

A STUDY OF THE COPPER INDUSTRY IN 1955
AND FIRST EIGHT MONTHS IN 1956
U. S. PRODUCTION, CONSUMPTION, IMPORTS, EXPORTS, STOCKS, AND PRICES

Source: U. S. Bureau of Mines
: Paper by Simon D. Strauss, to
American Mining Congress, Oct., 1956

The Arizona Department of Mineral Resources has compiled a table of copper production, consumption, imports, exports, stocks and prices in the United States, by months for the year 1955 and the first eight months of 1956.

The purpose was to try to show the cause or causes of the abnormally high price of copper during the last twelve months, (4 months in 1955 and 8 months in 1956), when the E. & M. J. average was 43 3/4 cents per pound.

Supplies of refined copper in the United States in 1955 were about 9 percent larger than in 1954, while the consumptive demand was over 20 percent larger. Although domestic mine production had increased 19 percent, it did not reach the high level promised by expanded operating rates at established as well as new mines; this failure resulted chiefly from serious work stoppages at several important mines in the third quarter of the year. Consumptive demand for refined copper rose more than production on a tonnage basis. Prices of domestic copper moved upward sharply during the year 1955, but, because foreign prices rose even more sharply, did not attract increased quantities of metal from abroad to the United States market. There were many unsatisfied buyers; more copper would have been sold and shipped had it been available. The inexorable law of supply and demand naturally had its effect on copper prices. The poor showing for refined copper consumption in July to September last year was caused by brass mill vacations in July, by disastrous floods due to August hurricanes, and by reduced supplies caused by the production strikes already mentioned.

Short supplies continued into the year 1956, and in February the large producers established a price of 46¢ a pound, while outside sellers at times realized better than 50¢. In the second quarter of this year, with mine production showing sub-

stantial gains, demand began to falter, and the old law of supply and demand again began to work, this time in reverse. While production was increasing, consumptive demand was decreasing. When new three-year labor contracts with the Mine-Mill Union were agreed on in June, buyers concluded that there would be no major strikes in the United States this year, and the large producers reduced their price - to 40¢ a pound.

For the first six months of 1956, supplies increased about 14% over 1955, while consumptive demand increased only 12%. Although production in July and August has decreased, due to annual vacations at major copper producers and fabricators, there was a continued reduction in consumptive demand, but not so much that the new 39-40 cent price could not be maintained steadily for the past three months (July-Sept. incl)

Anticipating a post-war demand for copper to rebuild and re-equip industry after the ravages of World War II, and to fill the vacuum of post-war scarcities in transportation, housing, and consumers' durable goods, the large producers in Arizona, Michigan, Montana and Nevada made plans to take care of this demand by developing new properties and expanding old ones. Developing large new mines takes from four to twelve years (the San Manuel took twelve), and the extraordinary demand (further accentuated by the Korean War) caught some of the mines with their plants not fully developed. Hence, producers were unable to meet demand, and buyers, anxious to get the metal, bid prices up beyond reason. A side-light on this copper price rise is the consequent rise in the cost of production. For example, a copper miner's wage in 1947-49 was \$1.43 per hour. This has jumped to \$2.43 per hour in September of this year. And of course supplies, which are in turn affected by the increased cost of labor, have also advanced tremendously. As such wages, once established, can hardly be expected to drop with the price of copper, there seems to be little likelihood of producers being able to offer copper at the old prices of 20 to 25 cents. With the tenor (copper content) of the ore tending to drop, it will probably cost most of the larger producers from 25 to 30 cents per pound to produce.

Assuming a net profit of 3 to 5 cents per pound as a reasonable profit over a long period, this means copper should sell for 30 to 35 cents per pound. The fact that it has been selling for 40 cents a pound while supply and demand are more or less in balance, is proof that copper is a most desirable metal in industry. Some buyers may be threatening substitution, but other new uses are being developed, and the rising population of the world and the desire of that population for higher living standards create the potential for much greater use of copper.

