Co., 139 Greenwich St., N. Y.
Hickman, Williams & Co., Chicago, Ill.
Mineral Point Zinc Co., Chicago, Ill.
Interstate Iron & Steel Co., Chicago, Ill.
The New Jersey Zinc Co., 160 Front St., N. Y.
B. Nicoll & Co., Inc., 149 Broadway, N. Y.
F. R. Philipps & Sons Co., Phila., Pa.
Wheeling Steel Products Co., Wheeling, W. Va.

NAILS (Wire)

B'klyn Galv. & Mfg. Co., Inc., 120 Liberty St., N.Y.
Crownshield Trading Corp., 30 Church St., N. Y.
Fuller Bros. & Co., 139 Greenwich St., N. Y.
Hickman, Williams & Co., Chicago, Ill.
Interstate Iron & Steel Co., Chicago, Ill.
Jones & Laughlin Steel Co., Pittsburgh, Pa.
Midvale Steel & Ordnance Co., Phila., Pa.
B. Nicoll & Co., Inc, 149 B'way, N. Y.
Page Steel & Wire Co., Bridgeport, Conn.
F. R. Philipps & Sons Co., Phila., Pa.
Pittsburgh Steel Co., Pittburgh, Pa.
Youngstown Sheet & Tube Co., Youngstown, O.

NICKEL (Cube, shot, ingot and rondelle)

Amalgamated Metals Sell. Co., Ltd., 42 B'way, N.Y.
American Metal Co., Ltd. 61 B'way, N. Y.
American Smelt. & Ref. Co., 120 B'way, N. Y.
S. Birkenstein & Sons, 389 W. Ontario St. Chi., Ill.
A. C. Daft, Oliver Bldg., Pittsburgh, Pa.
Ellenwood & Doyle, Inc., 29 Great Jones St., N. Y.
Great Western Smelt. & Ref. Co., Chicago, Ill.
Hendricks Bros., Inc., 49 Cliff St., N. Y.

NICKEL (Cube, shot, ingot, and rondelle) (Ctd.)

Intern'l Minerals & Metals Corp., 61 B'way, N. Y.
International Nickel Co., 67 Wall St., N. Y.
Lewis Lazarus & Sons, 61 B'way, N. Y.
Michigan Smelt. & Ref. Co., Detroit, Mich.
More-Jones Brass & Metal Co., St. Louis, Mo.
Nassau Smelt. & Ref. Wks., 603 W. 29th St., N. Y.
Naylor & Co., 120 Broadway, N. Y.
Philipp Bros., Inc., 29 Broadway, N. Y.
Richards & Co., Inc., Boston, Mass.
A. Seligman, 165 Broadway, N. Y.
Senter-Robbins-Fox Corp., 217 Broadway, N. Y.
E. J. Smith & Co., Kings, Rd., Birmingham, Eng.
Tottenville Copper Co., Tottenville, N. Y.
Nathan Trotter & Co., Phila., Pa.
U. S. Nickel Co., New Brunswick, N. J.

NICKEL SALTS

Nichols Copper Co., 25 Broad St., N. Y.
International Nickel Co., 67 Wall St., N. Y.
Philipp Bros., Inc., 29 Broadway, N. Y.
Seymour Mfg. Co., Seymour, Conn.
United Metals Selling Co., 25 B'way, N. Y.

NICKEL SILVER (Sheets, wire, rods, tubes, etc.)

Amalgamated Metals Sell. Co., Ltd., 42 B'way, N.Y.
The American Brass Co., Waterbury, Conn.
S. Birkenstein & Sons, Chicago, Ill.
Bristol Brass Corp., Bristol, Conn.
Dallas Brass & Copper Co., Chicago, Ill.
Detroit Copper & Brass Roll. Mills, Detroit, Mich.
Scovill Mfg. Co., Waterbury, Conn.
Great Western Smelt. & Ref. Co., Chicago, Ill.
Riverside Metal Co., Riverside, N. J.
Senter-Robbins-Fox Corp., 217 Broadway, N. Y.
Seymour Mfg. Co., Seymour, Conn.
E. J. Smith & Co., Kings Rd., Birmingham, Eng.
Stamford Roll. Mills, Inc., 347 Madison Ave., N. Y.
Tottenville Copper Co., Tottenville, N. Y.
Western Cartridge Co., East Alton, Ill.

OIL WELL CASING & TUBING

Allegheny Steel Co., Pittsburgh, Pa.
Jones & Laughlin Steel Co., Pittsburgh, Pa.
Mark Mfg. Co., 111 W. Washington St. Chicago, Ill.
National Tube Co., Pittsburgh, Pa.
Republic Iron & Steel Co., Youngstown, O.
Wheeling Steel Products Co., Wheeling, W. Va.
Youngstown Sheet & Tube Co., Youngstown, O.

ORES (Non-ferrous)

Amalgamated Metals Sell. Co., Ltd., 42 B'way, NY
American Metal Co., Ltd., 61 Broadway, N. Y.
American Zinc, Lead & Smelt. Co., 120 B'way, N.Y.
Balfour, Williamson & Co., 67 Wall St., N. Y.

ORES (Non-ferrous) (Ctd.)

Grasselli Chemical Co., Cleveland, O.
Chas. Hardy & Ruperti, Inc, 115 Broad St., N. Y.
Edward Hill's Son & Co., 64 Wall St., N. Y.
Internat'l Minerals & Metals Corp., 61 B'way, NY
Inter'l Ores & Metals Sell. Corp., 280 B'way, N. Y.
E. J. Lavino & Co., Philadelphia, Pa.
C. W. Leavitt & Co., 30 Church St., N. Y.
Mitsui & Co., Ltd., 65 Broadway, N. Y.
Naylor & Co., 120 Broadway, N. Y.
Philipp Bros., Inc., 29 Broadway, N. Y.
Frank Samuel, Harrison Bldg., Philadelphia, Pa.
Senter-Robbins-Fox Corp., 217 Broadway, N. Y.
Societe Generale Des Minerais, 31 Rue Du Marais, Brussels, Belgium.
South China Devel. Synd. Ltd., 2 Rector St., N. Y.
Wah Chang Trad. Corp., Woolworth Bldg., N. Y.

ORE (Tantalum)

The Chemical Products Co., Washington, D. C.
Inter'l Ores & Metals Sell. Corp., 280 B'way, N. Y.
E. J. Lavino & Co., Philadelphia, Pa.

ORE CONCENTRATORS

New Jersey Concentrating Co., 115 Broad St., N. Y.
Frank Samuel, Harrison Bldg., Philadelphia, Pa.

ORE STORAGE, GRINDING & SEPARATION

New Jersey Concentrating Co., 115 Broad St., N. Y.
Frank Samuel, Harrison Bldg., Phila., Pa.

PALADIUM

American Metal Co., Ltd., 61 Broadway, N. Y.
American Platinum Wks., Newark, N. J.
American Smelting & Refining Co., 120 B'way, N.Y.
Baker & Co., Inc., 54 Austin St., Newark, N. J.
Balbach Smelt. & Ref. Co., 280 Broadway, N. Y.
J. Bishop & Co., Platinum Works, Malvern, Pa.
Chas. Hardy & Ruperti, Inc., 115 Broad St., N. Y.
Inter'l Ores & Metals Sell. Corp., 280 B'way, N.Y.
Irvington Smelt. & Ref. Wks., Irvington, N. J.
Johnson Matthey & Co., Inc., Woolworth Bldg., NY
Philipp Bros., Inc., 29 Broadway, N. Y.
R. & H. Platinum Works, 709 6th Ave., N. Y.
U. S. Smelt., Ref. & Mining Co., 120 B'way, N. Y.
The H.A. Wilson Co., 97 Chestnut St., Newark, N.J.

PALM OIL

Amalgamated Metals Sell. Co., Ltd., 42 B'way, NY
S. L. Jones & Co., Inc., 44 Beaver St., N. Y.
Naylor & Co., 120 Broadway, N. Y.
Wheeling Steel Products Co., Wheeling, W. Va.
H. P. Winter & Co., 64 Wall St., N. Y.

PERFORATED METAL

American Zinc Products Co., Greencastle, Ind.
Ellenwood & Doyle, Inc., 29 Great Jones St., N. Y.

PEROXIDE OF MANGANESE

American Metal Co., Ltd., 61 Broadway, N. Y.
Chas. Hardy & Ruperti, Inc., 115 Broad St., N. Y.
Inter'l Ores & Metals Sell. Corp., 280 B'way, N. Y.
S. L. Jones & Co., Inc., 44 Beaver St., N. Y.
E. J. Lavino & Co., Philadelphia, Pa.
Frank Samuel, Harrison Bldg., Philadelphia, Pa.
Senter-Robbins-Fox Corp., 217 Broadway, N. Y.
Wah Chang Trading Corp., Woolworth Bldg., N. Y.

PHOSPHOR ALLOYS

Ajax Metal Co., 46 Richmond St., Phila., Pa
The American Brass Co., Waterbury, Conn.
Dallas Brass & Copper Co., Chicago, Ill.
Eureka Brass Co., St. Louis, Mo.
Great Western Smelt. & Ref. Co., Chicago, Ill.
More-Jones Brass & Metal Co., St. Louis, Mo.
Nassau Smelt. & Ref. Wks., 603 W. 29th St., N. Y.
Richards & Co., Inc., Boston, Mass.
Riverside Metal Co., Riverside, N. J.
Frank Samuel, Harrison Bldg., Phila., Pa.
Arthur Seligman, 165 Broadway, N. Y.
Senter-Robbins-Fox Corp., 217 Broadway, N. Y.
Seymour Mfg. Co., Seymour, Conn.

PHOSPHORUS

S. Birkenstein & Sons, 389 W. Ontario St., Chi., Ill.
Great Western Smelt. & Ref. Co., Chicago, Ill.
S. L. Jones & Co., Inc., 44 Beaver St., N. Y.
More-Jones Brass & Metal Co., St. Louis, Mo.
Frank Samuel, Harrison Bldg., Philadelphia, Pa.

PIG IRON

The Alabama Co., Birmingham, Ala.
American Manganese Mfg. Co., Philadelphia, Pa.
Bethlehem Steel Co., Bethlehem, Pa.
Brier Hill Steel Co., Youngstown, O.
Chattanooga Electro Metals Co., Chattanooga, Tenn.
The Cleveland-Cliffs Iron Co., Cleveland, O.
Cooper, Claypool & Co., Ltd., Pittsburgh, Pa.
Crocker Bros., 21 E. 40th St., N. Y.
Crownshield Trading Corp., 30 Church St, N. Y.
M. A. Hanna & Co., Cleveland, O.
Hickman, Williams & Co., Chicago, Ill.
Illinois Steel Co., 208 S. La Salle St., Chicago, Ill.
Keokuk Electro Metals Co., Chicago, Ill.
E. J. Lavino & Co., Philadelphia, Pa.
Robt. C. Lea & Co., 21 S. 12th St., Phila., Pa.
Naylor & Co., 120 Broadway, N. Y.
B.Nicoll & Co., Inc., 149 Broadway, N. Y.
F. R. Phillips & Sons Co., Philadelphia, Pa.
Pickands, Brown & Co., Chicago, Ill.
Pilling & Co., Philadelphia, Pa.
Pittsburgh Steel Co., Pittsburgh, Pa.
Republic Iron & Steel Co., Youngstown, O.

PIG IRON (Ctd.)

Rogers Brown & Co., Cincinnati, Ohio.
Frank Samuel, Harrison Bldg., Philadelphia, Pa.
John A. Savage & Co., Duluth, Minn.
Sharon Steel Hoop Co., Sharon, Pa.
Shenango Furnace Co., Pittsburgh, Pa.
W. P. Snyder & Co., Pittsburgh, Pa.
The Trumbull Steel Co., Warren, Ohio.
Walter-Wallingford & Co., Cincinnati, O.

PIPE (Brass and copper)

Amalgamated Metals Sell. Co., Ltd., 42 B'way, NY
American Brass Co., Waterbury, Conn.
Baltimore Tube Co., Baltimore, Md.
Dallas Brass & Copper Co., Chicago, Ill.
Detroit Copper & Brass Roll. Mills, Detroit, Mich.
More-Jones Brass & Metal Co., St. Louis, Mo.
F. R. Phillips & Sons Co., Philadelphia, Pa.
Scovill Mfg. Co., Waterbury, Conn.
Senter-Robbins-Fox Corp., 217 Broadway, N. Y.
Standard Underground Cable Co., Pittsburgh, Pa.

