

## SALIENT U. S. COPPER STATISTICS FOR 1957

Compared With Years 1955 and 1956

Preliminary Report of Copper Industry in 1957, By U. S. Bureau of Mines

The Arizona Department of Mineral Resources has compiled five tables and a chart giving salient statistics of copper production, imports, exports and consumption for the year 1957 and comparable figures for the years 1955 and 1956.

The data given in Table V are graphically illustrated in the accompanying Chart No. 1, which shows that during the six years from 1952 to 1957, the United States received unneeded imports of copper amounting to 669,000 tons, or an average of 111,500 tons per year. In other words, the available supplies of copper, which consisted of U. S. mine production, plus secondary copper from primary refineries, plus the excess of imports over exports, plus the changes in stocks, were 669,000 tons over the consumptive demand. Inasmuch as in some of these years, especially in 1955 and 1956, there was a shortage of supply in the copper market, it may be asked what became of this so-called unneeded copper. The answer seems to be that it must have gone into the government stockpile. If so then it gives further evidence that putting domestically mined copper into a stockpile creates a market for imported copper.

### COPPER INDUSTRY IN 1957

(Preliminary Report)

From U.S.B.M. Mineral Market Report No. 2727

"The available supply of copper in the United States exceeded demand throughout 1957, according to the Bureau of Mines, United States Department of the Interior. Despite production cutbacks at a number of major properties, mine closures and periodic shut downs, recoverable mine output was maintained at a high level by expanding operations, whereas copper consumption dropped along with the general decline in industrial activity.

Mine production of recoverable copper in 1957 decreased 3 percent from the alltime high of 1956 and was exceeded only in the wartime years of 1942 and 1943. Smelter and refinery production from domestic primary materials dropped 3 percent each but refinery output from primary foreign materials rose 11 percent.

Consumption of refined copper for 1957 was 11 percent below the 1956 consumption. The decrease in demand was attributed to the decline in consumers activities particularly in the production of automobiles and appliances, and industrial and home construction.

Imports of copper in unmanufactured form in 1957 totaled 587,863 tons, slightly less than in 1956. Chile supplied 40 percent of the total as compared with 38 percent in 1955 and 1956. Receipts from Chile in unrefined form increased 31,000 tons but shipments of refined copper accounted for only 4 percent of the total imports from Chile, reflecting the reported higher level of European demand.

Exports of refined copper for the year 1957 increased 123,300 tons, 55 percent above 1956.

Producers' stocks of refined copper and of blister copper and materials in process of refining increased 26 and 4 percent, respectively, in 1957.

The price of domestically-produced electrolytic copper was lowered by a series of reductions from the year-opening quotation of 36 cents a pound to 27 cents by early September. United States custom smelters quotations were 1 to 2 cents under those of the principal producers and foreign market prices were as much as 5 cents lower.

The Rhodesian Selection Trust Group, which was operating on a fixed-price policy since May 9, 1955, announced that effective October 7 it would price copper on the basis of London Metal Exchange quotations. The changeover to the LME basis ended the dual pricing for Rhodesian copper in effect for more than 2 years.

A number of domestic producers curtailed output in an effort to balance supply and demand. Most of the cutbacks were effected by reducing the number of working days in specified periods. Announcements of curtailed production were made by Phelps Dodge Corp., The Anaconda Company, Inspiration Consolidated Copper Co., Miami Copper Co., Calumet & Hecla, Inc., Pima Mining Co., and Kennecott Copper Corp.

Because of the depressed price of copper, operations were stopped at several underground mines during the year. The Anaconda Company's Belmont and Mountain Consolidated mines in Montana were reported to be suspending operations in March, and Howe Sound Company's Holden mine at Chelan, Washington, was closed in June. In September Calumet & Hecla, Inc. ceased production at the Osceola mine in Michigan and Banner Mining Company's Miser's Chest mine in New Mexico was closed in October. Production at the White Pine mine in Michigan was interrupted by a 5-week strike in September and October and shutdowns for inspection and equipment repairs of almost two weeks duration interrupted production at the Chino, Ray and Bingham properties of Kennecott Copper Corp.