The 1956 increased valuations of mining properties in Arizona by the State Tax Commission reflect the big advance in the price of copper. If the net income of the mines for the year 1955 had been used to determine the value, there might have been justification for the big increase in valuation. However, unlike the other western states which use the average net proceeds over a period of three to five years, the Arizona method is to calculate the present net worth of the mine based on an estimated average profit per pound of copper over a period of the life of the mine. As explained above, profit does not increase with the price, because costs go up along with the price, and the resultant profit over the long run does not increase materially.

In view of the great uncertainty of future copper prices, as well as the liability of error in estimating ore reserves and extraction, it would seem more practical to base assessed valuation of mining claims on the actual net proceeds of the mine, averaged over a period of the five preceding years, to allow for alternate boom and bust conditions. After all, the low-grade ore in most of the big mines today is really worthless until it is mined, and it doesn't seem fair to assign it a value by basing it upon a combination of several uncertain factors. It is much more practical to assess the mining plant and equipment, and base the mine valuation on the actual net proceeds.

TABLE I

Source: U. S. Bureau of Mines

	U.S. Mine Prod.	Re- finery Prod.	Second- ary Ref. Prod.	Imports of Re- fined	Exports of Re- fined	Refined Stocks End of Period	Consump- tion of Refined Copper	E. & M. J. Price of Copper
1955: Jan.	83,300	117,153	17,327	11,153	15,883	26,100	122,373	29.783
Feb.	83,492	111,015	16,616	12,104	24,890	23,100	117,297	32.700
Mar.	93,728	120,611	20,469	11,120	17,787	25,900	133,586	32.935
Apr.	89,108	111,348	20,555	15,935	19,202	24,600	129,485	35.700
May	90,789	121,124	20,525	10,150	20,658	25,800	131,270	35.700
June	89,507	117,639	21,524	14,449	15,702	22,300	137,913	35.700
July	33,353	42,566	13,494	12,283	9,544	22,500	69,893	35.700
Aug.	67,257	78,905	16,173	27,345	10,521	28,200	93,553	38.150
Sept.	90,268	129,791	23,274	23,770	18,615	34,200	133,572	44.052
Oct.	92,192	127,537	24,428	20,784	15,719	31,900	144,093	43.030
Nov.	91,053	123,095	23,604	20,876	16,434	29,800	145,647	42.964
Dec.	88,575	135,675	22,626	20,682	14,728	34,000	151,347	43.480
1956: Jan.	94,519	117,631	15,718	13,508	13,301	31,000	146,009	43.749
Feb.	89,182	121,916	22,983	18,183	13,319	27,900	138,997	44.588
Mar.	97,943	125,032	27,269	19,443	16,076	36,500	146,717	46.728
Apr.	95,610	123,344	25,867	16,687	12,115	34,400	145,127	46.161
May	99,664	133,135	25,945	15,994	23,922	34,100	144,123	45.531
June	94,934	125,760	27,044	14,683	15,147	36,300	126,323	45.056
July	80,615	107,565	20,120	16,782	9,251	58,700	80,177	40.807
P. Aug.	92,167	93,305	20,549	N.A.	N.A.	63,400	122,966	39.625

TABLE II (Supply and Demand)

	1954	1955	1956 1st 6 Months	1956 1st 8 Months
Stocks at Beginning of Period	49,000	25,000	34,000	34,000
U.S. Ref. Prod. (Domestic & Foreign)	1,211,919	1,342,459	746,818	826,527
Secondary Recovered as Refined	205,979	240,615	144,826	185,495
Imports of Refined	215,146	201,584	98,498	132,500
Total	1,682,044	1,809,658	1,024,142	1,178,522
Exports of Refined	215,951	199,819	93,880	114,000
Stocks at End of Period	25,000	34,000	36,300	63,400
Sub-Total	240,951	233,819	130,180	177,400
Total Supplies	1,441,093	1,575,839	893,962	1,001,122
% Increase in Supplies over Preceding Yr.		9.3%	13.5%	4.7% De
Actual Consumption - Refined	1,251,729	1,510,029	847,296	1,050,439
% Increase in Consumptive Demand over Preceding Yr.	20.6%		12.2%	4.3%