PIPE (Cast Iron)

U. S. Cast Iron Pipe & Fdy. Co., Burlington, N. J.

PIPE (Welded steel)

Allegheny Steel Co., Pittsburgh, Pa.
B'klyn Galv. & Mfg. Co., 120 Liberty St., N. Y.
Crownshield Trading Corp., 30 Church St. N. Y.
Fuller Bros. & Co., 139 Greenwich St., N. Y.
Jones & Laughlin Steel Co., Pittsburgh, Pa.
E. F. Keating Co., 452 Water St., N. Y.
Mark Mfg. Co., 111 W. Washington St., Chicago, Ill.
National Tube Co., Pittsburgh, Pa.
B. Nicoll & Co., Inc., 149 Broadway, N. Y.
F. R. Phillips & Sons Co., Philadelphia, Pa.
Republic Iron & Steel Co., Youngstown, O.
Wheeling Steel Products Co., Wheeling, W. Va.
Youngstown Sheet & Tube Co., Youngstown, O.

PIPE (Welded wrought iron)

B'klyn Galv. & Mfg. Co., 120 Liberty St., N. Y.
E. F. Keating Co., 452 Water St., N. Y.
F. R. Phillips & Sons Co., Philadelphia, Pa.
Wheeling Steel Products Co., Wheeling, W. Va.
Youngstown Sheet & Tube Co., Youngstown, O.

PIPE FITTINGS

Bethlehem Steel Co., Bethlehem, Pa.
B'klyn Galv. & Mfg. Co., 120 Liberty St., N. Y.
Jones & Laughlin Steel Co., Pittsburgh, Pa.
E. F. Keating Co., 452 Water St., N. Y.
F. R. Phillips & Sons Co., Philadelphia, Pa.
Republic Iron & Steel Co., Youngstown, O.
U. S. Cast Iron Pipe & Fdy. Co., Burlington, N. J.

PIPE & LINE PIPE (Iron)

Allegheny Steel Co., Brackenridge, Pa.
Jones & Laughlin Steel Co., Pittsburgh, Pa.
E. F. Keating Co., 452 Water St., N. Y.
Mark Mfg. Co., 111 W. Washington St., Chicago, Ill.
National Tube Co., Pittsburgh, Pa. (Steel)
F. R. Phillips & Sons Co., Philadelphia, Pa.
Republic Iron & Steel Co., Youngstown, O.
Wheeling Steel Products Co., Wheeling W. Va. (Steel)
Youngstown Sheet & Tube Co., Youngstown, O.

PLATES (Iron)

Allegheny Steel Co., Pittsburgh, Pa.
Bethlehem Steel Co., Bethlehem, Pa.
B'klyn Galv. & Mfg. Co., Inc., 120 Liberty St., NY
Egleston Bros. & Co., Inc., 166 South St., N. Y.
Newport Rolling Mill Co., Newport, Ky.
F. R. Phillips & Sons Co., Philadelphia, Pa.
Schrock & Squires, Inc., 291 Pearl St., N. Y.

PLATES (Steel)

Allegheny Steel Co., Pittsburgh, Pa.
American Sheet & Tin Plate Co., Pittsburgh, Pa.
Bethlehem Steel Co., Bethlehem, Pa.
Brier Hill Steel Co., Youngstown, O.
B'klyn Galv. & Mfg. Co., Inc., 120 Liberty St., NY
Carnegie Steel Co., Pittsburgh, Pa.
Central Iron & Steel Co., Harrisburg, Pa.
Crownshield Trading Corp., 30 Church St, N. Y.
Egleston Bros. & Co., Inc., 166 South St., N. Y.
Follansbee Bros. Co., Pittsburgh, Pa.
Fuller Bros. & Co., 139 Greenwich St., N. Y.
Harrisburg Pipe & Pipe Bending Co. Harrisb'g Pa.
Illinois Steel Co., 208 S. La Salle St., Chicago, Ill.
Inland Steel Co., Chicago, Ill.
Jones & Laughlin Steel Co., Pittsburgh, Pa.
Mark Mfg., Co., 111 W. Washington St., Chi., Ill.
Midvale Steel & Ordnance Co., Philadelphia, Pa.
Naylor & Co., 120 Broadway, N. Y.
Newport Rolling Mill Co., Newport, Ky.
B. Nicoll & Co., Inc., 149 Broadway, N. Y.
F. R. Phillips & Sons Co., Philadelphia, Pa.
Pittsburgh Steel Co., Pittsburgh, Pa.
Republic Iron & Steel Co., Youngstown, O.
Schrock & Squires, Inc., 291 Pearl St., N. Y.
Sharon Steel Hoop Co., Sharon, Pa.
Trumbull Steel Co., Warren, O.
Wheeling Steel Products Co., Wheeling, W. Va.
Youngstown Sheet & Tube Co., Youngstown, O.

PLATINUM

American Metal Co., Ltd., 61 B'way, N. Y.
American Platinum Wks., Newark, N. J.
American Smelt. & Ref. Co., 120 Broadway, N. Y.
Baker & Co., Inc., 54 Austin St., Newark, N. J.

PLATINUM (Ctd.)
Balbach Smelt. & Ref. Co., 280 Broadway, N. Y.
J. Bishop & Co., Platinum Wks., Malvern, Pa.
Chas. Hardy & Ruperti, Inc., 115 Broad St., N. Y.
Intern'l Minerals & Metals Corp., 61 B'way, N. Y.
Inter'l Ores & Metals Selling Corp., 280 B'way, N.Y.
Irvington Smelt. & Ref. Wks., Irvington, N. J.
Johnson Matthey & Co., Inc., Woolworth Bldg., NY
Adolph Lewisohn & Sons, 61 Broadway, N. Y.
Mitsui & Co., Ltd., 65 Broadway, N. Y.
Philipp Bros., Inc., 29 Broadway, N. Y.
R. & H. Platinum Wks., 709 6th Ave., N. Y.
U. S. Smelt., Ref. & Min. Co., 120 B'way, N. Y.
The H.A. Wilson Co., 97 Chestnut St., Newark, N.J.

PORTLAND CEMENT
Crownshield Trading Corp., 30 Church St., N. Y.

POWER TRANSMISSION
American Bridge Co., 30 Church St., N. Y.
Jones & Laughlin Steel Co., Pittsburgh, Pa.

PRESSED STEEL WORK
Allegheny Steel Co. Pittsburgh, Pa.
Bethlehem Steel Co., Bethlehem, Pa.
Wheeling Steel Products Co., Wheeling, W. Va.

PYRITES (Iron)
American Metal Co., Ltd., 61 Broadway, N. Y.
Grasselli Chemical Co., Cleveland, O.
Hickman, Williams & Co., Chicago, Ill.
Internat'l Minerals & Metals Corp., 61 B'way, N.Y.
Inter'l Ores & Metals Sell. Corp., 280 B'way, N. Y.
E. J. Lavino & Co., Philadelphia, Pa.
Robt. C. Lea & Co., 21 S. 12th St., Philadelphia, Pa.
C. W. Leavitt & Co., 30 Church St., N. Y.
Naylor & Co., 120 Broadway, N. Y.
B. Nicoll & Co., Inc., 149 Broadway, N. Y.
Frank Samuel, Harrison Bldg., Phila., Pa.
Societe Generale Des Minerais, 31 Rue Du Marais, Brussels, Belgium.

QUICKSILVER
Amalgamated Metals Sell. Co., Ltd., 42 B'way, NY
American Metal Co., Ltd., 61 Broadway, N. Y.
S. Birkenstein & Sons, 389 W. Ontario St., Chi., Ill.
Crownshield Trading Corp., 30 Church St., N. Y.
Chas. Hardy & Ruperti, Inc., 115 Broad St., N. Y.
Internat'l Minerals & Metals Corp., 61 B'way, NY
S. L. Jones & Co., 44 Beaver St., N. Y.
C. W. Leavitt & Co., 30 Church St., N. Y.
Senter-Robbins-Fox Corp., 217 Broadway, N. Y.

RAILS
Bethlehem Steel Co., Bethlehem, Pa.
Carnegie Steel Co., Pittsburgh, Pa.
Crownshield Trading Corp., 30 Church St., N. Y.
Egleston Bros. & Co., Inc., 166 South St., N. Y.
Illinois Steel Co., 208 S. La Salle St., Chicago, Ill.
Inland Steel Co., Chicago, Ill.

RAILS (Ctd.)
Jones & Laughlin Steel Co, Pittsburgh, Pa.
Midvale Steel & Ordnance Co., Philadelphia, Pa.
B. Nicoll & Co., Inc., 149 Broadway, N. Y.
F. R. Phillips & Sons Co., Philadelphia, Pa.
Republic Iron & Steel Co., Youngstown, O.

RED LEAD
Eagle-Picher Lead Co., Chicago, Ill.
Edward Hill's Son & Co., 64 Wall St., N. Y.
S. L. Jones & Co., Inc., 44 Beaver St., N. Y.

REFRACTORIES
Am. Enam. Brick & Tile Co., 52 Vand'b't Av. N.Y.
American Refractories Co., Pittsburgh, Pa.
Ashland Fire Brick Co., W. Ashland, Ky.
Harbison-Walker Refractories Co., Pittsburgh, Pa.
Ironton Fire Brick Co., Ironton, Ohio.
E. J. Lavino & Co., Philadelphia, Pa.
Senter-Robbins-Fox Corp., 217 Broadway, N. Y.

RIVETS
Aluminum Co. of America, Pittsburgh, Pa.
American Bridge Co., 30 Church St., N. Y.
Baker & Co., Inc., 54 Austin St., Newark, N. J.
Bethlehem Steel Co., Bethlehem, Pa.
J. Bishop & Co., Platinum Wks., Malvern, Pa. (Platinum)
Crownshield Trading Corp., 30 Church St., N. Y.
Fuller Bros. & Co., 139 Greenwich St., N. Y.
Inland Steel Co., Chicago, Ill.
Interstate Iron & Steel Co., Chicago, Ill.
Jones & Laughlin Steel Co., Pittsburgh, Pa.
R. & H. Platinum Works, 709 6th Ave., N. Y.
Scovill Mfg. Co., Waterbury, Conn.

RODS (Iron)
Bethlehem Steel Co., Bethlehem, Pa.
B'klyn Galv. & Mfg. Co., Inc., 120 Liberty St., NY
Egleston Bros. & Co., Inc., 166 South St., N. Y.
Hickman, Williams & Co., Chicago, Ill.
Interstate Iron & Steel Co., Chicago, Ill.
B. Nicoll & Co., Inc., 149 Broadway, N. Y.
Page Steel & Wire Co., Bridgeport, Conn.
F. R. Phillips & Sons Co., Philadelphia, Pa.
Republic Iron & Steel Co., Youngstown, O.
Schrock & Squires, Inc., 291 Pearl St., N. Y.
Youngstown Sheet & Tube Co., Youngstown, O.

RODS (Steel)
American Bridge Co., 30 Church St., N. Y.
Bethlehem Steel Co., Bethlehem, Pa.
B'klyn Galv. & Mfg. Co., Inc., 120 Liberty St., NY
Carnegie Steel Co., Pittsburgh, Pa.
Egleston Bros., Inc., 166 South St., N. Y.
Inland Steel Co., Chicago, Ill.
Interstate Iron & Steel Co., Chicago, Ill.
Jones & Laughlin Steel Co., Pittsburgh, Pa.
The McConway & Torley Co., Pittsburgh, Pa.

RODS (Steel) (Ctd.)

Midvale Steel & Ordnance Co., Philadelphia, Pa.
Naylor & Co., 120 Broadway, N. Y.
Ohio Falls Iron Co., New Albany, Ind.
Page Steel & Wire Co., Bridgeport, Conn.
F. R. Phillips & Sons Co., Philadelphia, Pa.
Pittsburgh Steel Co., Pittsburgh, Pa.
Republic Iron & Steel Co., Youngstown, O.
Schrock & Squires, Inc., 291 Pearl St., N. Y.
Youngstown Sheet & Tube Co., Youngstown, O.

ROOFING (Monel)

The International Nickel Co., 67 Wall St., N. Y.

ROOFING (Zinc)

American Zinc Products Co., Greencastle, Ind.
Dickerson, Van Dusen & Co., 32 Cliff St., N. Y.
Ellenwood & Doyle, Inc., 29 Great Jones St., N. Y.
Illinois Zinc Co., Peru, Ill.
Intern'l Minerals & Metals Corp., 61 B'way, N. Y.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.
Mineral Point Zinc Co., Chicago, Ill.
New Jersey Zinc Co., 160 Front St., N. Y.
Richards & Co., Inc., Boston, Mass.