Shortly after the price of copper fell to 27 cents per pound in September the San Manuel Mining Corp. exercised the option to deliver its production to the Government under the DMPA floor price contract negotiated in 1952. The White Pine Mining Co. was authorized in December to make deliveries under a similar Government contract.

The 2-cents-per-pound excise tax on copper continued under suspension in 1957, subject to the concessions granted at the June 1956 meetings in Geneva on General Agreements Tariffs and Trade (GATT). A bill to continue suspension of duties on metal scrap was signed by the President on April 25, 1957.

Outside of the United States plans to reduce production were announced by Roan Antelope Copper Mines, Ltd. and Mufulira Copper Mines, Ltd. in Northern Rhodesia and by Cerro de Pasco Corp. operating properties in Peru. Howe Sound Co. cut copper production at the Britannia mine in British Columbia, Canada from 750 to 450 tons per month and a seven-months strike at the Gaspé Copper Mines, Ltd., Quebec Province, Canada, accounted for a sizeable loss of copper output.

Plans for expansion of mine capacity was reported for Rhodesian Selection Trust's Mufulira West property which is to be developed over the next 5 years to increase output by 55,000 tons per year. Cananea Consolidated Copper Co. petitioned the Mexican Government for a fiscal agreement in connection with a 10 year-\$20 million expansion program. A program for financing is underway to develop Chile's Mantos Blancos mine and erect a mill and smelter to process 2,000 tons of ore per day and produce 12,500 tons of refined copper per year."

## ARIZONA'S PART IN U.S. COPPER INDUSTRY IN 1957

From U.S.B.M.'s Area Report D-67

"Arizona continued as the leading copper-producing State in the United States in 1957, a position it has held since 1910. The Morenci, Copper Queen, and New Cornelia Branch operations of the Phelps Dodge Corp. were again the three largest copper producers in the State, followed by the San Manuel Copper Corp. (San Manuel) and the Kennecott Copper Corp. (Ray Pit) operations.

During the year several new developments had significant effects on Arizona's copper industry. Pima Mining Co. placed its mill at the Pima mine in operation in January after completing tests in December 1956. This was the culmination of an extensive exploration, development, and construction program that has lasted several years and placed in production a mine that will undoubtedly be a major source of copper. The Inspiration Consolidated Copper Co. completed its project of rehabilitation and conversion of its milling process from ferric-sulfate leaching of the ore to sulfuric-acid leaching of the oxide fraction and flotation of the sulfide fraction of the ore (dual-metallurgical process). The new 15,000-ton-per-day flotation concentrator went into operation January 7. Cyprus Mines began milling copper-zinc ore from its Old Dick mine on May 10. A subsidiary company, Coronado Copper & Zinc Co., closed its Johnson Camp Unit copper-zinc operation in August.

To equalize copper supply and demand, most of the major producers in the State cut production during the year. In May Phelps Dodge Corp. placed in effect a schedule of 23 operating days instead of 24 in each 4-week period at most of its operations. Then in November, it announced an additional 5-percent cutback. Morenci and New Cornelia Branches were operated for 11 days followed by a 3-day shutdown in each 2-week period. At the Copper Queen Branch, the working schedule was cut from a 6-day week to an alternate 6- and 5-day week. In July, the Miami Copper Co. cut the workweek at its Copper Cities and Miami mines from 6 to 5 days. A similar cut was made by Pima Mining Co. at Pima in October. Lowering the number of working days per man per week cut labor costs because it reduced the number of over-time hours at premium pay."

