A FAIR PRICE FOR COPPER

Recently a top official of a large copper company expressed the opinion that, based upon the correlation of the steel and copper industries, a fair price for copper should be 39.00 cents per pound. As no figures were given to show how this copper price was arrived at, a study of copper and steel statistics was made by the Arizona Department of Mineral Resources.

Domestic consumption figures for pig iron and finished steel products, by years, from 1941 to 1957 inclusive, were compared with domestic refined copper consumption figures for the same years. No well defined correlation between the two industries was noted, as, in many cases, when iron and steel consumption would rise over the preceding year, copper consumption would decrease.

However, if it is assumed that relative costs of producing steel and copper should be more or less related because the producers are affected by the same factors of labor and supply costs, then it may be logical to say that when the price of iron or steel rises a certain percentage from one year to the next, the price of copper should rise the same amount. Based on this premise, and comparing prices of finished steel in 1948 and in 1957, ($.03434 and $.05800 respectively) then the price of copper, which was $.22038 in 1948, should have been $.3722 in 1957. But the inexorable law of supply and demand actually kept the price of copper to an average of 29.6 cents in the year 1957. The Government campaign for increased production capacity from 1952 to 1956, together with enormous imports of low cost foreign copper were the factors that kept copper down, while steel had no such handicaps.

Actually, from 1941 to 1953, there was government price control in both industries, and price comparisons are hardly worth while. For example, as soon as the controlled price of 24.2 cents per pound of copper in 1951 and 1952, was removed, in 1953, copper immediately jumped to 30 cents and staid there for two years. Steel did not jump so much, and it was probably because the controlled price was nearer its proper price than copper was.

Comparing the prices of finished steel in 1953 and 1957, ($.04518 and $.05800 respectively) the copper price of 28.8 cents in 1953 should have increased to 37.0 cents in 1957, instead of 29.6 cents which was the actual average for 1957.

It may be of interest to note that in this Department's June, 1957 Report on "Wage Statistics and Copper Output in Arizona Copper Mines", a 35.5 cent price for copper was considered a fair price for the metal.

Arizona Department of Mineral Resources October, 1958

COMPARISON OF FINISHED STEEL PRODUCTS DOMESTIC CONSUMPTION AND COMPOSITE PRICES WITH REFINED COPPER APPARENT CONSUMPTION AND PRICES
TEN-YEAR PERIOD 1948-1957

Year	Shipments of Steel Products For Domestic Consumption 1/	Composite Price of Finished Steel 2/	Apparent Refined Copper Consumption 3/	E.& M.J. Price of Copper	Copper Consumption Percent of Steel Consumption
1948	62,728,250	$ .03434	1,214,000	$ .22038	1.936
1949	54,586,039	.03713	1,072,000	.19202	1.964
1950	69,665,819	.03862	1,447,000	.21235	2.077
1951	76,164,539	.04131	1,304,000	.24200	1.712
1952	64,732,412	.04237	1,360,000	.24200	2.101
1953	77,472,162	.04518	1,435,000	.28798	1.852
1954	60,618,843	.04716	1,235,000	.29694	2.037
1955	81,134,367	.04977	1,335,000	.37491	1.646
1956	79,628,741	.05358	1,367,000	.41818	1.717
1957	79,894,577	.05800	1,239,000	.29576	1.551

$$\begin{matrix}1948 - \\ 1957 -\end{matrix} \frac{.03434}{.05800} = \frac{.22038}{x} \qquad \begin{matrix}1953 - \\ 1957 -\end{matrix} \frac{.04518}{.05800} = \frac{.28798}{x}$$

x = Calculated price for copper in 1957 based on relation to steel.

x = 37.22 cents in 1957
Compared with actual avg. of 29.58 cts.

x = 36.97 cents in 1957
Compared with actual avg. of 29.58 cts.

	TABLE OF SIMILAR STATISTICS FOR YEARS - 1941 - 1947 Inclusive				
1941	54,484,162	$ .02396	1,641,550	$ .11797	3.013
1942	52,792,616	.02396	1,678,091	.11775	3.179
1943	54,288,793	.02396	1,502,000	.11775	2.767
1944	59,267,961	.02396	1,504,000	.11775	2.538
1945	53,448,897	.02449	1,415,000	.11775	2.648
1946	45,763,761	.02688	1,391,000	.13820	3.040
1947	58,850,458	.03014	1,286,000	.20958	2.185

$$\begin{matrix}1941 - \\ 1947 -\end{matrix} \frac{.02396}{.03014} = \frac{.11797}{x} \qquad \begin{matrix}1941 - \\ 1957 -\end{matrix} \frac{.02396}{.05800} = \frac{.11797}{x}$$

x = 14.84 cts. (Act. = 20.96 cts.)

x = 28.56 cts.(Act. = 29.58 cts.)

Source: 1/ American Iron & Steel Institute
2/ Iron Age
3/ U.S.B.M.

COMPARISON OF PIG IRON DOMESTIC CONSUMPTION AND COMPOSITE PRICES
WITH REFINED U. S. COPPER APPARENT CONSUMPTION AND PRICES
TEN-YEAR PERIOD - 1948 - 1957

Year	Consumption Of Pig Iron 1/	Average Price Pig Iron 2/	Apparent Refined Copper Consumption 3/	E.& M.J. Price Of Copper	Copper Consumption Percent Of Pig Iron Consumption
1948	60,026,404	$ .021380	1,214,000	$ .22038	2.022
1949	53,446,765	.023090	1,072,000	.19202	2.006
1950	64,943,118	.023925	1,447,000	.21235	2.228
1951	71,414,317	.026350	1,304,000	.24200	1.826
1952	61,550,961	.026915	1,360,000	.24200	2.210
1953	74,707,744	.027980	1,435,000	.28798	1.921
1954	58,662,049	.028295	1,235,000	.29694	2.105
1955	77,216,335	.028890	1,335,000	.37491	1.730
1956	74,995,479	.030575	1,367,000	.41818	1.823
1957	76,354,000	.032575	1,239,000	.29576	1.623

$$\begin{matrix}1948 - \\ 1957 -\end{matrix} \frac{.021380}{.032575} = \frac{.22038}{x} \qquad \begin{matrix}1953 - \\ 1957 -\end{matrix} \frac{.027980}{.032575} = \frac{.28798}{x}$$

x = Calculated price for copper in 1957 based on relation to steel

x = 33.58 cts. in 1957
Compared with actual avg. of 29.58 cts.

x = 33.53 cts. in 1957
Compared with actual avg. of 29.58 cts.

	TABLE OF SIMILAR STATISTICS FOR YEARS 1941-1947 Inclusive				
1941	56,185,472	$ .011790	1,641,550	$ .11797	2.922
1942	59,042,883	.011805	1,678,091	.11775	2.842
1943	60,315,159	.011805	1,502,000	.11775	2.490
1944	60,951,621	.011805	1,504,000	.11775	2.468
1945	53,187,177	.012305	1,415,000	.11775	2.660
1946	45,071,630	.013645	1,391,000	.13820	3.086
1947	58,290,755	.017170	1,286,000	.20958	2.206

$$\begin{matrix}1941 - \\ 1947 -\end{matrix} \frac{.011790}{.017170} = \frac{.11797}{x} \qquad \begin{matrix}1941 - \\ 1957 -\end{matrix} \frac{.011790}{.032575} = \frac{.11797}{x}$$

x = 17.18 cts.(Act.= 20.96 cts.)

x = 32.59 cts. (Act. = 29.58 cts.)

Source: 1/ American Metal Market
2/ Iron Age
3/ U.S.B.M.

Arizona Department of Mineral Resources October, 1958