SALT CAKE

American Metal Co., Ltd., 61 Broadway, N. Y.
S. L. Jones & Co., Inc., 44 Beaver St., N. Y.
Mineral Point Zinc Co., Chicago, Ill.
New Jersey Zinc Co., 160 Front St., N. Y.
Philipp Bros., Inc., 29 Broadway, N. Y.

SCHEELITE

American Metal Co., Ltd., 61 Broadway, N. Y.
Chemical Products Co., 621 Alabama Ave., S. E., Washington, D. C.
A. C. Daft, Oliver Bldg., Pittsburgh, Pa.
Chas. Hardy & Ruperti, Inc., 115 Broad St., N. Y.
Inter'l Ores & Metals Selling Corp., 280 B'way, N.Y.
E. J. Lavino & Co., Philadelphia, Pa.
C. W. Leavitt & Co., 30 Church St., N. Y.
Mitsui & Co. Ltd., 65 Broadway, N. Y.
Frank Samuel, Harrison Bldg., Philadelphia, Pa.
Wah Chang Trading Corp., Woolworth Bldg., N. Y.

SCRAP IRON AND STEEL

Bethlehem Steel Co., Bethlehem, Pa.
Hickman, Williams & Co., Chicago, Ill.
Midvale Steel & Ordnance Co., Philadelphia, Pa.
Frank Samuel, Harrison Bldg., Philadelphia, Pa.
H. N. Trimble, Oliver Bldg., Pittsburgh, Pa.

SCREW MACHINE STOCK (Steel)

Bethlehem Steel Co., Bethlehem, Pa.
Egleston Bros. & Co., Inc., 166 South St., N. Y.
Interstate Iron & Steel Co., Chicago, Ill.
Jones & Laughlin Steel Co., Pittsburgh, Pa.
Midvale Steel & Ordnance Co., Philadelphia, Pa.
B. Nicoll & Co., Inc., 149 Broadway, N. Y.

SCREW MACHINE STOCK (Steel) (Ctd.)
F. R. Phillips & Sons Co., Philadelphia, Pa.
Schrock & Squires, Inc., 291 Pearl St., N. Y.

SELENIUM
American Metal Co., Ltd., 61 Broadway, N. Y.
American Smelt. & Ref. Co., 120 Broadway, N. Y.
Internat'l Minerals & Metals Corp., 61 B'way, N.Y.
Johnson Matthey & Co., Inc., Woolworth Bldg, NY
United Metals Selling Co., 25 B'way, N. Y.
U. S. Smelt., Ref. & Min. Co., 120 B'way, N. Y.

SHAFTING (Cold rolled)
Bethlehem Steel Co., Bethlehem, Pa.
Egleston Bros. & Co., Inc., 166 South St., N. Y.
Interstate Iron & Steel Co., Chicago, Ill.
Jones & Laughlin Steel Co., Pittsburgh, Pa.
Midvale Steel & Ordnance Co., Philadelphia, Pa.
F. R. Phillips & Sons Co., Philadelphia, Pa.
Republic Iron & Steel Co., Youngstown, O.
Schrock & Squires, Inc., 291 Pearl St., N. Y.

SHEARS
Bethlehem Steel Co., Bethlehem, Pa.

SHEET BARS
Allegheny Steel Co., Pittsburgh, Pa.
Bethlehem Steel Co., Bethlehem, Pa.
Brier Hill Steel Co., Youngstown, O.
Carnegie Steel Co., Pittsburgh, Pa.
Cooper, Claypool & Co., Ltd., Pittsburgh, Pa.
Follansbee Bros. Co., Pittsburgh, Pa.
Hickman, Williams & Co., Pittsburgh, Pa.
Illinois Steel Co., 208 S. La Salle St., Chicago, Ill.
Inland Steel Co., Chicago, Ill.
Jones & Laughlin Steel Co., Pittsburgh, Pa.
Mansfield Sheet & Tinplate Co., Mansfield, O.
Midvale Steel & Ordnance Co., Philadelphia, Pa.
Naylor & Co., 120 Broadway, N. Y.
B. Nicoll & Co., Inc., 149 Broadway, N. Y.
F. R. Phillips & Sons Co., Philadelphia, Pa.
Republic Iron & Steel Co., Youngstown, O.
Sharon Steel Hoop Co., Sharon, Pa.
The Trumbull Steel Co., Warren, O.
Wheeling Steel Products Co., Wheeling, W. Va.
Youngstown Sheet & Tube Co., Youngstown, O.

SHEETS (Automobile)
Allegheny Steel Co., Pittsburgh, Pa.
Aluminum Co. of America, Pittsburgh, Pa.
Amalgamated Metals Selling Co., 42 B'way, N. Y.
American Sheet & Tin Plate Co., Pittsburgh, Pa.
Andrews Steel Co., Newport, Ky.
Apollo Steel Co., Apollo, Pa.
Bethlehem Steel Co., Bethlehem, Pa.
Brier Hill Steel Co., Youngstown, O.
B'klyn Galv. & Mfg. Co., Inc., 120 Liberty St., NY
Dickerson, Van Dusen & Co., 32 Cliff St., N. Y.

SHEETS (Automobile) (Ctd.)

The Eastern Rolling Mill Co,. Baltimore, Md.
Ellenwood & Doyle, Inc., 29 Great Jones St., N. Y.
Falcon Steel Co., Niles, Ohio.
Falcon Tin Plate Co., Niles, Ohio.
Follansbee Bros. Co., Pittsburgh, Pa.
Fuller Bros. & Co., 139 Greenwich St., N. Y.
Mansfield Sheet & Tinplate Co., Mansfield, O.
Newport Rolling Mill Co., Newport, Ky.
Newton Steel Co., Youngstown, Ohio.
B. Nicoll & Co., Inc., 149 Broadway, N. Y.
Richards & Co., Inc., Boston, Mass.
Schrock & Squires, Inc., 291 Pearl St., N. Y.
Seneca Iron & Steel Co., Buffalo, N. Y.
Wheeling Steel Products Co., Wheeling, W. Va.

SHEETS (Black)

Allegheny Steel Co., Pittsburgh, Pa.
American Sheet & Tin Plate Co., Pittsburgh, Pa.
Andrews Steel Co., Newport, Ky.
Apollo Steel Co., Apollo, Pa.
Bethlehem Steel Co., Bethlehem, Pa.
Brier Hill Steel Co., Youngstown, O.
B'klyn Galv. & Mfg. Co., Inc., 120 Liberty St., NY
Crownshield Trading Corp., 30 Church St., N. Y.
Dickerson, Van Dusen & Co., 32 Cliff St., N. Y.
The Eastern Rolling Mill Co., Baltimore, Md.
Egleston Bros., Inc., 166 South St., N. Y.
Ellenwood & Doyle, Inc., 29 Great Jones St., N. Y.
Falcon Steel Co., Niles, Ohio.
Falcon Tin Plate Co., Niles, Ohio.
Follansbee Bros. Co., Pittsburgh, Pa.
Fuller Bros. & Co., 139 Greenwich St., N. Y.
Inland Steel Co., Chicago, Ill.
Jones & Laughlin Steel Co., Pittsburgh, Pa.
McKeesport Tinplate Co., McKeesport, Pa.
Mansfield Sheet & Tinplate Co., Mansfield, O.
Newport Rolling Mill Co., Newport, Ky.
Newton Steel Co., Youngstown, Ohio.
B. Nicoll & Co., Inc., 149 Broadway, N. Y.
F. R. Phillips & Sons Co., Philadelphia, Pa.
Reeves Mfg. Co., Dover, O.
Republic Iron & Steel Co., Youngstown, O.
Richards & Co., Inc., Boston, Mass.
Schrock & Squires, Inc., 291 Pearl St., N. Y.
Seneca Iron & Steel Co., Buffalo, N. Y.
Sharon Steel Hoop Co., Sharon, Pa.
Standard Tinplate Co., Canonsburg, Pa.
The Trumbull Steel Co., Warren, Ohio.
Wheeling Steel Products Co., Wheeling, W. Va.
Youngstown Sheet & Tube Co., Youngstown, O.

SHEETS (Blue annealed)

Allegheny Steel Co., Brackenridge, Pa.
Amalgamated Metals Sell. Co., Ltd., 42 B'way, NY

SHEETS (Blue annealed) (Ctd.)

American Sheet & Tin Plate Co., Pittsburgh, Pa.
Andrews Steel Co., Newport, Ky.
Apollo Steel Co., Apollo, Pa.
Bethlehem Steel Co., Bethlehem, Pa.
Brier Hill Steel Co., Youngstown, O.
B'klyn Galv. & Mfg. Co., Inc., 120 Liberty Sts., NY
Crownshield Trading Corp., 30 Church St., N. Y.
Dickerson, Van Dusen & Co., 32 Cliff St., N. Y.
Egleston Bros. & Co., Inc., 166 South St., N. Y.
Ellenwood & Doyle, Inc., 29 Great Jones St., N. Y.
Falcon Steel Co., Niles, Ohio.
Falcon Tin Plate Co., Niles, Ohio.
Follansbee Bros. Co., Pittsburgh, Pa.
Fuller Bros. & Co., 139 Greenwich St., N. Y.
Inland Steel Co., Chicago, Ill.
Mansfield Sheet & Tinplate Co., Mansfield, O.
Naylor & Co., 120 Broadway, N. Y.
Newport Rolling Mill Co., Newport, Ky.
Newton Steel Co., Youngstown, Ohio.
B. Nicoll & Co., Inc., 149 Broadway, N. Y.
F. R. Phillips & Sons Co., Philadelphia, Pa.
Reeves Mfg. Co., Dover, Ohio.
Republic Iron & Steel Co., Youngstown, O.
Richards & Co., Inc., Boston, Mass.
Schrock & Squires, Inc., 291 Pearl St., N. Y.
Seneca Iron & Steel Co., Buffalo, N. Y.
Sharon Steel Hoop Co., Sharon, Pa.
Trumbull Steel Co., Warren, O.
Youngstown Sheet & Tube Co., Youngstown, O.
Wheeling Steel Products Co., Wheeling, W. Va.

SHEETS (Copper alloy)

Allegheny Steel Co., Brackenridge, Pa.
American Brass Co., Waterbury, Conn.
American Sheet & Tin Plate Co., Pittsburgh, Pa.
Andrews Steel Co., Newport, Ky.
Apollo Steel Co., Apollo, Pa.
Dallas Brass & Copper Co., Chicago, Ill.
Ellenwood & Doyle, Inc., 29 Great Jones St., N. Y.
Follansbee Bros., Pittsburgh, Pa.
Inland Steel Co., Chicago, Ill.
Newport Rolling Mill Co., Newport, Ky.
Republic Iron & Steel Co., Youngstown, O.
Richards & Co., Inc., Boston, Mass.
Riverside Metal Co., Riverside, N. J.
Scovill Mfg. Co., Waterbury, Conn.
Senter-Robbins-Fox Corp., 217 B'way, N. Y.
Sharon Steel Hoop Co., Sharon, Pa.
The Trumbull Steel Co., Warren, O.
Western Cartridge Co., E. Alton, Ill.
Wheeling Steel Products Co., Wheeling, W. Va.

SHEETS (Electrical)

Allegheny Steel Co., Pittsburgh, Pa.
American Sheet & Tin Plate Co., Pittsburgh, Pa.

SHEETS (Electrical) (Ctd.)

Andrews Steel Co., Newport, Ky.
B'klyn Galv. & Mfg. Co., Inc., 120 Liberty St., NY
Dallas Brass & Copper Co., Chicago, Ill.
Egleston Bros. & Co., Inc., 166 South St., N. Y.
Ellenwood & Doyle, Inc., 29 Great Jones St., N. Y.
Follansbee Bros. Co., Pittsburgh, Pa.
Hickman, Williams & Co., Chicago, Ill.
Inland Steel Co., Chicago, Ill.
Newport Rolling Mill Co., Newport, Ky.
B. Nicoll & Co., Inc., 149 Broadway, N. Y.
Republic Iron & Steel Co., Youngstown, O.
Schrock & Squires, Inc., 291 Pearl St., N. Y.
Sharon Steel Hoop Co., Sharon, Pa.
The Trumbull Steel Co., Warren, Ohio.
Wheeling Steel Products Co., Wheeling, W. Va.

