IRON AND STEEL SCRAP

By Gerald W. Houck

Iron and steel scrap is a vital raw material for the production of new steel and cast iron products. Because of the ready availability of scrap from manufacturing operations and from the recovery of products that have reached the end of their useful lives, the steel industry and the foundry industry in the United States have been structured efficiently to recycle scrap, and, as a result, are highly dependent upon scrap.

The recycling of steel scrap plays an important role in the conservation of energy because remelting of scrap requires much less energy than the production of steel or iron products from iron ore. In addition, the consumption of iron and steel scrap by remelting reduces the burden on landfill disposal facilities and prevents the accumulation of abandoned steel products in the environment.

Consumption

Brokers, dealers, and other outside sources supplied domestic consumers in 1994 with 49 million metric tons[1] of all types of ferrous scrap at an estimated delivered value of $6.2 billion, while exporting 8.8 million tons (excluding used rails for rerolling and other uses and ships, boats, and other vessels for scrapping) valued at $1.3 billion. In 1993, domestic consumers received 46.3 million tons (revised) at a delivered value of approximately $5.2 billion (revised); exports totaled 9.81 million tons valued at $1.3 billion. For 1994, this represented a tonnage increase of about 6% for received quantities and a tonnage decrease of about 10% for exported quantities. The total value of received and exported scrap grades increased about 15%.

Raw steel production was 91.2 million tons in 1994 compared with 88.8 million tons in 1993. The shares of raw steel produced by electric and basic oxygen furnaces were, respectively, 39% and 61% in both 1994 and 1993. Continuous cast steel production represented 90% of total raw steel production in 1994 compared with 86% in 1993. Raw steel production capability was 98.1 million tons in 1994 compared with 99.7 million tons in 1993. Raw steel capability utilization was 93% in 1994 and 89% in 1993.

Net shipments of all grades of steel mill products were 86.3 million tons in 1994 and 80.8 million tons in 1993. Imports of steel mill products increased from 17.7 million tons in 1993 to 27.3 million tons in 1994. Exports of steel mill products decreased from 3.60 million tons in 1993 to 3.50 million tons in 1994. The U.S. apparent supply of steel mill products increased from 92.0 million tons in 1993 to 104.2 million tons in 1994. Imports of steel mill products, as a share of the U.S. market, increased from 19% in 1993 to 26% in 1994. Pig iron production increased from 48.2 million tons in 1993 to 49.4 million tons in 1994.

Iron castings shipments, as reported by the Bureau of the Census, totaled an estimated 13.5 million tons in 1994 compared with 11.9 million tons (revised) in 1993. Steel castings shipments (including investment castings) totaled 1.7 million tons in 1994 compared with 1.4 million tons (revised) in 1993.

In 1994, steel mills accounted for 82% of all scrap received from brokers, dealers, and other outside sources; steel foundries received 3%; and iron castings producers and miscellaneous users received 16%. The apparent total domestic consumption of ferrous scrap in 1994 was composed of 50 million tons net receipts (total receipts minus shipments) and 20 million tons of home scrap. Stocks of ferrous scrap at consumers' plants increased 11% to 4.1 million tons. The 1994 total domestic consumption was 70 million tons; in 1993, the total domestic consumption was 68 million tons (revised).

The total market for U.S. produced scrap (net receipts plus exports minus imports) was 57 million tons in 1994 compared with 54 million tons (revised) in 1993.

Domestic data for ferrous scrap were developed by the U.S. Bureau of Mines from voluntary monthly or annual surveys of U.S. scrap consuming operations. For manufacturers of pig iron and raw steel, about 91% of the known establishments responded to the surveys. Responses to surveys represented about 91% of estimated total scrap consumption by this class of consumers. The remaining 9% of scrap consumption was estimated, based on prior reports and other information. For manufacturers of steel castings and iron foundries and miscellaneous users, about 55% of the surveyed establishments responded to the annual survey, representing about 73% of estimated scrap consumption by these scrap consumers. Total consumption for these two classes of consumers was estimated using statistical methods, prior reports, and other information. Actual survey data accounted for about 80% of total estimated scrap consumption by all classes of scrap consumers.

Prices

The average composite delivered price per metric ton, calculated from prices per long ton published monthly by American Metal Market (AMM), for No. 1 heavy melting steel scrap was $126.81 in 1994, ranging from a low of $106.37 in June to a high of $136.47 in March. Calculated from prices per long ton published weekly by Iron Age Scrap Price Bulletin (IA), the average composite delivered price per metric ton of No. 1 heavy melting steel scrap was $124.58 in 1994, ranging from $104.82 in June to $135.08 in March. The average composite price for No. 1 heavy melting steel scrap in 1994 was higher than that in 1993, by 13% in both AMM and in IA.

Based on weekly quotations by IA for 18-8 (18% chromium, 8% nickel) stainless steel scrap (bundles and solids) delivered to consumers in the Pittsburgh, PA, area, the average price increased 13%, from $624 per ton in 1993 to $708 per ton in 1994.

In 1994, the average value for total ferrous scrap exports (excluding used rails for rerolling and other uses and ships, boats, and other vessels for scrapping) increased 7% to $144 per ton compared with that of 1993, while that of total imports increased 8% to $126 per ton.

Foreign Trade

Foreign trade valuation continued to be reported on f.a.s. (free alongside ship) basis for exports and on Customs value basis for imports.

The U.S. trade surplus in 1994 for all classes of ferrous scrap (including used rails for rerolling and other uses and ships, boats, and other vessels for scrapping) was $1,055 million in value and 7.1 million tons in quantity. This represented a decrease of 9% in value and 18% in quantity compared with the 1993 surplus of $1,165 million in value and 8.5 million tons in quantity.

Total U.S. exports of carbon steel and cast iron scrap (excluding used rails for rerolling and other uses; ships, boats, and other vessels

for scrapping; stainless steel; and alloy steel) in 1994 went to 56 countries and totaled 8.05 million tons valued at $1,010 million for an average of $125.04 per ton. Six countries received 81% of the total quantity. The largest tonnages went to the Republic of Korea, 2.49 million tons; Canada, 1.35 million tons; Turkey, 1.18 million tons; Mexico, 618,000 tons; Japan, 494,000 tons; and India, 427,000 tons. The value of scrap exports to these six countries was $795 million, 79% of the total value.