SALIENT U. S. COPPER STATISTICS

Years 1955, 1956 and 1957

Unit: Short Tons

Compiled By Arizona Department of Mineral Resources From U.S.B.M. Reports

TABLE I

	1955	1956	Preliminary 1957
Arizona Mine Production . . . . .	454,105	505,908	512,600
U. S. Mine Production . . . . .	998,570	1,106,215	1,076,922
World Mine Production . . . . .	3,400,000	3,750,000	N.A.
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Refined Stocks-beginning of period . . . . .	25,000	34,000	78,000
Refined Stocks-end of period . . . . .	34,000	78,000	109,100
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Refinery Production (From Domestic Ores) . . . . .	997,499	1,080,207	1,050,496
Refinery Production (From Foreign Ores) . . . . .	344,960	362,426	403,680
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Secondary Copper(From Primary Plants) . . . . .	206,555	233,817	211,596
Secondary Copper(From Secondary Plants) . . . . .	34,060	27,382	25,607
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<u>IMPORTS</u>			
Copper from Ores, Matte & Regulus . . . . .	125,698	122,174	124,776
Blister Copper . . . . .	254,140	276,085	301,180
Refined Copper . . . . .	200,683	191,745	161,907
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Total Imports - Crude & Refined . . . . .	580,521	590,004	587,863
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<u>EXPORTS</u>			
Copper in Ores, etc. . . . .	7,398	13,717	15,656
Refined Copper . . . . .	199,707	222,536	345,834
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Total Exports - Crude & Refined . . . . .	207,105	236,253	361,490
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EXCESS IMPORTS OVER EXPORTS . . . . .	373,416	353,751	226,373
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<u>CONSUMPTION</u>			
New Refined (Apparent Consumption) . . . . .	1,336,000	1,367,000	1,239,000
Total Refined (Actual) . . . . .	1,502,004	1,521,389	1,350,011
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U. S. Mine Production % of Appar. Cons. . . . .	74.7	80.9	86.9
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AVERAGE E. & M. J. Price of Copper . . . . .	37.491¢	41.818¢	29.576¢

NEW (PRIMARY) REFINED COPPER WITHDRAWN FROM SUPPLY ON DOMESTIC ACCOUNT

1955, 1956 & 1957, In Short Tons

Source: U.S.B.M.

TABLE II

	1955	1956	Preliminary 1957
Refinery Prod.of New Copper From Domestic Ores . .	997,499	1,080,207	1,050,496
Refinery Prod.of New Copper From Foreign Ores . .	344,960	362,426	403,680
	1,342,459	1,442,633	1,454,176
Imports of Refined Copper . . . . .	202,312	191,745	161,907
Stocks at Beginning of Period . . . . .	25,000	34,000	78,000
<b>Total Available Supply . . . . .</b>	<b>1,569,771</b>	<b>1,668,378</b>	<b>1,694,083</b>
% Change in Supplies (Minus Stocks) . . . . .	+6.30%	+6.33%	-1.1%
Exports of Refined Copper . . . . .	199,707	222,536	345,834
Stocks at End of Period . . . . .	34,000	78,000	109,000
	233,707	300,536	454,834
<b>Total Withdrawn on Domestic Account . . . . .</b>	<b>1,336,000</b>	<b>1,367,000</b>	<b>1,239,000</b>
% Change in Apparent Consumption . . . . .	+8.1%	+2.4%	-9.4%
Reported Actual Consumption . . . . .	1,502,000	1,521,000	1,350,000
% Change in Actual Consumption . . . . .	+19.7%	+1.3%	-11.2%

TABLE III

SUMMARY OF COPPER STATISTICS REPORTED BY COPPER INSTITUTE

Years 1952 to 1957 Inclusive & 5 Mos. 1958

	<u>IN U.S.A.</u>			<u>OUTSIDE U.S.A.</u>		
	Refined Production	Deliveries to Fabricators	Refined Stocks End of Period	Refined Production	Deliveries to Fabricators	Refined Stocks End of Period
1952	1,189,112	1,445,834	58,858	1,196,426	1,005,259	130,103
1953	1,395,003	1,443,719	89,193	1,120,066	831,441	280,530
1954	1,311,031	1,208,755	47,108	1,155,516	1,247,120	181,529
1955	1,467,448	1,446,354	61,554	1,260,861	1,298,037	159,777
1956	1,580,387	1,465,999	120,645	1,406,773	1,366,979	233,775
1957	1,616,964	1,277,946	181,024	1,418,624	1,575,361	277,316
5 Mos. 1958	631,567	444,810	253,463	589,220	692,887	244,778

Arizona Department of Mineral Resources

June, 1958

REFINED COPPER CONSUMED IN U. S. 1954-1957

By Classes of Consumers

Source: U.S.B.M.