SHEETS (Galvanized)

Allegheny Steel Co., Brackenridge, Pa.
Amalgamated Metals Sell. Co., Ltd., 42 B'way, NY
American Sheet & Tin Plate Co., Pittsburgh, Pa.
Andrews Steel Co., Newport, Ky.
Apollo Steel Co., Apollo, Pa.
Bethlehem Steel Co., Bethlehem, Pa.
Brier Hill Steel Co., Youngstown, O.
B'klyn Galv. & Mfg. Co., Inc., 120 Liberty St., NY
Crownshield Trading Corp., 30 Church St., N. Y.
Dickerson, Van Dusen & Co., 32 Cliff St., N. Y.
Egleston Bros. & Co., Inc., 166 South St., N. Y.
Ellenwood & Doyle, Inc., 29 Great Jones St., N. Y.
Falcon Steel Co., Niles, Ohio.
Falcon Tin Plate Co., Niles, Ohio.
Follansbee Bros. Co., Pittsburgh, Pa.
Fuller Bros. & Co., 139 Greenwich St., N. Y.
Inland Steel Co., Chicago, Ill.
Naylor & Co., 120 Broadway, N. Y.
Newport Rolling Mill Co., Newport, Ky.
B. Nicoll & Co., Inc., 149 Broadway, N. Y.
F. R. Phillips & Sons Co., Philadelphia, Pa.
Reeves Mfg. Co., Dover, O.
Republic Iron & Steel Co., Youngstown, O.
Richards & Co., Inc., Boston, Mass.
Schrock & Squires, Inc., 291 Pearl St., N. Y.
Sharon Steel Hoop Co., Sharon, Pa.
The Trumbull Steel Co., Warren, Ohio.
Wheeling Steel Products Co., Wheeling, W. Va.
Youngstown Sheet & Tube Co., Youngstown, O.

SHEETS (Iron)

Allegheny Steel Co., Pittsburgh, Pa. ("Allegheny Iron")
American Sheet & Tin Plate Co., Pittsburgh, Pa.
Andrews Steel Co., Newport, Ky.
Apollo Steel Co., Apollo, Pa.
Bethlehem Steel Co., Bethlehem, Pa.

SHEETS (Iron) (Ctd.)

B'klyn Galv. & Mfg. Co., Inc., 120 Liberty St., NY
Dickerson, Van Dusen & Co., 32 Cliff St., N. Y.
Egleston Bros. & Co., Inc., 166 South St., N. Y.
Ellenwood & Doyle, Inc., 29 Great Jones St., N. Y.
Follansbee Bros. Co., Pittsburgh, Pa.
Fuller Bros. & Co., 139 Greenwich St., N. Y.
Inland Steel Co., Chicago, Ill.
Newport Rolling Mill Co., Newport, Ky.
B. Nicoll & Co., Inc., 149 Broadway, N. Y.
F R. Phillips & Sons, Philadelphia, Pa.
Reeves Mfg. Co., Dover, O.
Republic Iron & Steel Co., Youngstown, O.
Richards & Co., Inc., Boston, Mass.
Schrock & Squires, Inc., 291 Pearl St., N. Y.
Youngstown Sheet & Tube Co., Youngstown, O.

SHEETS (Nickeled, zinc and tin plate)

Amalgamated Metals Sell. Co., Ltd., 42 B'way, NY
American Sheet & Tin Plate Co., Pittsburgh, Pa.
American Zinc Products Co., Greencastle, Ind.
Bethlehem Steel Co., Bethlehem, Pa.
Dallas Brass & Copper Co., Chicago, Ill.
Dickerson, Van Dusen & Co., 32 Cliff St., N. Y.
Ellenwood & Doyle, Inc., 29 Great Jones St., N. Y.
Follansbee Bros., Co., Pittsburgh, Pa.
Intern'l Minerals & Metals Corp., 61 B'way, N. Y.
Jones & Laughlin Steel Co., Pittsburgh, Pa.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.
Richards & Co., Inc., Boston, Mass.
Wheeling Steel Products Co., Wheeling, W. Va.

SHEET PILING

Carnegie Steel Co., Pittsburgh, Pa.
Follansbee Bros. Co., Pittsburgh, Pa.
Jones & Laughlin Steel Co., Pittsburgh, Pa.
Republic Iron & Steel Co., Youngstown, O.

SHERARDIZING ZINC

American Metal Co., Ltd., 61 Broadway, N. Y.
American Smelt. & Ref. Co., 120 Broadway, N. Y.
Eagle-Picher Lead Co., Chicago, Ill.
Grasselli Chemical Co., Cleveland, O.
Internat'l Minerals & Metals Corp., 61 B'way, NY
Mineral Point Zinc Co., Chicago, Ill.
New Jersey Zinc Co., 160 Front St., N. Y.
E. J. Smith & Co., Kings Rd., Birmingham, Eng.

SIDING (Steel)

Allegheny Steel Co., Brackenridge, Pa.
American Sheet & Tin Plate Co., Pittsburgh, Pa.
Andrews Steel Co., Newport, Ky.
Apollo Steel Co., Apollo, Pa.
Brier Hill Steel Co., Youngstown, O.

SIDING (Steel) (Ctd.)

Crownshield Trading Corp., 30 Church St., N. Y.
Follansbee Bros. Co., Pittsburgh, Pa.
Inland Steel Co., Chicago, Ill.
Newport Rolling Mill Co., Newport, Ky.
Reeves Mfg. Co., Dover, O.
Republic Iron & Steel Co., Youngstown, O.
Trumbull Steel Co., Warren, Ohio.
Wheeling Steel Products Co., Wheeling, W. Va.
Youngstown Sheet & Tube Co., Youngstown, O.

SILICA BRICK

American Refractories Co., 315 Union Arcade Bldg., Pittsburgh, Pa.
Harbison-Walker Refractories Co., Pittsburgh, Pa.
Hickman, Williams & Co., Birmingham, Ala.
E. J. Lavino & Co., Philadelphia, Pa.

SILICON COPPER

Ajax Metal Co., 46 Richmond St., Philadelphia, Pa.
Amalgamated Metals Sell. Co., Ltd., 42 B'way, NY
S. Birkenstein & Sons, 389 W. Ontario St., Chi., Ill.
Great Western Smelt. & Ref. Co., Chicago, Ill.
Michigan Smelt. & Ref. Co., Detroit, Mich.
More-Jones Brass & Metal Co., St. Louis, Mo.
Nassau Smelt. & Ref. Wks., 603 W. 29th St., N. Y.
Senter-Robbins-Fox Corp., 217 B'way, N. Y.

SILVER (Bars, Sheets)

Amalgamated Metals Sell. Co., Ltd., 42 B'way, NY
American Metal Co., Ltd., 61 Broadway, N. Y.
American Platinum Wks., Newark, N. J.
American Smelt. & Ref. Co., 120 B'way, N. Y.
Baker & Co., Inc., 54 Austin St., Newark, N. J.
Balbach Smelt. & Ref. Co., 280 Broadway, N. Y.
The Consolidated Mining & Smelt. Co., of Canada. Ltd., Drummond Bldg., Montreal, Canada.
Internat'l Minerals & Metals Corp., 61 B'way, N.Y.
Irvington Smelt. & Ref. Wks., Irvington, N. J.
Adolph Lewisohn & Sons, 61 Broadway, N. Y.
Nichols Copper Co., 25 Broad St., N. Y.
R. & H. Platinum Works, 709 Sixth Ave., N. Y.
U. S. Smelt., Ref. & Min. Co., 120 B'way, N. Y.
Vernon Met. & Prod. Co., Inc., 25 Beaver St., N. Y.
The H.A. Wilson Co., 97 Chestnut St., Newark, N.J.

SKELP (Iron)

Midvale Steel & Ordnance Co., Philadelphia, Pa.
The Reeves Mfg. Co., Dover, O.

SKELP (Steel)

Carnegie Steel Co., Pittsburgh, Pa.
Central Iron & Steel Co., Harrisburg, Pa.
Harrisburg Pipe & Pipe Bend. Co., Harrisburg, Pa.
Jones & Laughlin Steel Co., Pittsburgh, Pa.
Mark Mfg., Co., 111 W. Washington St., Chi., Ill.
Midvale Steel & Ordnance Co., Philadelphia, Pa.

SKELP (Steel) (Ctd.)

B. Nicoll & Co., Inc., 149 Broadway, N. Y.
Pittsburgh Steel Co., Pittsburgh, Pa.
Republic Iron & Steel Co., Youngstown, O.
Wheeling Steel Products Co., Wheeling, W. Va.
Youngstown Sheet & Tube Co., Youngstown, O.

SOLDER (Aluminum)

Aluminum Co. of America, Pittsburgh, Pa.
S. Birkenstein & Sons, Chicago, Ill.
Ellenwood & Doyle, Inc., 29 Great Jones St., N. Y.
Great Western Smelt. & Ref. Wks., Chicago, Ill.
Michigan Smelt. & Ref. Co., Detroit, Mich.
More-Jones Brass & Metal Co., St. Louis, Mo.
Philipp Bros., Inc., 29 Broadway, N. Y.
F. R. Phillips & Sons, Co., Philadelphia, Pa.
Richards & Co., Inc., Boston, Mass.
Senter-Robbins-Fox Corp., 217 B'way, N. Y.

SOLDER (Bars, wire & ribbon)

Ajax Metal Co., 46 Richmond St., Philadelphia, Pa.
S. Birkenstein & Sons, 389 W. Ontario St., Chi., Ill.
Charleston Lead Works, Charleston, S. C.
Dickerson, Van Dusen & Co., 32 Cliff St., N. Y.
Eagle-Picher Lead Co., Chicago. Ill.
R. M. Easdale & Co., Glasgow, Scotland.
Ellenwood & Doyle, Inc., 29 Great Jones St., N. Y.
Girard Smelt. & Ref. Co., Philadelphia, Pa.
Follansbee Bros. Co., Pittsburgh, Pa.
Great Western Smelt. & Ref. Wks., Chicago, Ill.
Michigan Smelt. & Ref. Co., Detroit, Mich.
More-Jones Brass & Metal Co., St. Louis, Mo.
Nassau Smelt. & Ref. Wks., 603 W. 29th St., N. Y.
F. R. Phillips & Sons Co., Philadelphia, Pa.
Richards & Co., Inc., Boston, Mass.
Senter-Robbins-Fox Corp., 217 B'way, N. Y.
E. J. Smith & Co., Kings Rd., Birmingham, Eng.
Standard Rolling Mills, Inc, Brooklyn, N. Y.
Tottenville Copper Co., Tottenville, N. Y.

SOLDER (Brazing)

American Brass Co., Waterbury, Conn.
S. Birkenstein& Sons, Chicago, Ill.
Eagle-Picher Lead Co., Chicago, Ill.
R. M. Easdale & Co., Glasgow, Scotland,
Ellenwood & Doyle, Inc., 29 Great Jones St., N. Y.
Follansbee Bros. Co., Pittsburgh, Pa.
Great Western Smelting & Ref. Co., Chi., Ill.
Michigan Smelt. & Ref. Co., Detroit, Mich.
More-Jones Brass & Metal Co., St. Louis, Mo.
Nassau Smelt. & Ref. Wks., 603 W. 29th St., N. Y.
F. R. Phillips & Co., Philadelphia, Pa.
Richards & Co., Inc., Boston, Mass.
Senter-Robbins-Fox Corp., 217 B'way, N. Y.
E. J. Smith Co., Kings Rd., Birmingham, Eng.
Tottenville Copper Co., Tottenville, N. Y.

SOLDER (Silver)

Ajax Metal Co., Philadelphia, Pa.
American Brass Co., Waterbury, Conn.
American Platinum Works, Newark, N. J.
Baker & Co., Inc., 54 Austin St., Newark, N. J.
S. Birkenstein & Sons, Chicago, Ill.
Ellenwood & Doyle, Inc., 29 Great Jones St., N. Y.
More-Jones Brass & Metal Co., St. Louis, Mo.
Seymour Mfg. Co., Seymour, Conn.
The H.A. Wilson Co., 97 Chestnut St., Newark, N.J.

SOLDERING COPPERS

Dickerson, Van Dusen & Co., 32 Cliff St., N. Y.
Ellenwood & Doyle, Inc., 29 Great Jones St., N. Y.
Follansbee Bros. Co., Pittsburgh, Pa.
More-Jones Brass & Metal Co., St. Louis, Mo.
Great Western Smelt. & Ref. Co., Chicago, Ill.
Richards & Co., Inc., Boston, Mass.
Senter-Robbins-Fox Corp., 217 B'way, N. Y.