Total U.S. exports of stainless steel scrap in 1994 went to 37 countries and consisted of 299,000 tons valued at $190 million averaging $637.00 per ton. Six countries received 86% of the total quantity. The largest tonnages went to the Republic of Korea, 76,700 tons; Spain, 70,900 tons; Canada, 49,000 tons; Japan, 25,300 tons; Sweden, 22,400 tons; and the Netherlands, 13,100 tons. The value of stainless steel scrap exports to these six countries was $164 million, 86% of the total value.

U.S. exports of alloy steel scrap (excluding stainless steel) in 1994 were shipped to 41 countries. The total comprised 462,000 tons valued at $68.5 million for an average of $148.18 per ton. Six countries received 88% of the total quantity. The largest tonnages went to Canada, 285,000 tons; Mexico, 44,700 tons; China, 27,000 tons; Italy 25,000 tons; Colombia, 13,500 tons; and the United Kingdom 9,660 tons. The value of alloy steel scrap to these six countries was $58.6 million, which was 85% of the total value.

World Review

The United States continued to be the leading exporting country of iron and steel scrap. Germany and the United Kingdom were also major exporters of ferrous scrap. Leading importing nations included Italy, Spain, Turkey, and the developing nations of Asia: China, Indonesia, India, the Republic of Korea, Taiwan, and Thailand.

Outlook

The outlook for U.S. ferrous scrap is for continued growth in demand and consumption. New electric furnace steel plants with total capacity of about 10 million tons per year were under construction in the United States, with start-ups scheduled from early 1995 through 1997. The reopening of two major electric furnace operations that were out of operation for most or all of 1994 also was expected.

Substitutes for ferrous scrap in the form of pig iron and direct-reduced iron will increase in use. The higher price of these virgin materials will be more acceptable when scrap prices are high. In addition, producers of flat-rolled steel and other products requiring low levels of residual elements in the steel increasingly will turn to iron-ore-based products to dilute the residual content that is intrinsic in scrap. However, the availability of pig iron and direct-reduced iron will not result in reduced demand for scrap; rather, it will ensure and facilitate the use of scrap by enabling its use as a greater overall proportion of the source of iron for steelmaking.

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[1]All quantities are in metric tons unless otherwise specified.

OTHER SOURCES OF INFORMATION

U.S. Bureau of Mines Publications

Monthly and annual publications on Iron and Steel, Iron Ore, and Iron and Steel Slag.

Other Sources

American Foundrymen's Society (AFS).
American Iron and Steel Institute (AISI).
American Metal Market.
Bureau International De La Recuperation (BIR).
Center for Materials Production (CMP).
Institute of Scrap Recycling Industries Inc. (ISRI).
International Iron and Steel Institute (IISI).
Metal Bulletin (London).
National Recycling Coalition (NRC).
Steel Can Recycling Institute (SCRI).
Steel Manufacturers Association (SMA).

TABLE 1
SALIENT U.S. IRON AND STEEL SCRAP, PIG IRON, AND DIRECT-REDUCED IRON STATISTICS 1/

(Thousand metric tons and thousand dollars)

	1990	1991	1992	1993	1994
Manufacturers of pig iron and raw steel and castings: 2/					
Ferrous scrap consumption	54,000	49,000	50,000	53,000	54,000
Pig iron consumption	49,000	44,000	47,000	48,000	50,000
Direct-reduced iron consumption	690	910 r/	1,100 r/	1,500 r/	1,500
Net receipts of ferrous scrap 3/	35,000	32,000	33,000	37,000	40,000
Home scrap production 4/	19,000	17,000	17,000	16,000	14,000
Ending stocks of ferrous scrap, Dec. 31	3,400	3,400	3,100	3,200	3,600
Manufacturers of steel castings: 5/					
Ferrous scrap consumption	1,900	1,600	1,600	1,900 r/	2,000
Pig iron consumption	21	14	13	9	10
Net receipts of ferrous scrap 3/	1,300	1,100	1,100	1,300 r/	1,400
Home scrap production 4/	500	550	530	610 r/	660
Ending stocks of ferrous scrap, Dec. 31	180	160	170	86 r/	96
Iron foundries and miscellaneous users: 5/					
Ferrous scrap consumption	13,000	11,000	11,000	13,000	14,000
Pig iron consumption	840	660	620	670 r/	1,000
Direct-reduced iron consumption	18	12	11	3 r/	2
Net receipts of ferrous scrap 3/	8,900	7,600	8,000	7,900 r/	8,400
Home scrap production 4/	4,000	3,400	3,300	4,600 r/	5,100
Ending stocks of ferrous scrap, Dec. 31	730	560	520	370 r/	380
Totals, all manufacturing types:					
Ferrous scrap consumption	69,000	62,000	63,000	68,000 r/	70,000
Pig iron consumption	50,000	45,000	48,000	49,000	51,000
Direct-reduced iron consumption	710	920 r/	1,100 r/	1,500 r/	1,500
Net receipts of ferrous scrap 3/	46,000	41,000	42,000	46,000	50,000
Home scrap production 4/	23,000	21,000	21,000	22,000 r/	20,000
Ending stocks, Dec. 31:					
Ferrous scrap at consumer plants	4,300	4,100	3,800	3,700	4,100
Pig iron at consumer and supplier plants	150	190	180	220	400
Direct-reduced iron at consumer plants	89	100	130 r/	200	240
Exports: 6/					
Ferrous scrap (includes tinplate and terneplate) 7/	11,600	9,500	9,260	9,810	8,810
Value	$1,640,000	$1,230,000	$1,100,000	$1,320,000	$1,270,000
Pig iron (all grades)	14	16	33	27	56
Value	$1,620	$1,700	$3,200	$3,040	$6,780
Direct-reduced iron (steelmaking grade)	4	4	9	17	17
Value	$3,310	$2,870	$2,020	$1,860	$1,850
Imports for consumption: 6/					
Ferrous scrap (includes tinplate and terneplate) 7/	1,320	1,070	1,320	1,390 r/	1,710
Value	$172,000	$143,000	$148,000	$162,000 r/	$215,000
Pig iron (all grades)	347	434	497	828	2,500
Value	$60,100	$75,300	$72,800	$117,000	$344,000
Direct-reduced iron (steelmaking grade)	333	365	542	1,090	1,170
Value	$40,300	$40,600	$54,000	$104,000	$138,000

r/ Revised.