Unit: Short Tons

TABLE IV

Class of Consumer	Cathodes	Wire bars	Ingots and ingot bars	Cakes and slabs	Billets	Other	Total
<u>1954:</u>							
Wire mills-----	8,803	649,567	10,231	-----	-----	-----	668,601
Brass mills ----	83,136	54,237	82,750	170,144	155,359	19	545,645
Chemical plants- Secondary	-----	-----	11	-----	-----	2,318	2,329
smelters -----	5,037	-----	2,064	131	-----	202	7,434
Foundries and miscellaneous--	1,972	308	16,683	257	536	10,964	30,720
Total -----	98,948	704,112	111,739	170,532	155,895	13,503	1,254,729
<u>1955:</u>							
Wire mills ----	9,050	791,816	11,797	-----	-----	-----	812,663
Brass mills ----	100,819	63,394	133,710	200,012	149,064	45	647,044
Chemical plants- Secondary	-----	-----	564	-----	-----	1,180	1,744
smelters -----	4,768	-----	1,213	469	-----	377	6,827
Foundries -----	4,063	58	13,004	3	211	139	17,478
Miscellaneous- <u>1/</u>	1,403	131	4,079	318	377	9,940	16,248
Total	120,103	855,399	164,367	200,802	149,652	11,681	1,502,004
<u>1956:</u>							
Wire mills ----	9,694	838,476	16,415	-----	-----	-----	864,585
Brass mills ----	91,887	72,716	102,451	177,583	166,426	35	611,098
Chemical plants- Secondary	-----	-----	559	-----	-----	1,199	1,758
smelters -----	5,602	-----	1,411	207	-----	434	7,654
Foundries -----	5,180	76	13,341	3	237	143	18,980
Miscellaneous <u>1/</u>	1,824	85	5,532	402	538	8,933	17,314
Total	114,187	911,353	139,709	178,195	167,201	10,744	1,521,389
<u>1957:</u>							
Wire mills <u>1/</u> --	5,641	753,108	15,540	-----	-----	791	775,080
Brass mills <u>2/</u> --	87,451	57,417	75,638	158,343	157,102	-----	535,951
Chemical plants- Secondary	(3)	(3)	(3)	(3)	(3)	(3)	(4)
smelters -----	659	-----	1,685	15	-----	621	2,980
Foundries & Miscellaneous	(3)	(3)	(3)	(3)	(3)	(3)	(4)
Total -----	93,751	810,525	92,863	158,358	157,102	1,412	<u>4/</u> 1,350,011

1/ Includes all wire mills with rod-rolling facilities.