SPIEGELEISEN

Amalgamated Metals Sell. Co., Ltd., 42 B'way, NY
American Manganese Mfg. Co., Philadelphia, Pa.
American Metal Co., Ltd., 61 Broadway, N. Y.
Bethlehem Steel Co., Bethlehem, Pa.
Carnegie Steel Co., Pittsburgh, Pa.
Crocker Bros., 21 E. 40th St., N. Y.
Hickman, Williams & Co., Philadelphia, Pa.
Internt'l Minerals & Metals Corp., 61 B'way, N. Y.
E. J. Lavino & Co., Philadelphia, Pa.
Robt. C. Lea & Co., 21 S. 12th St., Phila., Pa.
C. W. Leavitt & Co., 30 Church St., N. Y.
E. E. Marshall, Bullitt Bldg., Philadelphia, Pa.
Mineral Point Zinc Co., Chicago, Ill.
Naylor & Co., 120 Broadway, N. Y.
New Jersey Zinc Co., 160 Front St., N. Y.
Pickands, Brown & Co., Chicago, Ill.
Rogers, Brown & Co., Cincinnati, O.
Frank Samuel, Harrison Bldg., Philadelphia, Pa.
Senter-Robbins-Fox Corp., 217 B'way, N. Y.
Walter-Wallingford & Co., Cincinnati, O.

SPIKES (Railroad)

Bethlehem Steel Co., Bethlehem, Pa.
B'klyn Galv. & Mfg. Co., Inc., 120 Liberty St., NY
Crownshield Trading Corp., 30 Church St., N. Y.
Illinois Steel Co., 208 S. La Salle St., Chicago, Ill.
Inland Steel Co., Chicago, Ill.
Jones & Laughlin Steel Co., Pittsburgh, Pa.
B. Nicoll & Co., Inc., 149 Broadway, N. Y.
F. R. Phillips & Sons Co., Philadelphia, Pa.
Republic Iron & Steel Co., Youngstown, O.

SPLICE BARS

Bethlehem Steel Co., Bethlehem, Pa.
Carnegie Steel Co., Pittsburgh, Pa.

SPLICE BARS (Ctd.)

Crownshield Trading Corp., 30 Church St., N. Y.
Illinois Steel Co., 208 S. La Salle St., Chicago, Ill.
Inland Steel Co., Chicago, Ill.
Jones & Laughlin Steel Co., Pittburgh, Pa.
Midvale Steel & Ordnance Co., Philadelphia, Pa.
F. R. Phillips & Sons Co., Philadelphia, Pa.

SPRING WIRE

Amalgamated Metals Sell Co., Ltd., 42 B'way, N.Y
B'klyn Galv. & Mfg. Co., 120 Liberty St., N. Y.
Jones & Laughlin Steel Co., Pittsburgh, Pa.
Page Steel & Wire Co., Bridgeport, Conn.
Pittsburgh Steel Co., Pittsburgh, Pa.
Riverside Metal Co., Riverside, N. J.
Schrock & Squires, Inc., 291 Pearl St., N. Y.
Youngstown Sheet & Tube Co., Youngstown, O.

STAMPINGS (Steel)

Allegheny Steel Co., Pittsburgh, Pa.
Bethlehem Steel Co., Bethlehem, Pa.
Follansbee Bros. Co., Pittsburgh, Pa.
Schrock & Squires, Inc., 291 Pearl St., N. Y.
Seymour Mfg. Co., Seymour, Conn.

STAMPING (Monel)

The International Nickel Co., 67 Wall St., N. Y.

STAMPING STEEL (Strip)

Dickerson, Van Dusen & Co., 32 Cliff St., N. Y.
Egleston Bros. & Co., Inc., 166 South St., N. Y.
Ellenwood & Doyle, Inc., 29 Great Jones St., N. Y.
Falcon Steel Co., Niles, Ohio.
Falcon Tin Plate Co., Niles, Ohio.
Follansbee Bros. Co., Pittsburgh, Pa.
Fuller Bros. & Co., 139 Greenwich St., N. Y.
Harrisburg Pipe & Pipe Bend. Co., Harrisburg, Pa.
Newport Rolling Mill Co., Newport, Ky.
Pittsburgh Steel Co., Pittsburgh, Pa.
Republic Iron & Steel Co., Youngstown, O.
Schrock & Squires, Inc., 291 Pearl St., N. Y.
Sharon Steel Hoop Co., Sharon, Pa.
Trumbull Steel Co., Warren, O.
West Leechburg Steel Co., Pittsburgh, Pa.
Wheeling Steel Products Co., Wheeling, W. Va.

STEEL (Alloy)

Andrews Steel Co., Newport, Ky.
Bethlehem Steel Co., Bethlehem, Pa.
B'klyn Galv. & Mfg. Co., Inc., 120 Liberty St., NY
Carnegie Steel Co., Pittsburgh, Pa.
Harrisburg Pipe & Pipe Bend. Co., Harrisburg, Pa.
Hickman, Williams & Co., Pittsburgh, Pa.
Interstate Iron & Steel Co., Chicago, Ill.
Illinois Steel Co., 208 S. La Salle St., Chicago, Ill.
Midvale Steel & Ordnance Co., Philadelphia, Pa.
B. Nicoll & Co., Inc., 149 Broadway, N. Y.

STEEL (Alloy) (Ctd.)
Republic Iron & Steel Co., Youngstown, O.
Schrock & Squires, Inc., 291 Pearl St., N. Y.
West Leechburg Steel Co., Pittsburgh, Pa.

STEEL (Chrome, Nickel & Vanadium)
Andrews Steel Co., Newport, Ky.
Bethlehem Steel Co., Bethlehem, Pa.
Carnegie Steel Co., Pittsburgh, Pa.
Harrisburg Pipe & Pipe Bend. Co., Harrisburg, Pa.
Illinois Steel Co., 208 S. La Salle St., Chicago, Ill.
Inter'l Ores & Metals Sell. Corp., 280 B'way, N. Y.
Interstate Iron & Steel Co., Chicago, Ill.
Midvale Steel & Ordnance Co., Philadelphia, Pa.
B. Nicoll & Co., Inc., 149 Broadway, N. Y.
Schrock & Squires, Inc., 291 Pearl St., N. Y.

STEEL (Cold rolled strip)
Dickerson, Van Dusen & Co., 32 Cliff St., N. Y.
Egleston Bros. & Co., Inc., 166 South St., N. Y.
Fuller Bros. & Co., 139 Greenwich St., N. Y.
Midvale Steel & Ordnance Co., Philadelphia, Pa.
B. Nicoll & Co., Inc., 149 Broadway, N. Y.
F. R. Phillip & Sons Co., Philadelphia, Pa.
Pittsburgh Steel Co., Pittsburgh, Pa.
Republic Iron & Steel Co., Youngstown, O.
Shrock & Squires, Inc., 291 Pearl St., N. Y.
Trumbull Steel Co., Warren, O.
West Leechburg Steel Co., Pittsburgh, Pa.

STEEL (High speed)
Andrews Steel Co., Newport, Ky.
Bethlehem Steel Co., Bethlehem, Pa.
Egleston Bros. & Co., Inc., 166 South St., N. Y.
Inter'l Ores & Metals Sell. Corp., 280 B'way, N. Y.
Midvale Steel & Ordnance Co., Philadelphia, Pa.
Page Steel & Wire Co., Bridgeport, Conn.
F. R. Phillips & Sons Co., Philadelphia, Pa.
Schrock & Squires, Inc., 291 Pearl St., N. Y.

STEEL (Hot rolled strip)
Amalgamated Metals Sell. Co., Ltd., 42 B'way, NY
Egleston Bros. & Co., Inc., 166 South St., N. Y.
Fuller Bros. & Co., 139 Greenwich St., N. Y.
Harrisburg Pipe & Pipe Bend. Co., Harrisburg, Pa.
Illinois Steel Co., 208 S. La Salle St., Chicago, Ill.
Midvale Steel & Ordnance Co., Philadelphia, Pa.
B. Nicoll & Co., Inc., 149 Broadway, N. Y.
Pittsburgh Steel Co., Pittsburgh, Pa.
Republic Iron & Steel Co., Youngstown, O.
Schrock & Squires, Inc., 291 Pearl St., N. Y.
Sharon Steel Hoop Co., Sharon, Pa.
Trumbull Steel Co., Warren, O.
West Leechburg Steel Co., Pittsburgh, Pa.

STEEL STRUCTURE
American Bridge Co., 30 Church St., N. Y.

STEEL STRUCTURE (Ctd.)
Bethlehem Steel Co., Bethlehem, Pa.
Illinois Steel Co., 208 S. La Salle St., Chicago, Ill.
Jones & Laughlin Steel Co., Pittsburgh, Pa.
F. R. Phillips & Sons Co., Philadelphia, Pa.
Phoenix Iron Co., 22 S. 15th St., Philadelphia, Pa.

STOCKS & BONDS (Brokers)
J. M. Byrne & Co., 60 Broadway, N. Y.
Coleman & Reitze, 50 Broad St., N. Y.
Thos. L. Manson & Co., 100 Broadway, N. Y.

STOKERS
Geo. J. Hagan Co., Pittsburgh, Pa.

STRUCTURAL IRON & STEEL
Amalgamated Metals Sell. Co., Ltd., 42 B'way, NY
American Bridge Co., 30 Church St., N. Y. (Steel)
Bethlehem Steel Co., Bethlehem, Pa.
Carnegie Steel Co., Pittsburgh, Pa.
Crownshield Trading Corp., 30 Church St., N. Y.
Egleston Bros. & Co., Inc., 166 South St., N. Y.
Illinois Steel Co., 208 S. La Salle St., Chicago, Ill.
Inland Steel Co., Chicago, Ill.
Jones & Laughlin Steel Co., Pittsburgh, Pa.
Midvale Steel & Ordnance Co,. Philadelphia, Pa.
B. Nicoll & Co., Inc., 149 Broadway, N. Y.
F. R. Phillips & Sons Co., Philadelphia, Pa.
Phoenix Iron Co., 22 So. 15th St., Philadelphia, Pa.
Republic Iron & Steel Co., Youngstown, O.

SULPHATE OF COPPER
Amalgamated Metals Sell. Co., 42 B'way, N. Y.
American Metal Co., Ltd., 61 Broadway, N. Y.
American Smelt. & Ref. Co., 120 B'way, N. Y.
Balbach Smelt. & Ref. Co., 280 Broadway, N. Y.
S. Birkenstein & Sons, 377 W. Ontario St., Chicago.
Grasselli Chemical Co., Cleveland, O.
Chas. Hardy & Ruperti, Inc., 115 Broad St., N. Y.
Internat'l Minerals & Metals Corp., 61 B'way, N.Y.
Inter'l Ores & Metals Sell. Corp., 280 B'way, N. Y.
Irvington Smelt. & Ref. Wks., Irvington, N. J.
S. L. Jones & Co., 44 Beaver St., N. Y.
Nassau Smelt. & Ref. Wks., 603 W. 29th St., N. Y.
Nichols Copper Co., 25 Broad St., N. Y.
Philipp Bros., Inc., 29 Broadway, N. Y.
Arthur Seligman, 165 Broadway, N. Y.
Senter-Robbins-Fox Corp., 217 B'way, N. Y.
Tottenville Copper Co., Tottenville, N. Y.
United Metal Selling Co., 25 Broadway, N. Y.

TERNE METAL
American Sheet & Tin Plate Co., Pittsburgh, Pa.
Girard Smelt. & Ref. Co., Philadelphia, Pa.
Great Western Smelt. & Ref. Co., Chicago, Ill.
Michigan Smelt. & Ref. Co., Detroit, Mich.
Nassau Smelt. & Ref. Wks., 603 W. 29th St., N. Y.
Tottenville Copper Co., Tottenville, N. Y.

TERNE PLATE

American Sheet & Tin Plate Co., Pittsburgh, Pa.
Dickerson, Van Dusen & Co., 32 Cliff St., N. Y.
Ellenwood & Doyle, Inc., 29 Great Jones St., N. Y.
Follansbee Bros. Co., Pittsburgh, Pa.
Fuller Bros. & Co., 139 Greenwich St., N. Y.
Naylor & Co., 120 Broadway, N. Y.
Reeves Mfg. Co., Dover, O.
Republic Iron & Steel Co., Youngstown, O
Richards & Co., Inc., Boston, Mass.
Trumbull Steel Co., Warren, O.
Wheeling Steel Products Co., Wheeling, W. Va.

THERMOSTATIC METAL.

The H.A. Wilson Co., 97 Chestnut St., Newark, N.J.

TIE PLATES

Bethlehem Steel Co., Bethlehem, Pa.
Carnegie Steel Co., Pittsburgh, Pa.
Illinois Steel Co., 208 S. La Salle St., Chicago, Ill.
Inland Steel Co., Chicago, Ill.
Interstate Iron & Steel Co., Chicago, Ill.
Jones & Laughlin Steel Co., Pittsburgh, Pa.
Midvale Steel & Ordnance Co., Philadelphia, Pa.
F. R. Phillips & Sons Co., Philadelphia, Pa.
Republic Iron & Steel Co., Youngstown, O.
Wheeling Steel Products Co., Wheeling, W. Va.