1/ Previously published and 1994 data are rounded by the U.S. Bureau of Mines to two significant digits, except trade data which are rounded to three significant digits; may not add to totals shown. Data are not entirely comparable due to changes in collection and estimation methods in 1993.

2/ Includes manufacturers of raw steel that also produce steel castings.

3/ Net receipts of scrap is defined as receipts from brokers, dealers, and other outside sources, plus receipts from other own-company plants, minus shipments.

4/ Home scrap production includes recirculating scrap resulting from current operations and obsolete home scrap.

5/ Some consumers in the "Manufacturers of steel castings" category also produce iron castings; some consumers in the "Iron foundries and miscellaneous users" category also produce steel castings.

6/ Source: Bureau of the Census. Export valuation is "free alongside ship" (f.a.s.) value, and import valuation is customs value.

7/ Excludes used rails for rerolling and other uses, and ships, boats and other vessels for scrapping.

TABLE 2
U.S. CONSUMER RECEIPTS, PRODUCTION, CONSUMPTION, SHIPMENTS, AND STOCKS
OF IRON AND STEEL SCRAP IN 1994, BY GRADE 1/

(Thousand metric tons)

Grade	Receipts of scrap		Production of home scrap		Consumption of both purchased and home scrap	Shipments of scrap	Ending stocks, Dec. 31
	From brokers, dealers and other outside sources	From other own-company plants	Recirculating scrap from current operations	Obsolete scrap 2/			
MANUFACTURERS OF PIG IRON AND RAW STEEL AND CASTINGS							
Carbon steel:							
Low-phosphorus plate and punchings	350	--	1	--	340	9	23
Cut structural and plate	3,000	26	430	210	3,600	52	270
No. 1 heavy melting steel	6,500	420	3,700	18	11,000	120	720
No. 2 heavy melting steel	4,800	42	610	3	5,400	23	410
No. 1 and electric-furnace bundles	5,700	550	1,900	2	7,500	650	430
No. 2 and all other bundles	1,400	12	12	--	1,400	(3/)	87
Electric furnace, 1 foot and under (not bundles)	23	1	120	--	110	35	3
Railroad rails	130	--	37	--	180	(3/)	5
Turnings and borings	1,800	4	150	--	1,900	3	140
Slag scrap	940	110	1,400	--	2,100	360	180
Shredded or fragmentized	7,300	770	86	--	8,100	8	490
No. 1 busheling	3,400	77	120	--	3,500	84	230
Steel cans (post consumer)	220	7	--	--	220	--	8
All other carbon steel scrap	1,900	290	3,600	7	5,300	450	260
Stainless steel scrap	580	4	420	--	1,000	8	31
Alloy steel (except stainless)	210	90	530	--	820	9	62
Ingot mold and stool scrap	43	13	120	120	160	140	46
Machinery and cupola cast iron	51	--	3	(3/)	54	2	6
Cast-iron borings	200	--	1	(3/)	200	(3/)	18
Motor blocks	(4/)	--	--	--	(4/)	--	(4/)
Other iron scrap	410	42	280	(3/)	710	72	100
Other mixed scrap	850	7	420	--	1,200	87	84
Total	40,000	2,500	14,000	360	54,000	2,100	3,600
MANUFACTURERS OF STEEL CASTINGS							
Carbon steel:							
Low-phosphorus plate and punchings	340	--	66	(3/)	410	(3/)	17
Cut structural and plate	260	--	13	(3/)	270	(3/)	15
No. 1 heavy melting steel	250	11	70	(3/)	330	--	19
No. 2 heavy melting steel	12	--	31	--	43	--	1
No. 1 and electric-furnace bundles	22	--	--	--	21	--	1
No. 2 and all other bundles	--	--	--	--	--	--	--
Electric furnace, 1 foot and under (not bundles)	1	5	(3/)	--	6	--	(3/)
Railroad rails	110	--	2	--	110	--	3
Turnings and borings	43	--	11	--	54	--	1
Slag scrap	13	--	2	--	4	--	12
Shredded or fragmentized	56	--	--	--	57	--	1
No. 1 busheling	78	--	6	--	81	--	6
Steel cans (post consumer)	--	--	--	--	--	--	--
All other carbon steel scrap	120	(3/)	330	2	420	36	6
Stainless steel scrap	29	(3/)	25	--	53	(3/)	3
Alloy steel (except stainless)	63	--	87	(3/)	150	--	6
Ingot mold and stool scrap	10	--	--	--	9	--	1
Machinery and cupola cast iron	--	--	(3/)	--	(3/)	--	(3/)
Cast-iron borings	--	--	1	--	1	--	(3/)
Motor blocks	(3/)	--	(3/)	--	(3/)	--	--
Other iron scrap	9	--	9	(3/)	18	1	2
Other mixed scrap	3	(3/)	1	(3/)	4	(3/)	1
Total	1,400	17	660	3	2,000	37	96

See footnotes at end of table.

TABLE 2 --Continued
U.S. CONSUMER RECEIPTS, PRODUCTION, CONSUMPTION, SHIPMENTS, AND STOCKS
OF IRON AND STEEL SCRAP IN 1994, BY GRADE 1/

(Thousand metric tons)