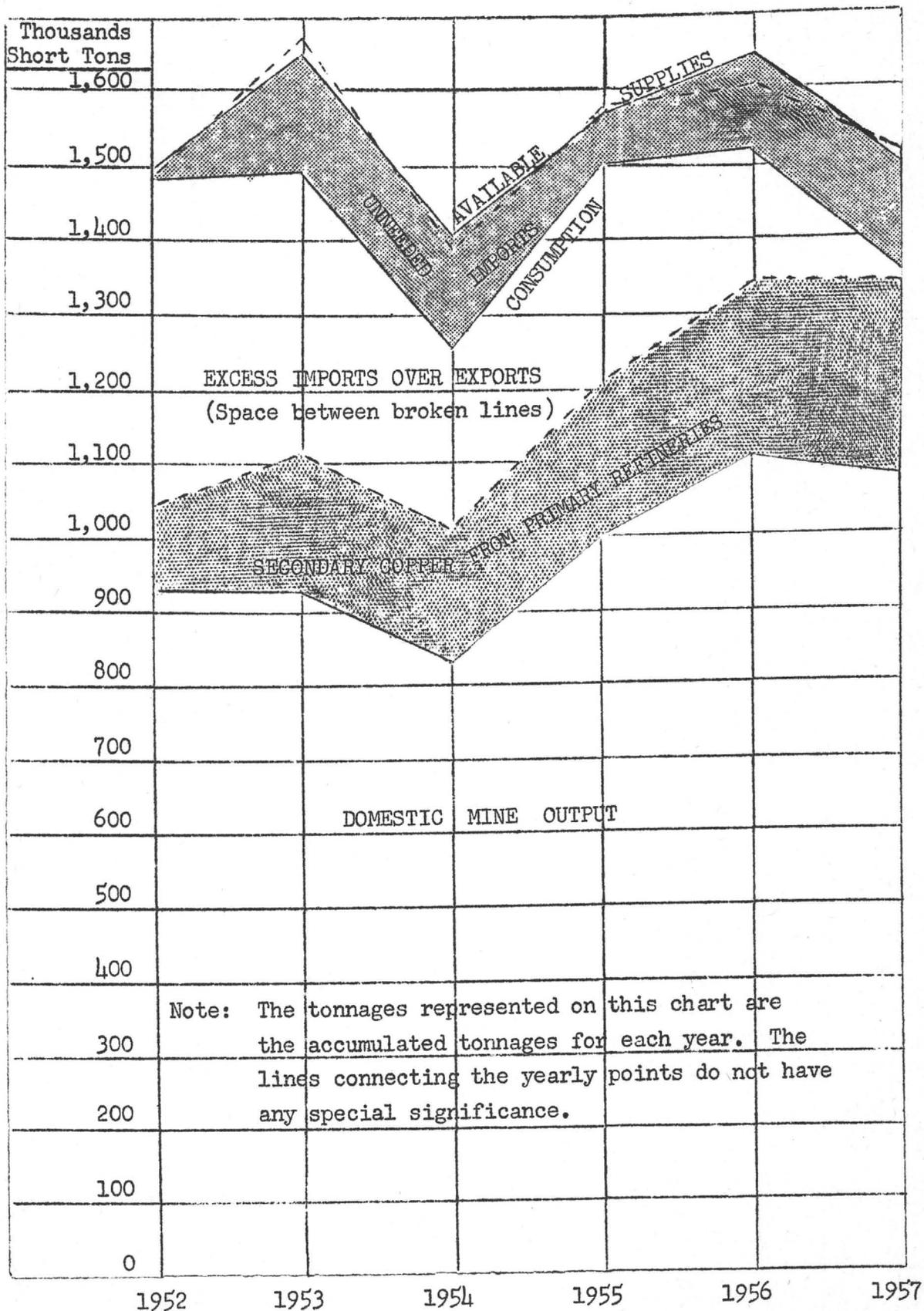
2/ Includes all brass mills using copper in refinery shapes; some have rod-rolling facilities.

3/ Not available.

4/ Consumption by chemical plants, foundries, and miscellaneous plants not included. Estimate of 36,000 tons included in total for 1957, and 3,000 tons for January 1958.

CHART NO. I

GRAPH SHOWING DOMESTIC COPPER SUPPLIES AND UNNEEDED IMPORTS



COPPER (Revised Table & Chart)

THE DOMESTIC SITUATION 1952 - 1957

Compiled by Arizona Department of Mineral Resources from U.S.B.M. Reports

TABLE V

	1952	1953	1954	1955	1956	1957
U. S. Mine Production	925,000	926,000	835,000	999,000	1,106,000	1,077,000
Secondary Copper from Prim. Ref.	122,000	190,000	180,000	207,000	234,000	214,000
Excess Imports Over Exports	440,000	559,000	367,000	373,000	354,000	226,000
Refined Stocks Inc. or decrease	9,000 **	23,000 *	24,000 **	9,000 *	44,000 *	20,000 *
Available Supply	1,496,000	1,652,000	1,406,000	1,570,000	1,650,000	1,497,000
Consumption	1,480,000	1,494,000	1,255,000	1,502,000	1,521,000	1,350,000
Unneeded Imports	16,000	158,000	151,000	68,000	129,000	147,000
Net Unneeded Imports For the Six Years= 669,000 Tons = 111,500 Tons per Year						

\* Denotes increase in Stocks.

\*\* Denotes decrease in Stocks.