TIN (Pig tin)

Amalgamated Metals Sell. Co., Ltd., 42 B'way, NY
American Metal Co., Ltd., 61 Broadway, N. Y.
American Smelt. & Ref. Co., 120 B'way, N. Y.
Balfour, Williamson & Co., 67 Wall St., N. Y.
S. Birkenstein & Sons, 389 W. Ontario St., Chicago.
China Commercial Co., Ltd., 2 Rector St., N. Y.
Crocker Bros., 21 E. 40th St., N. Y.
Dickerson, Van Dusen & Co., 32 Cliff St., N. Y.
R. M. Easdale, Glasgow, Scotland.
Ellenwood & Doyle, Inc., 29 Great Jones St., N. Y.
Girard Smelt. & Ref. Co., Philadelphia, Pa.
Great Western Smelt. & Ref. Co., Chicago, Ill.
Chas. Hardy & Ruperti, Inc., 115 Broad St., N. Y.
Hendricks Bros., Inc., 49 Cliff St., N. Y.
Edward Hill's Son & Co., 64 Wall St., N. Y.
Inter'l Ores & Metals Sell. Corp., 280 B'way, N. Y.
S. L. Jones & Co., 44 Beaver St., N. Y.
Lewis Lazarus & Sons, 61 Broadway, N. Y.
C. W. Leavitt & Co., 30 Church St., N. Y.
Michigan Smelt. & Ref. Co., Detroit, Mich.
Mitsui & Co., Ltd., 65 Broadway, N. Y.
More-Jones Brass & Metal Co., St. Louis, Mo.
E. L. Murphy & Co., Webster Bldg., Chicago, Ill.
Nassau Smelt. & Ref. Wks., 603 W. 29th St., N. Y.
B. Nicoll & Co., Inc., 149 Broadway, N. Y.

TIN (Pig Tin) (Ctd.)

Philipp Bros., Inc., 29 Broadway, N. Y.
Richards & Co., Inc., Boston, Mass.
Arthur Seligman, 165 Broadway, N. Y.
Senter-Robbins-Fox Corp., 217 Broadway, N. Y.
Societe Generale Des Minerais, 31 Rue Du Marais, Brussels, Belgium.
South China Devel. Syndicate, 41 Park Row, N. Y.
E. J. Smith & Co., Kings Rd., Birmingham, Eng.
Suzuki & Co., 220 Broadway, N. Y.
The Thames Metal Co., London, E. C. 3, Eng.
Tottenville Copper Co., Tottenville, N. Y.
C. S. Trench & Co., 81 Fulton St., N. Y.
Nathan Trotter & Co., Philadelphia, Pa.
Vernon Metal & Produce Co., 25 Beaver St., N. Y.
Wah Chang Trad. Corp., Woolworth Bldg., N. Y.
Williams Harvey Corp., 111 Broadway, N. Y.
H. P. Winter & Co., 64 Wall St., N. Y.

TIN FOIL

Standard Rolling Mills, Inc., B'klyn, N. Y.

TIN PIPE

Eagle-Picher Lead Co., Chicago, Ill.
Ellenwood & Doyle, Inc., 29 Great Jones St., N. Y.
Follansbee Bros. Co., Pittsburgh, Pa.
Michigan Smelt. & Ref. Co., Detroit, Mich.
More-Jones Brass & Metal Co., St. Louis, Mo.
E. J. Smith & Co., Kings Rd., Birmingham, Eng.
Standard Rolling Mills, Inc., Brooklyn, N. Y.

TIN PLATE

Amalgamated Metals Sell. Co., Ltd., 42 B'way, NY
American Sheet & Tin Plate Co., Pittsburgh, Pa.
Bethlehem Steel Co., Bethlehem, Pa.
B'klyn Galv. & Mfg. Co., Inc., 120 Liberty St., NY
Dickerson, Van Dusen & Co., 32 Cliff St., N. Y.
Ellenwood & Doyle, Inc., 29 Great Jones St., N. Y.
Falcon Steel Co., Niles, Ohio.
Falcon Tin Plate Co., Niles, Ohio.
Follansbee Bros. Co., Pittsburgh, Pa.
Fuller Bros. & Co., 139 Greenwich St., N. Y.
Jones & Laughlin Steel Co., Pittsburgh, Pa.
McKeesport Tin Plate Co., McKeesport, Pa.
Naylor & Co., 120 Broadway, N. Y.
B. Nicoll & Co., Inc., 149 Broadway, N. Y.
F. R. Phillips & Sons Co., Philadelphia, Pa.
Republic Iron & Steel Co., Youngstown, O.
Richards & Co., Inc., Boston, Mass.
Loring P. Rixford, 2 Rector St., N. Y.
Standard Tin Plate Co., Canonsburg, Pa.
The Trumbull Steel Co., Warren, O.
Washington Tin Plate Co., Washington, Pa.
Wheeling Steel Products Co., Wheeling, W. Va.

TITANIUM (Ferro)

Amalgamated Metals Sell. Co., Ltd., 42 B'way, NY
Chas. Hardy & Ruperti, Inc., 115 Broad St., N. Y.
C. W. Leavitt & Co., 30 Church St., N. Y.
Metal & Thermit Corp., 120 Broadway, N. Y.
Naylor & Co., 120 Broadway, N. Y.
Frank Samuel, Harrison Bldg., Phila., Pa.
Senter-Robbins-Fox Corp., 217 B'way, N. Y.

TOOL STEEL

Andrews Steel Co., Newport, Ky.
Bethlehem Steel Co., Bethlehem, Pa.
Egleston Bros., & Co., Inc. 166 South St., N. Y.
Illinois Steel Co., 208 S. La Salle St., Chicago, Ill.
Midvale Steel & Ordnance Co., Philadelphia, Pa.
B. Nicoll & Co., Inc., 149 Broadway, N. Y.
Schrock & Squires, Inc., 291 Pearl St., N. Y.

TUBES (Seamless steel)

Allegheny Steel Co., Brackenridge, Pa. (Lap weld steel)
Boiler Tube Co., of America, Park Bldg., Pitts., Pa.
Hickman, Williams & Co., Chicago, Ill.
E. F. Keating Co., 452 Water St., N. Y.
National Tube Co., Pittsburgh, Pa.
B. Nicoll & Co., Inc., 149 Broadway, N. Y.
Schrock & Squires, Inc., 291 Pearl St., N. Y.

TUBING (Lock-seam)

Dallas Brass & Copper Co., Chicago, Ill.
Fuller Bros. & Co., 139 Greenwich St., N. Y.

TUBING (Seamless brass and copper)

American Brass Co., Waterbury, Conn.
Baltimore Tube Co., Inc., Baltimore, Md.
Bristol Brass Corp., Bristol, Conn.
Dallas Brass & Copper Co., Chicago, Ill.
Detroit Copper & Brass Roll. Mills, Detroit, Mich.
Richards & Co., Inc., Boston, Mass.
Scovill Mfg. Co., Waterbury, Conn.
Senter-Robbins-Fox Corp., 217 B'way, N. Y.
E. J. Smith & Co., Kings Road, Birmingham, Eng.
Standard Underground Cable Co., Pittsburgh, Pa.

TUBING (Seamless platinum)

American Platinum Wks., Newark, N. J.
Baker & Co., Inc., 54 Austin St., Newark, N. J.
J. Bishop & Co. Platinum Wks., Malvern, Pa.
R. & H. Platinum Works, 709 Sixth Ave., N. Y.

TUNGSTEN ORE

Amalgamated Metals Sell. Co., Ltd., 42 B'way, NY
American Metal Co., Ltd., 61 B'way, N. Y.
Balfour, Williamson & Co., 67 Wall St., N. Y.
China Commercial Co., Ltd., 2 Rector St., N. Y.
Chemical Products Co., 621 Alabama Ave., S. E. Washington, D. C.

TUNGSTEN ORE (Ctd.)

A. C. Daft, Oliver Bldg., Pittsburgh, Pa.
Chas. Hardy & Ruperti, Inc., 115 Broad St., N. Y.
Edward Hill's Son & Co., 64 Wall St., N. Y.
Internat'l Minerals & Metals Corp., 61 B'way, N.Y.
Inter'l Ores & Metals Sell. Corp., 280 B'way, N. Y.
S. L. Jones & Co., 44 Beaver St., N. Y.
E. J. Lavino & Co., Philadelphia, Pa.
C. W. Leavitt & Co., 30 Church St., N. Y.
Mitsui & Co., Ltd., 65 Broadway, N. Y.
B. Nicoll & Co., Inc., 149 Broadway, N. Y.
Naylor & Co., 120 Broadway, N. Y.
Philipp Bros., Inc., 29 Broadway, N. Y.
Frank Samuel, Harrison Bldg., Philadelphia, Pa.
Senter-Robbins-Fox Corp., 217 Broadway, N. Y.
South China Devel. Synd. Ltd., 2 Rector St., N. Y.
Suzuki & Co., 220 Broadway, N. Y.
Wah Chang Trad. Corp., Woolworth Bldg., N. Y.

TUNGSTEN POWDER

Balfour Williamson & Co., 67 Wall St., N. Y.
The Chemical Products Co., Washington, D. C.
China Commercial Co., Ltd., 2 Rector St., N. Y.
Chas. Hardy & Ruperti, Inc., 115 Broad St., N. Y.
Inter'l Ores & Metals Selling Corp., 280 B'way, N.Y.
E. J. Lavino & Co., Philadelphia, Pa.
Metal & Thermit Corp., 120 Broadway, N. Y.
Naylor & Co., 120 Broadway, N. Y.
Philipp Bros. Inc., 29 Broadway, N. Y.
Frank Samuel, Harrison Bldg., Philadelphia, Pa.
Senter-Robbins-Fox Corp., 217 B'way, N. Y.
Wah Chang Trading Corp., Woolworth Bldg., N. Y.

TURNTABLES

American Bridge Co., 30 Church St., N. Y.
Bethlehem Steel Co., Bethlehem, Pa.

TYPE METALS

Ajax Metal Co., 46 Richmond St., Philadelphia, Pa.
Amalgamated Metals Sell. Co., Ltd., 42 B'way, NY
Balbach Smelting & Refining Co., 280 B'way, N. Y.
S. Birkenstein & Sons, Chicago, Ill.
Charleston Lead Works, Charleston, S. C.
Eagle-Picher Lead Co., Chicago, Ill.
Girard Smelt. & Ref. Co., Philadelphia, Pa.
Great Western Smelt & Ref. Co., Chicago, Ill.
H. Kramer & Co., 1324 W. 21st Pl.., Chicago, Ill.
Michigan Smelt. & Ref. Co., Detroit, Mich.
Nassau Smelt. & Ref. Wks., 603 W. 29th St., N. Y.
Richards & Co., Inc., Boston, Mass.
Senter-Robbins-Fox Corp., 217 B'way, N. Y.
E. J. Smith & Co., Kings Rd., Birmingham, Eng.
Tottenville Copper Co., Tottenville, N. Y.

VALVES (brass and iron)

Bethlehem Steel Co., Bethlehem, Pa.
F. R. Phillips & Sons Co., Philadelphia, Pa.

VANADIUM..

Amalgamated Metals Sell. Co., Ltd., 42 B'way, N.Y.
American Metal Co., Ltd., 61 Broadway, N. Y.
Chas. Hardy & Ruperti, Inc., 115 Broad St., N. Y.
Intern'l Minerals & Metals Corp., 61 B'way, N. Y.
E. J. Lavino & Co., Philadelphia, Pa.
C. W. Leavitt & Co., 30 Church St., N. Y.
Philipp Bros. Inc., 29 B'way, N. Y.
Senter-Robbins-Fox Corp., 217 B'way, N. Y.

WHITE LEAD

Amalgamated Metals Sell. Co., Ltd., 42 B'way, N.Y.
Eagle-Picher Lead Co., Chicago, Ill.
S. L. Jones & Co., Inc., 44 Beaver St., N. Y.

WIRE (Barbed)

Amalgamated Metals Sell. Co., Ltd., 42 B'way, N.Y.
B'klyn Galv. & Mfg. Co., Inc., 120 Liberty St., N.Y.
Crownshield Trading Corp., 30 Church St, N. Y.
Fuller Bros. & Co., 139 Greenwich St., N. Y.
Interstate Iron & Steel Co., Chicago, Ill.
Jones & Laughlin Steel Co., Pittsburgh, Pa.
Midvale Steel & Ordnance Co., Philadelphia, Pa.
Page Steel & Wire Co., Bridgeport, Conn.
F. R. Phillips & Sons Co., Philadelphia, Pa.
Pittsburgh Steel Co., Pittsburgh, Pa.
Youngstown Sheet & Tube Co., Youngstown, Ohio.