Grade	Receipts of scrap		Production of home scrap		Consumption of both purchased and home scrap	Shipments of scrap	Ending stocks, Dec. 31
	From brokers, dealers and other outside sources	From other own-company plants	Recirculating scrap from current operations	Obsolete scrap 2/			
IRON FOUNDRIES AND MISCELLANEOUS USERS							
Carbon steel:							
Low-phosphorus plate and punchings	840	1	9	(3/)	850	--	15
Cut structural and plate	1,200	31	3	(3/)	1,300	--	41
No. 1 heavy melting steel	230	5	21	--	260	2	6
No. 2 heavy melting steel	140	--	--	--	140	--	2
No. 1 and electric-furnace bundles	99	160	32	--	290	--	8
No. 2 and all other bundles	210	--	1	--	210	1	8
Electric furnace, 1 foot and under (not bundles)	140	2	2	--	140	1	3
Railroad rails	140	--	--	(3/)	140	--	7
Turnings and borings	190	99	5	--	290	4	14
Slag scrap	28	--	2	--	29	2	(3/)
Shredded or fragmentized	1,400	150	--	--	1,500	--	56
No. 1 busheling	840	140	40	--	980	40	22
Steel cans (post consumer)	23	--	--	--	23	--	(3/)
All other carbon steel scrap	120	(3/)	31	--	150	1	7
Stainless steel scrap	2	--	2	--	5	(3/)	1
Alloy steel (except stainless)	12	--	1	--	12	--	3
Ingot mold and stool scrap	61	--	96	--	180	(3/)	5
Machinery and cupola cast iron	780	24	410	(3/)	1,200	1	51
Cast-iron borings	310	110	110	1	510	9	8
Motor blocks	330	6	600	--	950	(3/)	28
Other iron scrap	300	35	3,600	--	3,900	7	66
Other mixed scrap	290	2	200	(3/)	480	1	27
Total	7,700	760	5,100	1	14,000	69	380
TOTALS FOR ALL MANUFACTURING TYPES							
Carbon steel:							
Low-phosphorus plate and punchings	1,500	1	75	(3/)	1,600	9	55
Cut structural and plate	4,500	56	450	210	5,200	52	330
No. 1 heavy melting steel	7,000	430	3,800	18	11,000	120	750
No. 2 heavy melting steel	5,000	42	640	3	5,600	23	410
No. 1 and electric-furnace bundles	5,800	710	2,000	2	7,800	650	440
No. 2 and all other bundles	1,600	12	13	--	1,600	2	94
Electric furnace, 1 foot and under (not bundles)	160	7	130	--	260	36	6
Railroad rails	380	--	39	(3/)	430	(3/)	15
Turnings and borings	2,100	100	160	--	2,300	7	160
Slag scrap	980	110	1,400	--	2,100	360	190
Shredded or fragmentized	8,800	920	86	--	9,700	8	540
No. 1 busheling	4,300	220	170	--	4,500	120	260
Steel cans (post consumer)	240	7	--	--	240	(3/)	9
All other carbon steel scrap	2,100	290	4,000	9	5,900	490	270
Stainless steel scrap	610	4	450	--	1,100	9	34
Alloy steel (except stainless)	280	90	620	(3/)	980	9	71
Ingot mold and stool scrap	110	13	210	120	350	140	52
Machinery and cupola cast iron	830	24	410	1	1,300	4	58
Cast-iron borings	510	110	110	1	700	9	26
Motor blocks	330	6	600	--	950	(3/)	28
Other iron scrap	720	77	3,900	(3/)	4,600	80	170
Other mixed scrap	1,100	10	620	(3/)	1,700	89	110
Total	49,000	3,200	20,000	360	70,000	2,200	4,100

1/ Data rounded by the U.S. Bureau of Mines to two significant digits; may not add to totals shown.
2/ Obsolete home scrap includes ingot molds, stools, and scrap from old equipment, buildings, etc.
3/ Less than 1/2 unit.
4/ Withheld to avoid disclosing company proprietary data; included in "Other iron scrap."

TABLE 3
U.S. CONSUMER RECEIPTS, PRODUCTION, CONSUMPTION, SHIPMENTS, AND STOCKS
OF PIG IRON AND DIRECT-REDUCED IRON IN 1994 1/

(Thousand metric tons)

	Receipts	Production	Consumption	Shipments	Stocks, Dec. 31
Manufacturers of pig iron and raw steel and castings:					
Pig iron	3,700 2/	49,000	50,000	2,600	330
Direct-reduced iron	1,500 3/	W	1,500	3	240
Manufacturers of steel castings:					
Pig iron	10	--	10	--	1
Direct-reduced iron	--	--	--	--	--
Iron foundries and miscellaneous users:					
Pig iron	1,100	--	1,000	--	72
Direct-reduced iron	2	--	2	--	--
Totals for all manufacturing types:					
Pig iron	4,800	49,000	51,000	2,600	400
Direct-reduced iron	1,500	W	1,500	3	240

W Withheld to avoid disclosing company proprietary data; included in "Receipts."
1/ Data rounded by the U.S. Bureau of Mines to two significant digits; may not add to totals shown.
2/ Includes 1,400 thousand metric tons purchased by electric furnace raw steel producers.
3/ Includes 610 thousand metric tons purchased by integrated raw steel producers.

TABLE 4
U.S. CONSUMPTION OF IRON AND STEEL SCRAP, PIG IRON, AND DIRECT-REDUCED IRON (DRI) IN 1994,
BY TYPE OF FURNACE OR OTHER USE 1/

(Thousand metric tons)

	Manufacturers of pig iron and raw steel and castings			Manufacturers of steel castings			Iron foundries and miscellaneous users			Totals for all manufacturing types		
	Scrap	Pig iron	DRI	Scrap	Pig iron	DRI	Scrap	Pig iron	DRI	Scrap	Pig iron	DRI
Blast furnace	1,800	--	490	--	--	--	--	--	--	1,800	--	490
Basic oxygen process	15,000	49,000	66	--	--	--	--	--	--	15,000	49,000	66
Electric furnace	37,000	1,200	940	2,000	10	--	4,700	490	--	44,000	1,700	940
Cupola furnace	--	--	--	--	--	--	8,800	520	2	8,800	520	2
Other (including air furnaces)	52	2	--	4	--	--	27	2	--	83	4	--
Direct castings 2/	--	39	--	--	--	--	--	--	--	--	39	--
Total	54,000	50,000	1,500	2,000	10	--	14,000	1,000	2	70,000	51,000	1,500

1/ Data rounded by the U.S. Bureau of Mines to two significant digits; may not add to totals shown.
2/ Includes ingot molds and stools.