WIRE (Copper, tinned and insulated)

Amalgamated Metals Sell. Co., Ltd., 42 B'way, N.Y.
American Brass Co., Waterbury, Conn.
American Insulated Wire & Cable Co., Chicago, Ill.
Anaconda Copper Min. Co., Chi., Ill. (bare copper)
B'klyn Galv. & Mfg. Co., Inc., 120 Liberty St., N.Y.
Detroit Copper & Brass Roll. Mills, Detroit, Mich.
Dickerson, Van Dusen & Co., 32 Cliff St., N. Y.
Ellenwood & Doyle, Inc., 29 Great Jones St., N. Y.
Interstate Iron & Steel Co., Chicago, Ill.
Rome Wire Co., Rome, N. Y.
Schrock & Squires, Inc., 291 Pearl St., N. Y.
Senter-Robbins-Fox Corp., 217 B'way, N. Y.
Standard Underground Cable Co., Pittsburgh, Pa.
Youngstown Sheet & Tube Co., Youngstown, Ohio.

WIRE (Iron)

Amalgamated Metals Sell. Co., Ltd., 42 B'way, NY
American Insulated Wire & Cable Co., Chicago, Ill.
B'klyn Galv. & Mfg. Co., Inc., 120 Liberty St., NY
Dickerson, Van Dusen & Co., 32 Cliff St., N. Y.
Ellenwood & Doyle, Inc., 29 Great Jones St., N. Y.
Fuller Bros. & Co., 139 Greenwich St., N. Y.
Interstate Iron & Steel Co., Chicago, Ill.
Page Steel & Wire Co., Bridgeport, Conn.
Schrock & Squires, Inc., 291 Pearl St., N. Y.

WIRE (Laboratory platinum)

American Platinum Works, Newark, N. J.
Baker & Co., 54 Austin St., Newark, N. J.
J. Bishop & Co., Platinum Works, Malvern, Pa.
Johnson Matthey & Co., Inc., Woolworth Bldg., NY
R. & H. Platinum Works, 709 Sixth Ave., N. Y.

WIRE (Steel, copper clad)

Amalgamated Metals Sell. Co., Ltd., 42 B'way, NY
American Insulated Wire & Cable Co., Chicago, Ill.
B'klyn Galv. & Mfg. Co., Inc., 120 Liberty St., NY
Detroit Copper & Brass Roll. Mills, Detroit, Mich.
Dickerson, Van Dusen & Co., 32 Cliff St., N. Y.
Ellenwood & Doyle, Inc., 29 Great Jones St., N. Y.
Follansbee Bros. Co., Pittsburgh, Pa.
Interstate Iron & Steel Co., Chicago, Ill.
Page Steel & Wire Co., Bridgeport, Conn.
F. R. Phillips & Sons Co., Phila., Pa.
Schrock & Squires, Inc., 291 Pearl St., N. Y.
Senter-Robbins-Fox Corp., 217 B'way, N. Y.
Standard Underground Cable Co., Pittsburgh, Pa.

WIRE (Weatherproof)

The American Brass Co., Waterbury, Conn.
American Insulated Wire & Cable Co., Chicago, Ill.
Crownshield Trading Corp., 30 Church St, N. Y.
Interstate Iron & Steel Co., Chicago, Ill.
Jones & Laughlin Steel Co., Pittsburgh, Pa.
Page Steel & Wire Co., Bridgeport, Conn.
Rome Wire Co., Rome, N. Y.
Standard Underground Cable Co., Pittsburgh, Pa.

WIRE (Welding)

Aluminum Co. of America, Pittsburgh, Pa.
The American Brass Co., Waterbury, Conn.
Crownshield Trading Corp., 30 Church St, N. Y.
Interstate Iron & Steel Co., Chicago, Ill.
Jones & Laughlin Steel Co., Pittsburgh, Pa.
Page Steel & Wire Co., Bridgeport, Conn.
Pittsburgh Steel Co., Pittsburgh, Pa.
Schrock & Squires, Inc., 291 Pearl St., N. Y.

WIRE & WIRE RODS (Steel)

Amalgamated Metals Sell. Co., Ltd., 42 B'way, NY
B'klyn Galv. & Mfg. Co., Inc., 120 Liberty St., N.Y.
Dickerson, Van Dusen & Co., 32 Cliff St., N. Y.
Hickman, Williams & Co., Pittsburgh, Pa.
Interstate Iron & Steel Co., Chicago, Ill.
Jones & Laughlin Steel Co., Pittsburgh, Pa.
Midvale Steel & Ordnance Co., Philadelphia, Pa.
Naylor & Co., 120 Broadway, N. Y.
B. Nicoll & Co., Inc., 149 Broadway, N. Y.
Page Steel & Wire Co., Bridgeport, Conn.
F. R. Philipps & Sons Co., Philadelphia, Pa.
Pittsburgh Steel Co., Pittsburgh, Pa.
Schrock & Squires, Inc., 291 Pearl St., N. Y.
Youngstown Sheet & Tube Co., Youngstown, O.

WIRE CLOTH

Amalgamated Metals Sell. Co., Ltd., 42 B'way, NY
Baker & Co., Newark, N. J. (Platinum)
B'klyn Galv. & Mfg. Co., Inc., 120 Liberty St., NY
Fuller Bros. & Co., 139 Greenwich St., N. Y.
Richards & Co., Inc., Boston, Mass.
Senter-Robbins-Fox Corp., 217 B'way, N. Y.

WIRE FENCE

B'klyn Galv. & Mfg. Co., Inc., 120 Liberty St., NY
Fuller Bros. & Co., 139 Greenwich St., N. Y.
Interstate Iron & Steel Co., Chicago, Ill.
S. L. Jones & Co., 44 Beaver St., N. Y.
Jones & Laughlin Steel Co., Pittsburgh, Pa.
Midvale Steel & Ordnance Co., Philadelphia, Pa.
Page Steel & Wire Co., Bridgeport, Conn.
F. R. Phillips & Sons Co., Philadelphia, Pa.
Pittsburgh Steel Co., Pittsburgh, Pa.
Youngstown Sheet & Tube Co., Youngstown, O.

WIRE SHAPES

B'klyn Galv. & Mfg. Co., 120 Liberty St., N. Y.
Interstate Iron & Steel Co., Chicago, Ill.

WOLFRAMITE

American Metal Co., Ltd., 61 B'way, N. Y.
Balfour, Williamson & Co., 67 Wall St., N. Y.
Chemical Products Co., 621 Alabama Ave., S. E. Washington, D. C.
China Commercial Co., Ltd., 2 Rector St., N. Y.
A. C. Daft, Oliver Bldg., Pittsburgh, Pa.
Chas. Hardy & Ruperti, Inc., 115 Broad St., N. Y.
Edward Hill's Son & Co., 64 Wall St., N. Y.
Inter'l Ores & Metals Selling Corp., 280 B'way, N.Y.
S. L. Jones & Co., Inc., 44 Beaver St., N. Y.
C. W. Leavitt & Co., 30 Church St., N. Y.
Mitsui & Co., Ltd., 65 Broadway, N. Y.
Naylor & Co., 120 Broadway, N. Y.
Philipp Bros. Inc., 29 Broadway, N. Y
Frank Samuel, Harrison Bldg., Philadelphia, Pa.
South China Devel. Synd. Ltd., 2 Rector St., N. Y.
Wah Chang Trad. Corp., Woolworth Bldg, N. Y.

Zinc (Slab)

Amalgamated Metals Sell. Co. Ltd., 42 B'way, N.Y.
American Metal Co., Ltd., 61 B'way, N. Y.
American Smelt. & Ref. Co., 120 B'way, N. Y.
American Zinc, Lead & Smelt. Co., 120 B'way, N. Y.
American Zinc Products Co., Greencastle, Ind.
Balbach Smelt. & Ref. Co., 280 Broadway, N. Y.
H. B. Barnard & Sons, London, E. C. England.
S. Birkenstein & Sons, 389 W. Ontario St., Chi., Ill.
Charleston Lead Works, Charleston, S. C.
Consolidated Mining & Smelt. Co., of Canada, Drummond Bldg., Montreal, Canada.
Dickerson, Van Dusen & Co., 32 Cliff St., N. Y.

ZINC (Slab) (Ctd.)

Eagle-Picher Lead Co., Chicago, Ill.
R. M. Easdale & Co., Glasgow, Scotland.
Ellenwood & Doyle, Inc., 29 Great Jones St., N. Y.
Girard Smelt. & Ref. Co., Philadelphia, Pa.
Grasselli Chemical Co., Cleveland, O.
Great Western Smelt. & Ref. Co., Chicago, Ill.
Chas. Hardy & Ruperti, Inc., 115 Broad St., N. Y.
The Hegeler Zinc Co., Danville, Ill.
Hendricks Bros., 49 Cliff St., N. Y.
Edward Hill's Son & Co., 64 Wall St., N. Y.
Illinois Zinc Co,. Peru, Ill.
Internat'l Minerals & Metals Corp., 61 B'way, N.Y.
Inter'l Ores & Metals Selling Corp., 280 B'way, N.Y.
H. Kramer & Co., 1324 W. 21st Pl., Chicago, Ill.
Lewis Lazarus & Sons, 61 Broadway, N. Y.
C. W. Leavitt & Co., 30 Church St., N. Y.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.
Michigan Smelt. & Ref. Co., Detroit, Mich.
Mineral Point Zinc Co., Chicago, Ill.
More-Jones Brass & Metal Co., St. Louis, Mo.
E. L. Murphy & Co., Webster Bldg., Chicago, Ill.
Nassau Smelt. & Ref. Wks., 603 W. 29th St., N. Y.
New Jersey Zinc Co., 160 Front St., N. Y.
B Nicoll & Co., Inc., 149 Broadway, N. Y.
Philipp Bros., Inc., 29 Broadway, N. Y.
Quinton Spelter Co., Joplin, Mo.
Richards & Co., Inc., Boston, Mass.
Arthur Seligman, 165 Broadway, N. Y.
Senter-Robbins-Fox Corp., 217 B'way, N. Y.
E. J. Smith & Co., Kings Rd., Birmingham, Eng.
Societe Generale Des Minerais, 31 Rue Du Marais, Brussels, Belgium.
Tottenville Copper Co., Tottenville, N. Y.
C. S. Trench & Co., 81 Fulton St., N. Y.
Nathan Trotter & Co., Philadelphia, Pa.
United Metal Selling Co., 25 Broadway, N. Y.
Vernon Metal & Produce Co., 25 Beaver St., N. Y.
Victor Metal Co., Stock Exchange Bldg., Phila., Pa.
John Wahl Commission Co, St. Louis, Mo.
H. P. Winter & Co., 64 Wall St., N. Y.

ZINC CHLORIDE

Amalgamated Metals Sell. Co., Ltd., 42 B'way, NY
Grasselli Chemical Co., Cleveland, O.
Internat'l Minerals & Metals Corp., 61 B'way, NY
Mineral Point Zinc Co., Chicago, Ill.
New Jersey Zinc Co., 160 Front St., N. Y.
Philipp Bros., Inc., 29 Broadway, N. Y.
Senter-Robbins-Fox Corp., 217 B'way, N. Y.

ZINC DUST

Amalgamated Metals Sell. Co., Ltd., 42 B'way, NY
American Metal Co., Ltd., 61 Broadway, N. Y.
American Smelt & Ref. Co., 120 B'way, N. Y.
American Zinc, Lead & Smelt. Co., 120 B'way, N.Y.
Eagle-Picher Lead Co., Chicago, Ill.

ZINC DUST (Ctd.)
Grasselli Chemical Co., Cleveland, O.
Illinois Zinc Co, Peru, Ill.
Internat'l Minerals & Metals Corp., 61 B'way, NY
Jones & Laughlin Steel Co., Pittsburgh, Pa.
Matthiessen & Hegeler Zinc Co., La Salle, Ill.
Mineral Point Zinc Co., Chicago, Ill.
Mitsui & Co., Ltd., 65 Broadway, N. Y.
Nassau Smelt. & Ref. Wks., 603 W. 29th St., N. Y.
New Jersey Zinc Co., 160 Front St., N. Y.
Senter-Robbins-Fox Corp., 217 Broadway, N. Y.
E. J. Smith & Co., Kings Rd., Birmingham, Eng.
U. S. Smelt., Ref. & Min. Co., 120 B'way, N. Y.