TABLE 5
IRON AND STEEL SCRAP SUPPLY 1/ AVAILABLE FOR CONSUMPTION IN 1994, BY REGION AND STATE 2/

(Thousand metric tons)

Region and State	Receipts of scrap		Production of home scrap		Shipments of scrap 4/	New supply available for consumption
	From brokers, dealers, and other outside sources	From other own company plants	Recirculating scrap resulting from current operations	Obsolete scrap 3/		
New England and Middle Atlantic:						
Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont	81	--	25	(5/)	(5/)	110
New Jersey and New York	1,600	77	120	--	5	1,800
Pennsylvania	4,100	110	2,200	69	48	6,400
Total	5,800	180	2,300	69	54	8,300
North Central:						
Illinois	4,500	160	1,500	18	69	6,100
Indiana	3,600	180	4,600	89	590	7,900
Iowa, Nebraska, South Dakota	1,300	W	220	--	W	1,500
Kansas and Missouri	1,000	2	180	--	--	1,200
Michigan	3,200	650	2,100	(5/)	170	5,800
Minnesota	220	W	120	(5/)	W	480
Ohio	5,600	1,300	2,900	100	1,000	8,800
Wisconsin	1,200	W	940	(5/)	W	2,100
Total	21,000	2,400	12,000	210	1,900	34,000
South Atlantic:						
Delaware and Maryland	760	(5/)	560	--	56	1,300
Florida and Georgia	1,300	W	220	--	W	1,500
North Carolina and South Carolina	1,500	W	210	--	W	1,700
Virginia and West Virginia	1,500	130	540	(5/)	46	2,100
Total	5,100	130	1,500	(5/)	110	6,600
South Central:						
Alabama and Mississippi	2,600	W	990	44	W	3,500
Arkansas, Louisiana, Oklahoma	4,300	W	270	4	W	4,500
Kentucky and Tennessee	2,500	W	750	--	W	3,200
Texas	4,200	490	730	5	7	5,400
Total	14,000	510	2,700	54	130	17,000
Mountain and Pacific:						
Arizona, Colorado, Idaho, Montana, Utah	1,700	(5/)	510	W	W	2,200
California, Oregon, Washington	2,200	(5/)	280	W	W	2,400
Total	3,800	(5/)	780	30	13	4,600
Grand total	49,000	3,200	20,000	360	2,200	70,000

W Withheld to avoid disclosing company proprietary data; included in "Total."
1/ Supply available for consumption is a net figure computed by adding production to receipts and deducting scrap shipped during the year. The difference in stock levels at the beginning and end of the year is not taken into consideration.
2/ Data rounded by the U.S. Bureau of Mines to two significant digits; may not add to totals shown.
3/ Obsolete scrap includes ingot molds, stools and scrap from old equipment, buildings, etc.
4/ Includes scrap shipped, transferred, or otherwise disposed of during the year.
5/ Less than 1/2 unit.

TABLE 6
U.S. CONSUMPTION OF IRON AND STEEL SCRAP 1/ AND PIG IRON 2/ IN 1994, BY REGION AND STATE 3/

(Thousand metric tons)

Region and State	Manufacturers of pig iron and raw steel and castings		Manufacturers of steel castings		Iron foundries and miscel-laneous users		Totals for all manufacturing types	
	Scrap	Pig iron	Scrap	Pig iron	Scrap	Pig iron	Scrap	Pig iron
New England and Middle Atlantic:								
Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, Vermont	1,500	27	18	(4/)	410	15	1,900	42
Pennsylvania	5,400	2,800	230	3	660	88	6,300	2,900
Total	6,900	2,900	250	3	1,100	100	8,200	3,000
North Central:								
Illinois	5,200	2,800	82	1	760	44	6,000	2,900
Indiana	6,700	17,000	82	(4/)	1,400	150	8,100	17,000
Iowa, Kansas, Minnesota, Missouri, Nebraska, South Dakota, Wisconsin	2,300	7	460	2	2,500	240	5,300	250
Michigan	3,000	5,800	36	(4/)	2,800	160	5,800	6,000
Ohio	7,100	10,000	430	2	1,300	130	8,800	10,000
Total	24,000	36,000	1,100	5	8,700	720	34,000	36,000
South Atlantic:								
Delaware, Maryland, Virginia, West Virginia	2,800	5,000	2	W	490	W	3,300	5,000
Florida, Georgia, North Carolina, South Carolina	2,900	22	2	W	430	W	3,300	68
Total	5,600	5,000	4	1	920	63	6,600	5,100
South Central:								
Alabama, Kentucky, Mississippi, Tennessee	4,400	4,400	340	(4/)	1,900	85	6,700	4,500
Arkansas, Louisiana, Oklahoma	4,300	W	27	W	140	W	4,400	520
Texas	4,700	W	180	W	460	W	5,400	160
Total	13,000	5,100	550	(4/)	2,500	120	17,000	5,200
Mountain and Pacific:								
Arizona, Colorado, Idaho, Montana, Utah	2,100	W	17	(4/)	120	W	2,200	1,700
California, Oregon, Washington	2,000	W	150	(4/)	200	W	2,400	84
Total	4,100	1,700	160	(4/)	320	7	4,600	1,800
Grand total	54,000	50,000	2,000	10	14,000	1,000	70,000	51,000

W Withheld to avoid disclosing company proprietary data; included in "Total."

1/ Includes recirculating scrap resulting from current operations and home-generated obsolete scrap.

2/ Includes molten pig iron used for ingot molds and direct castings.

3/ Data rounded by the U.S. Bureau of Mines to two significant digits; may not add to totals shown.

4/ Less than 1/2 unit.

TABLE 7
U.S. CONSUMER STOCKS OF IRON AND STEEL SCRAP AND PIG IRON, DECEMBER 31, 1994,
BY REGION AND STATE 1/

(Thousand metric tons)

Region and State	Carbon steel 2/	Stainless steel	Alloy steel 3/	Cast iron 4/	Other grades of scrap	Total scrap	Pig iron
New England and Middle Atlantic:							
Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont	1	(5/)	(5/)	3	(5/)	4	W
New Jersey and New York	75	2	2	4	(5/)	83	W
Pennsylvania	340	25	26	46	4	440	25
Total	410	27	28	52	4	520	28
North Central:							
Illinois	380	W	W	16	2	400	13
Indiana	550	W	W	110	12	670	130
Iowa, Kansas, Missouri, Nebraska, South Dakota	130	(5/)	3	5	15	150	13
Michigan	130	(5/)	1	27	3	160	23
Minnesota and Wisconsin	66	1	1	10	(5/)	79	27
Ohio	320	3	17	40	6	380	29
Total	1,600	6	27	210	38	1,800	230
South Atlantic:							
Delaware, Maryland, Virginia, West Virginia	180	(5/)	W	4	W	190	W
Florida, Georgia, North Carolina, South Carolina	120	(5/)	W	25	W	150	W
Total	310	(5/)	2	28	9	350	47
South Central:							
Alabama, Kentucky, Mississippi, Tennessee	350	(5/)	W	22	W	390	W
Arkansas, Louisiana, Oklahoma	330	(5/)	W	2	W	340	W
Texas	270	(5/)	W	12	W	290	W
Total	950	1	12	37	11	1,000	78
Mountain and Pacific:							
Arizona, Colorado, Idaho, Montana, Utah	140	(5/)	1	5	--	150	W
California, Oregon, Washington	140	(5/)	1	5	49	200	W
Total	280	1	2	10	49	350	13
Grand total	3,500	34	71	330	110	4,100	400

W Withheld to avoid disclosing company proprietary data; included in "Total."
1/ Data rounded by the U.S. Bureau of Mines to two significant digits; may not add to totals shown.
2/ Excludes rerolling rails.
3/ Excludes stainless steel.
4/ Includes borings.
5/ Less than 1/2 unit.

TABLE 8
U.S. AVERAGE MONTHLY PRICE AND COMPOSITE PRICE FOR NO. 1 HEAVY MELTING STEEL IN 1994, WITH ANNUAL AVERAGES FOR 1993 AND 1994 1/

(Dollars per metric ton)

Month	Chicago	Philadelphia	Pittsburgh	Composite price
January	135.82	125.98	138.28	133.36
February	135.82	127.95	143.20	135.65
March	135.82	130.39	143.20	136.47
April	135.82	125.14	140.40	133.78
May	121.69	109.81	121.08	117.52
June	108.75	99.63	110.72	106.37
July	115.35	105.65	117.42	112.81
August	131.52	111.71	140.34	127.86
September	132.38	111.71	141.23	128.44
October	130.41	111.71	136.31	126.15
November	135.33	114.79	140.05	130.05
December	139.27	117.61	142.92	133.26
Annual average:				
1994	129.83	116.01	134.60	126.81
1993	113.44	109.40	114.46	112.44

1/ Calculated by the U.S. Bureau of Mines from prices published in American Metal Market.

TABLE 9
U.S. EXPORTS OF IRON AND STEEL SCRAP, BY COUNTRY 1/ 2/

(Thousand metric tons and thousand dollars)

Country	1993		1994	
	Quantity	Value	Quantity	Value
Belgium	11	5,870	11	6,810
Canada	1,440	172,000	1,680	209,000
China	514	82,900	447	65,500
Colombia	43	3,960	51	5,400
Germany	14	1,920	5	1,050
Greece	--	--	24	3,260
Hong Kong	171	27,900	51	11,800
India	115	14,800	435	58,400
Indonesia	6	1,130	33	5,000
Italy	16	5,640	66	9,280
Japan	537	94,000	537	84,900
Korea, Republic of	3,500	452,000	2,570	357,000
Malaysia	607	79,500	375	51,500
Mexico	610	75,900	664	82,900
Netherlands	8	3,400	22	9,960
Pakistan	128	17,600	3	1,030
Peru	44	5,490	22	2,590
Philippines	11	2,530	7	2,300
Singapore	3	1,050	3	676
South Africa, Republic of	39	3,830	6	4,360
Spain	35	18,700	71	46,300
Sweden	3	1,460	27	15,600
Taiwan	404	55,800	138	23,600
Thailand	113	16,900	120	17,400
Turkey	1,310	152,000	1,180	150,000
United Kingdom	5	1,210	27	7,430
Venezuela	69	8,550	173	22,600
Other	50 r/	10,300 r/	63	9,450
Total	9,810	1,320,000	8,810	1,270,000

r/ Revised.

1/ Previously published and 1994 data are rounded by the U.S. Bureau of Mines to three significant digits; may not add to totals shown.

2/ Excludes used rails for rerolling and other uses, and ships, boats and other vessels for scrapping. Export valuation is "free alongside ship" (f.a.s.) value. The U.S. exported scrap to 60 countries in 1993 and 65 in 1994.

Source: Bureau of the Census.

TABLE 10
U.S. EXPORTS OF IRON AND STEEL SCRAP, BY CUSTOMS DISTRICT 1/ 2/

(Thousand metric tons and thousand dollars)

Customs District	1993		1994	
	Quantity	Value	Quantity	Value
Boston, MA	743	85,600	540	69,900
Buffalo, NY	90	23,300	132	33,400
Chicago, IL	19	3,190	1	195
Cleveland, OH	(3/)	3	11	1,630
Columbia - Snake	119	18,500	114	19,000
Detroit, MI	264	39,300	285	45,100
Honolulu, HI	91	11,500	109	14,700
Houston-Galveston, TX	126	46,500	68	33,800
Laredo, TX	473	58,700	352	43,400
Los Angeles, CA	1,520	219,000	1,380	202,000
Miami, FL	87	10,600	122	14,900
New Orleans, LA	208	46,300	79	50,600
New York, NY	1,600	194,000	1,600	225,000
Norfolk, VA	254	31,800	165	15,800
Pembina, ND	537	57,100	580	67,300
Philadelphia, PA	707	84,700	427	53,500
Portland, ME	287	32,500	298	38,100
Providence, RI	373	46,400	358	44,500
San Francisco, CA	823	125,000	873	135,000
Seattle, WA	389	55,200	330	50,300
Tampa, FL	337	39,900	151	19,700
Other	757	87,500	840	88,100
Total	9,810	1,320,000	8,810	1,270,000

1/ Previously published and 1994 data are rounded by the U.S. Bureau of Mines to three significant digits; may not add to totals shown.
2/ Excludes used rails for rerolling and other uses, and ships, boats and other vessels for scrapping. Export valuation is "free alongside ship" (f.a.s.) value.
3/ Less than 1/2 unit.

Source: Bureau of the Census.