ZINC OXIDE
American Metal Co., Ltd., 61 Broadway, N. Y.
American Smelt. & Ref. Co., 120 B'way, N. Y.
American Zinc, Lead & Smelt. Co., 120 B way, N.Y.
Eagle-Picher Lead Co., Chicago, Ill.
Grasselli Chemical Co., Cleveland, O.
Internat'l Minerals & Metals Corp., 61 B'way, N.Y.
Inter'l Ores & Metals Selling Corp., 280 B'way, N.Y.
Jones & Laughlin Steel Co., Pittsburgh, Pa.
S. L. Jones & Co., 44 Beaver St., N. Y.
Mineral Point Zinc Co., Chicago, Ill.
Nassau Smelt. & Ref. Wks., 603 W. 29th St., N. Y.
New Jersey Zinc Co., 160 Front St., N. Y.
Philipp Bros., Inc., 29 Broadway, N. Y.
Senter-Robbins-Fox Corp., 217 Broadway, N. Y.
E. J. Smith & Co., Kings Rd., Birmingham, Eng.
Southern Ferro Alloys Co., Chattanooga, Tenn.
Tottenville Copper Co., Tottenville, N. Y.

ZINC SHEETS AND STRIPS
American Zinc Products Co., Greencastle, Ind.
Ball Bros., Co., Muncie, Ind.
H. B. Barnard & Sons, London, E. C., England.
Dallas Brass & Copper Co., Chicago, Ill.
Dickerson, Van Dusen & Co., 32 Cliff St., N. Y.
Ellenwood & Doyle, Inc., 29 Great Jones St., N. Y.
Illinois Zinc Co., Peru, Ill.
Internat'l Minerals & Metals Corp., 61 B'way, NY
Matthiessen & Hegeler Zinc Co., La Salle, Ill.
Mineral Point Zinc Co., Chicago, Ill.
New Jersey Zinc Co., 160 Front St., N. Y.
B. Nicoll & Co., Inc., 149 Broadway, N. Y.
Richards & Co., Inc., Boston, Mass.
Senter-Robbins-Fox Corp., 217 Broadway, N. Y.
E. J. Smith & Co., Kings Rd., Birmingham, Eng.
Societe Generale Des Minerais, 31 Rue Du Marais, Brussels, Belgium.

ZINC SULPHATE
American Metal Co., Ltd., 61 Broadway, N. Y.
Grasselli Chemical Co., Cleveland, O.
Internat'l Minerals & Metals Corp., 61 B'way, NY
Mineral Point Zinc Co., Chicago, Ill.
New Jersey Zinc Co., 160 Front St., N. Y.
Senter-Robbins-Fox Corp., 217 Broadway, N. Y

Buyers Of

CHROME ORE.

Allegheny Steel Co., Brackenridge, Pa.
Amalgamated Metals Selling Co., 42 B'way, N. Y.
Grasselli Chemical Co., Cleveland, Ohio.
Harbison Walker Refractories Co., Pittsburgh, Pa.
Chas. Hardy & Ruperti, Inc., 115 Broad St., N. Y.
Harrisburg Pipe & Pipe Bend. Co., Harrisburg, Pa.
Interstate Iron & Steel Co., Chicago, Ill.
C. W. Leavitt & Co., 30 Church St., N. Y.
Midvale Steel & Ordnance Co., Philadelphia, Pa.
Mitsui & Co. Ltd., 65 Broadway, N. Y.
Naylor & Co., 120 Broadway, N. Y.
Phoenix Iron Co., 22 S. 15th St., Phila., Pa.
Frank Samuel, Philadelphia, Pa.
Senter-Robbins-Fox Corp., 217 Broadway, N. Y.
Sharon Steel Hoop Co., Sharon, Pa.
Trumbull Steel Co., Warren, Ohio.
U. S. Nickel Co., New Brunswich, N. J.
Walter-Wallingford & Co., Cincinnati, Ohio.
Youngstown Sheet & Tube Co., Youngstown, Ohio.

COPPER BEARING MATERIAL*
METAL DROSSES, SKIMMINGS, RESIDUES†

Ajax Metal Co., Ltd., 46 Richmond St., Phila., Pa.*
American Metal Co., Ltd., 61 Broadway, N. Y.*†
American Smelting & Ref. Co., 120 B'way, N. Y.*†
Balbach Smelt. & Ref. Co., 280 B'way, N. Y.*†
H. B. Barnard & Sons, London, E. C. England*†
S. Birkenstein & Sons, Chicago, Ill.*†
Charleston Lead Works, Charleston, S. C.†
R. M. Easdale & Co., Glasgow, Scotland.*†
Girard Smelt. & Ref. Co., Philadelphia, Pa.*†
Grasselli Chemical Co., Cleveland, O.*†
Great Western Smelt. & Ref. Co., Chicago, Ill.*†
Chas Hardy & Ruperti, Inc., 115 Broad St., N. Y.*
Intern'l Minerals & Metals Corp., 61 B'way, N. Y.†
Inter'l Ores & Metals Sell. Corp., 280 B'way, N. Y.†
Irvington Smelting & Ref. Wks., Irvington, N.J.†*
H. Kramer & Co., 1324 W. 21st Pl. Chicago, Ill.*†
Michigan Smelt. & Ref. Co., Detroit, Mich.*†
Mitsui & Co., Ltd., 65 Broadway, N. Y.*†
Nassau Smelt. & Ref. Wks, 603 W. 29th St., N. Y.*†
Nichols Copper Co., 25 Broad St., N. Y.*†
Philipp Bros. Inc., 29 Broadway, N. Y.*†
Phoenix Iron Co., 22 So. 15th St., Phila., Pa.†
Richards & Co., Inc., Boston, Mass.*†
Senter-Robins-Fox Corp., 217 Broadway, N. Y.*†
E. J. Smith & Co., Kings Rd., Birmingham, Eng.*†
Suzuki & Co., 220 Broadway, N. Y.*†
Tottenville Copper Co., Tottenville, N. Y.*†

GOLD AND SILVER BEARING MATERIAL.

American Metal Co., Ltd., 61 Broadway, N. Y.
American Platinum Works, Newark, N. J.
American Smelting & Refining Co., 120 B'way, N.Y.
Baker & Co., Inc., 54 Austin St., Newark, N. J.
Balbach Smelt. & Ref. Co., 280 B'way, N. Y.
Chas. Hardy & Ruperti, Inc., 115 Broad St., N. Y.
Internat'l Minerals & Metals Corp., 61 B'way, N.Y.
Inter'l Ores & Metals Sell. Corp., 280 B'way, N. Y.
Irvington Smelt. & Ref. Wks., Irvington, N. J.
Philipp Bros. Inc., 29 Broadway, N. Y.
Senter-Robbins-Fox Corp., 217 Broadway, N. Y.

LEAD BEARING MATERIAL

Ajax Metal Co., Ltd., 46 Richmond St., Phila., Pa.
American Metal Co., Ltd., 61 Broadway, N. Y.
American Smelting & Refining Co., 120 B'way, N.Y.
Balbach Smelt. & Ref. Co., 280 B'way, N. Y.
S. Birkenstein & Sons, Chicago, Ill.
R. M. Easdale & Co., Glasgow, Scotland.
Girard Smelt. & Ref. Co., Philadelphia, Pa.
Great Western Smelt. & Ref. Co., Chicago, Ill.
Chas. Hardy & Ruperti, Inc., 115 Broad St., N. Y.
Inter'l Ores & Metals Sell. Corp., 280 B'way, N. Y.
H. Kramer & Co., 1324 W. 21st Pl. Chicago, Ill.
Michigan Smelt. & Ref. Co., Detroit, Mich.
Mitsui & Co. Ltd., 65 Broadway, N. Y.
Nassau Smelt. & Ref. Works, 603 W. 29th St., N.Y.
New Jersey Concentrating Co., 115 Broad St., N. Y.
Philipp Bros. Inc., 29 Broadway, N. Y.
Phoenix Iron Co., 22 S. 15th St., Phila., Pa.
Richards & Co., Inc., Boston, Mass.
Senter-Robbins-Fox Corp., 217 Broadway, N. Y.
Sharon Steel Hoop Co., Sharon, Pa.
E. J. Smith & Co., Kings Rd., Birmingham, Eng.
Tottenville Copper Co., Tottenville, N. Y.
U. S. Smelt., Ref. & Min. Co., 120 B'way, N. Y.

PLATINUM SCRAP

American Metal Co., Ltd., 61 Broadway, N. Y.
American Platinum Works, Newark, N. J.
Baker & Co., Inc., 54 Austin St., Newark, N. J.
J Bishop & Co. Platinum Works, Malvern, Pa.
Chas. Hardy & Ruperti, Inc., 115 Broad St., N. Y.
Irvington Smelt. & Ref. Wks., Irvington, N. J.
Johnson Matthey & Co., Inc., Woolworth Bldg., N.Y.
Philipp Bros. Inc., 29 Broadway, N. Y.
R. & H. Platinum Works, 709 Sixth Ave., N. Y.
The H.A. Wilson Co., 97 Chestnut St., Newark, N.J.

SCRAP STEEL

Allegheny Steel Co., Brackenridge, Pa.
American Steel Foundries, McCormick Bldg., Chicago, Ill.
Follansbee Bros. Co., Pittsburgh, Pa.

SCRAP STEEL (Ctd.)

Harrisburg Pipe & Pipe Bend. Co., Harrisburg, Pa.
Interstate Iron & Steel Co., Chicago, Ill.
Mansfield Sheet & Tin Plate Co., Mansfield, Ohio.
Midvale Steel & Ordnance Co., Philadelphia, Pa.
Phoenix Iron Co., 22 S. 15th St., Philadelphia, Pa.
Frank Samuel, Philadelphia, Pa.
Sharon Steel Hoop Co., Sharon, Pa.
Southern Ferro Alloys Co., Chattanooga, Tenn.
H. N. Trimble, Oliver Bldg., Pittsburgh, Pa.
The Trumbull Steel Co., Warren, Ohio.
Youngstown Sheet & Tube Co., Youngstown, Ohio.

TIN BEARING MATERIAL

Ajax Metal Co., Ltd., 46 Richmond St., Phila., Pa.
American Metal Co., Ltd., 61 Broadway, N. Y.
American Smelting & Refining Co., 120 B'way, N.Y.
S. Birkenstein & Sons, Chicago, Ill.
Girard Smelt. & Ref. Co., Philadelphia, Pa.
Great Western Smelt. & Ref. Co., Chicago, Ill.
Chas. Hardy & Ruperti, Inc., 115 Broad St., N. Y.
H. Kramer & Co., 1324 W. 21st Pl. Chicago, Ill.
C. W. Leavitt & Co., 30 Church St., N. Y.
Michigan Smelt. & Ref. Co., Detroit, Mich.
Nassau Smelt. & Ref. Works, 603 W. 29th St., N.Y.
Philipp Bros. Inc., 29 Broadway, N. Y.
Phoenix Iron Co., 22 So. 15th St., Philadelphia, Pa.
Richards & Co., Inc., Boston, Mass.
Senter-Robbins-Fox Corp., 217 Broadway, N. Y.
Sharon Steel Hoop Co., Sharon, Pa.
E. J. Smith & Co., Kings Rd., Birmingham, Eng.
Tottenville Copper Co., Tottenville, N. Y.

TIN & TERNE PLATE SCRAP

Great Western Smelt. & Ref. Co., Chicago, Ill.
Nassau Smelt. & Ref. Wks., 603 W. 29th St., N. Y.
Sharon Steel Hoop Co., Sharon, Pa.

TUNGSTEN ORES

American Metal Co., Ltd., 61 Broadway, N. Y.
Chemical Products Co., 621 Alabama Ave., S. E. Washington, D. C.
Chas. Hardy & Ruperti, Inc., 115 Broad St., N. Y.
Inter'l Ores & Metals Sell. Corp., 280 B'way, N. Y.
C. W. Leavitt & Co., 30 Church St., N. Y.
Midvale Steel & Ordnance Co., Philadelphia, Pa.
Mitsui & Co., Ltd., 65 Bradway, N. Y.
Naylor & Co., 120 B'way, N. Y.
New Jersey Concentrating Co., 115 Broad St., N. Y.
Wah Chang Trading Corp., Woolworth Bldg., N. Y.

ZINC SHEETS

Nassau Smelt. & Ref. Wks., 603 W. 29th St., N. Y.
Richards & Co., Inc., Boston, Mass.

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