TABLE 11
U.S. EXPORTS OF IRON AND STEEL SCRAP, BY CLASS 1/ 2/

(Thousand metric tons and thousand dollars)

Class	1993		1994	
	Quantity	Value	Quantity	Value
No. 1 heavy melting scrap	1,910	228,000	1,900	245,000
No. 2 heavy melting scrap	694	78,900	723	88,500
No. 1 bundles	186	24,300	117	15,100
No. 2 bundles	256	26,300	218	23,400
Shredded steel scrap	2,770	341,000	2,330	307,000
Borings, shovelings and turnings	162	14,200	222	21,500
Cut plate and structural	542	71,900	371	50,100
Tinned iron or steel	109	19,900	82	16,900
Remelting scrap ingots	2	612	2	1,300
Stainless steel scrap	238	147,000	299	190,000
Other alloy steel scrap	340	63,300	462	68,500
Other steel scrap 3/	1,020	124,000	878	98,700
Iron scrap	1,580	175,000	1,210	139,000
Total	9,810	1,320,000	8,810	1,270,000
Ships, boats, and other vessels for scrapping	162	13,200	106	9,420
Used rails for rerolling and other uses 4/	43	11,800	35	8,900
Total exports	10,000	1,340,000	8,950	1,280,000

1/ Previously published and 1994 data are rounded by the U.S. Bureau of Mines to three significant digits; may not add to totals shown.
2/ Export valuation is "free alongside ship" (f.a.s.) value.
3/ Includes tinplate and terneplate.
4/ Includes mixed (used plus new) rails. See Table 15 for details.

Source: Bureau of the Census.

TABLE 12
U.S. IMPORTS FOR CONSUMPTION OF IRON AND STEEL SCRAP, BY COUNTRY 1/ 2/

(Thousand metric tons and thousand dollars)

Country	1993		1994	
	Quantity	Value	Quantity	Value
Bahamas, The	(3/)	8	(3/)	18
Belgium	(3/)	31	30	3,960
Brazil	9	559	27	1,760
Canada	1,160	129,000	1,340	164,000
China	3	362	(3/)	22
Colombia	(3/)	94	(3/)	65
Costa Rica	(3/)	10	2	187
Dominican Republic	(3/)	20	(3/)	6
France	(3/)	12	3	333
Germany	2	686	2	675
Israel	(3/)	31	--	--
Jamaica	10	976	5	486
Japan	43	4,970	61	8,290
Korea, Republic of	--	--	(3/)	3
Lithuania	2	217	--	--
Mexico	93	17,900	116	22,500
Netherlands	(3/)	239	2	1,260
Panama	(3/)	4	2	158
Philippines	--	--	(3/)	2
Poland	--	--	13	1,590
Russia	--	--	13	1,470
Singapore	(3/)	2	1	62
Sweden	(3/)	201	--	--
Switzerland	(3/)	32	(3/)	35
Trinidad and Tobago	(3/)	93	(3/)	40
Ukraine	1	581	--	--
United Kingdom	1	229	(3/)	136
Venezuela	66 r/	5,440 r/	81	6,590
Other	(3/)	184	12	1,220
Total	1,390 r/	162,000 r/	1,710	215,000

r/ Revised.

1/ Previously published and 1994 data are rounded by the U.S. Bureau of Mines to three significant digits; may not add to totals shown.

2/ Excludes used rails for rerolling and other uses and ships, boats and other vessels for scrapping. Import valuation is customs value. The U.S. imported scrap from 34 countries in 1993 and 40 in 1994.

3/ Less than 1/2 unit.

Source: Bureau of the Census.

TABLE 13
U.S. IMPORTS FOR CONSUMPTION OF IRON AND STEEL SCRAP, BY CUSTOMS DISTRICT 1/ 2/

(Thousand metric tons and thousand dollars)

Customs District	1993		1994	
	Quantity	Value	Quantity	Value
Baltimore, MD	49	1,590	29	1,880
Buffalo, NY	215	27,300	294	42,500
Charleston, SC	(3/)	(3/)	2	316
Chicago, IL	16	1,380	23	2,210
Cleveland, OH	61	5,460	56	5,910
Detroit, MI	533	60,700	679	80,000
El Paso, TX	21	3,090	17	2,490
Laredo, TX	57	11,700	82	17,000
New Orleans, LA	19 r/	2,280 r/	109	11,800
New York, NY	1	187	2	958
Ogdensburg, NY	22	5,310	25	4,530
Pembina, ND	6	1,150	4	1,360
San Diego, CA	17	3,160	19	3,130
Seattle, WA	343	32,900	338	34,100
Other	28	5,580	30	6,310
Total	1,390 r/	162,000 r/	1,710	215,000

r/ Revised.

1/ Previously published and 1994 data are rounded by the U.S. Bureau of Mines to three significant digits; may not add to totals shown.

2/ Excludes used rails for rerolling and other uses, and ships, boats and other vessels for scrapping. Import valuation is customs value.

3/ Revised to zero.

Source: Bureau of the Census.

TABLE 14
U.S. IMPORTS FOR CONSUMPTION OF IRON AND STEEL SCRAP, BY CLASS 1/ 2/

(Thousand metric tons and thousand dollars)

Class	1993		1994	
	Quantity	Value	Quantity	Value
No. 1 heavy melting scrap	40	4,440	52	6,110
No. 2 heavy melting scrap	3	252	22	2,600
No. 1 bundles	126	12,800	148	16,300
No. 2 bundles	13	1,300	19	2,020
Shredded steel scrap	80	10,400	84	10,800
Borings, shovelings and turnings	71	6,210	117	10,100
Cut plate and structural	43	4,030	107	7,880
Tinned iron or steel	13	1,420	9	1,410
Remelting scrap ingots	37 r/	6,010 r/	36	6,960
Stainless steel scrap	49	20,200	43	20,200
Other alloy steel scrap	200	23,500	182	24,900
Other steel scrap 3/	632	61,100	748	85,600
Iron scrap	84	10,100	145	19,600
Total	1,390 r/	162,000 r/	1,710	215,000
Ships, boats, and other vessels for scrapping	(4/) r/	82	(4/)	210
Used rails for rerolling and other uses	70	13,600	183	31,500
Total imports	1,460 r/	175,000 r/	1,890	246,000

r/ Revised.
1/ Previously published and 1994 data are rounded by the U.S. Bureau of Mines to three significant digits; may not add to totals shown.
2/ Import valuation is customs value.
3/ Includes tinplate and terneplate.
4/ Less than 1/2 unit.

Source: Bureau of the Census.

TABLE 15
U.S. EXPORTS OF USED RAILS FOR REROLLING AND OTHER USES, BY COUNTRY 1/ 2/

Country	1993		1994	
	Quantity (metric tons)	Value (thousand dollars)	Quantity (metric tons)	Value (thousand dollars)
Brazil	72	60	155	147
Canada	10,400	4,230	891	395
Chile	473	195	134	97
Germany	23	20	11	10
Guatemala	3	3	483	97
Mexico	29,900	6,600	31,500	7,240
Panama	--	--	3	9
Taiwan	1,090	184	45	13
Other	627	470	1,350	887
Total	42,500	11,800	34,600	8,900

1/ Previously published and 1994 data are rounded by the U.S. Bureau of Mines to three significant digits; may not add to totals shown.
2/ Exports contain mixed (used plus new) rails totaling 7,140 metric tons valued at $4,240,000 in 1993 and 1,380 metric tons valued at $1,180,000 in 1994. Export valuation is "free alongside ship" (f.a.s.) value.

Source: Bureau of the Census.

TABLE 16
U.S. IMPORTS FOR CONSUMPTION OF USED RAILS FOR REROLLING AND OTHER USES, BY COUNTRY 1/ 2/

Country	1993		1994	
	Quantity (metric tons)	Value (thousand dollars)	Quantity (metric tons)	Value (thousand dollars)
Canada	70,000	13,500	58,600	11,500
France	--	--	18	11
Germany	(3/)	2	7,130	3,930
Japan	--	--	315	290
Korea, Republic of	82	42	--	--
Mexico	--	--	6	11
Nicaragua	--	--	4,400	438
Poland	--	--	40,100	5,750
Russia	--	--	72,900	9,520
United Kingdom	--	--	42	72
Total	70,100	13,600	183,000	31,500

1/ Previously published and 1994 data are rounded by the U.S. Bureau of Mines to three significant digits; may not add to totals shown.
2/ Import valuation is customs value.
3/ Less than 1/2 unit.

Source: Bureau of the Census.

TABLE 17
U.S. EXPORTS OF DIRECT-REDUCED IRON (DRI), BY COUNTRY 1/ 2/

Country	1993		1994	
	Quantity (metric tons)	Value (thousand dollars)	Quantity (metric tons)	Value (thousand dollars)
Argentina	503	111	1,820	193
Aruba	484	51	--	--
Brazil	4,970	527	3,400	359
Canada	974	103	480	51
Germany	37	4	667	71
Ghana	83	9	--	--
Hong Kong	--	--	161	17
Japan	88	9	409	43
Korea, Republic of	726	97	25	3
Mexico	4,970	526	6,700	710
Taiwan	623	67	975	101
Venezuela	2,900	307	224	24
Other countries	441	49	2,590	275
Total	16,800	1,860	17,500	1,850

1/ Previously published and 1994 data are rounded by the U.S. Bureau of Mines to three significant digits; may not add to totals shown.
2/ Data are for steelmaking grade DRI only.

Source: Bureau of the Census.

TABLE 18
U.S. IMPORTS FOR CONSUMPTION OF DIRECT-REDUCED IRON (DRI), BY COUNTRY 1/ 2/

Country	1993		1994	
	Quantity (metric tons)	Value (thousand dollars)	Quantity (metric tons)	Value (thousand dollars)
Canada	18	2	122	19
France	1,300	137	--	--
Japan	10,500	942	--	--
Russia	70,100 r/	6,580 r/	26,600	2,860
Sweden	993	105	--	--
Venezuela	1,010,000 r/	96,400 r/	1,140,000	135,000
Total	1,090,000 r/	104,000 r/	1,170,000	138,000

r/ Revised.
1/ Previously published and 1994 data are rounded by the U.S. Bureau of Mines to three significant digits; may not add to totals shown.
2/ Data are for steelmaking grade DRI only.

Source: Bureau of the Census.

TABLE 19
U.S. EXPORTS OF PIG IRON, BY COUNTRY 1/ 2/

Country	1993		1994	
	Quantity (metric tons)	Value (thousand dollars)	Quantity (metric tons)	Value (thousand dollars)
Australia	185	16	--	--
Bermuda	--	--	210	18
Canada	1,240	245	4,970	1,010
China	162	14	--	--
Costa Rica	275	24	--	--
Germany	--	--	569	50
Ghana	102	25	--	--
Hong Kong	--	--	455	40
Japan	138	12	5,200	458
Korea, Republic of	--	--	57	5
Mexico	23,900	2,550	43,900	5,060
Netherlands	57	22	222	19
Singapore	854	75	36	3
Taiwan	164	32	--	--
United Kingdom	--	--	78	7
Venezuela	--	--	515	42
Other	35	17	146	58
Total	27,100	3,040	56,400	6,780

1/ Previously published and 1994 data are rounded by the U.S. Bureau of Mines to three significant digits; may not add to totals shown.
2/ Includes the following grades of pig iron: less than or equal to 0.5 percent phosphorus content; greater than 0.5 percent phosphorus content; and alloy grade. Export valuation is "free alongside ship" (f.a.s.) value.

Source: Bureau of the Census.

TABLE 20
U.S. IMPORTS FOR CONSUMPTION OF PIG IRON, BY COUNTRY 1/ 2/

Country	1993		1994	
	Quantity (metric tons)	Value (thousand dollars)	Quantity (metric tons)	Value (thousand dollars)
Brazil	393,000	55,200	1,230,000	175,000
Canada	61,900	13,800	64,100	16,400
Estonia	--	--	32,500	3,630
Japan	26,300	5,330	47,800	6,390
Latvia	67,100	7,650	49,000	5,840
Lithuania	10,000	790	8,060	1,060
Mexico	89	15	--	--
Russia	155,000	16,000	678,000	84,100
South Africa, Republic of	69,600	11,400	66,600	11,800
Switzerland	11,000	886	--	--
Ukraine	34,300	5,650	324,000	40,000
Total	828,000	117,000	2,500,000	344,000

1/ Previously published and 1994 data are rounded by the U.S. Bureau of Mines to three significant digits; may not add to totals shown.
2/ Includes the following grades of pig iron: less than or equal to 0.5 percent phosphorus content; greater than 0.5 percent phosphorus content; and alloy grade. Import valuation is customs value.

Source: Bureau of the Census.