

REVIEW OF COPPER INDUSTRY IN 1965

REVIEW BASED ON PRELIMINARY STATISTICS PUBLISHED

BY U. S. BUREAU OF MINES

By FRANK J. TUCK, CONSULTANT

ARIZONA DEPARTMENT OF MINERAL RESOURCES, FRANK P. KNIGHT, DIRECTOR

MARCH, 1966

COPPER IN 1965

REVIEW BASED ON PRELIMINARY STATISTICS PUBLISHED BY U. S. BUREAU OF MINES

By Frank J. Tuck, Statistical Consultant, Arizona Department of Mineral Resources

The U. S. Bureau of Mines' preliminary estimate of recoverable copper production from U. S. mines in 1965 was 1,354,734 tons, up 8.7% from the final figure of the 1964 production of 1,246,780 tons. The Copper Institute's estimate of the 1965 production was 1,360,920 tons.

Based on an estimated annual capacity of 1,400,000 tons of mine recoverable copper in 1962, the 1965 preliminary estimate of the U. S. Bureau of Mines was about 96.8 percent of capacity.

Production was maintained at over 116,300 tons monthly, during the first half-year of 1965, but dropped to 109,500 tons monthly, for the remainder of the year. Total production nevertheless attained a new U. S. record, increasing production by almost 9 percent over the previous record year of 1964. Utah showed the greatest increase by contributing 19 percent of the national total, and rose 30 percent in 1965. Output from New Mexico increased 16 percent, Nevada 11 percent. Despite a work stoppage at plants of Calumet and Hecla, production in Michigan increased 5 percent. Arizona continued to lead the nation with an estimated 703,300 tons, but its increase over 1964 was only 1.7%. This resulted in a drop from 55 percent of the national total to slightly less than 52 percent, which was still more than all the other states combined.

Smelter production from primary domestic materials increased about 8 percent over 1964, but output from foreign primary materials decreased over 16 percent. Refinery domestic output from primary materials rose 6 percent while foreign output dropped 5 percent. Refined copper produced from secondary materials increased 27 percent above the output of 1964 to establish a high.

General imports of copper totaled 506,900 tons, indicating a decrease of 12.5 percent for the year. However, imports of copper scrap and copper base scrap almost doubled in copper content.

Consumption of refined copper in the United States was estimated at 1,983,095 tons, an increase of 9.6 percent over 1964. Consumption might have been larger had there been sufficient metal to supply the requirements of fabricators.

Release of 100,000 tons of copper from national stockpiles to relieve domestic shortages was authorized April 2, and a release of 110,000 tons to the Mint for coinage was authorized October 9. In mid-November, arrangements were being made for the disposal of at least 200,000 tons of metal to fabricators with priority to be given plants working on defense contracts.

Stocks of refined copper at primary smelters and refineries totaled 37,000 tons at the beginning of the year, rose to 58,000 tons at the end of January and declined to 29,000 tons at mid-year. Stocks of refined copper fluctuated somewhat thereafter and were 35,000 tons December 31st. Inventories of unrefined copper and material in process of refining totaled 246,000 tons, the same as at the beginning of the year.

U. S. BUREAU OF MINES ON COPPER PRICES

"Early in May, American Copper producers in Chile responded to pressure from the Government of Chile and increased the price of copper to be exported from Chile by 2 cents a pound. This action was quickly followed by producers in other major producing countries abroad. Later American producers increased their prices to 36 cents a pound to correspond with producers' prices elsewhere. In late October, the price of export copper was again increased 2 cents a pound in Chile and elsewhere abroad. In early November, all major producers in the United States, except Kennecott Copper Corp., raised their prices 2 cents. However, this increase was rescinded later in the month after the Department of Defense announced a four-point plan to prevent inflationary pressures on copper prices that would 'seriously impair our defense effort in Vietnam.' The plan included the orderly disposal of at least 200,000 tons of copper from national stockpiles and the

control of exports of copper and copper scrap.

London Metal Exchange prices opened the year with an average price of £362 per long ton (equivalent to 45.25 cents a pound) in January and rose to an average price of £499 (62.37 cents) in May. After declining to an average of £410 (51.31 cents) in July, the price rose to a monthly average of £508 (63.50 cents) in October.

According to the American Metal Market, prices of No. 1 copper scrap in New York opened the year at 30.25-31.00 cents a pound, dropped to 27.50-28.50 by February 2, and rose thereafter to 46.00-47 on November 12. Pricing copper and copper-base scrap was nominal from November 18 to November 29, when No. 1 copper scrap was quoted at 39.50-41.00 cents a pound. Prices of No. 2 copper scrap and composition turnings followed the decrease in prices early in the year and rose thereafter from 25.00-26.00 cents a pound and 22.00-23.00 cents a pound, respectively, to 42.00-43 and 29.00-29.50 by November 12. Quotes for these classes of scrap on November 29 were 36.00-38.00 and 27.50-28.50."

James Boyd on Copper in 1965

Engineering and Mining Journal, February, 1966

Producers' Report

"At the end of 1964, it appeared that the forces contributing to copper shortages that had prevailed during much of the year were abating. In that year, the shortage of copper stemmed from a supply inadequate to meet an increase in consumption, despite Free World records in mine and refined output. Contributing to the shortage were the long strikes at facilities of some U. S. producers. At the same time, inventories of world producers and consumers were reduced to alarmingly low levels. With the unerring eye of hindsight, it is possible to see that prices in speculative markets rose out of all proportion to the severity of the shortage.

No one knows for sure how much demand for copper went unfulfilled at any time during 1965. During the first six months, however, fabricators inventories in this country continued the decline begun in 1963, By the end of May, they were down to 398,000 short tons, including all in-process copper metals. This was the low point for the year and the lowest level since 1955. In contrast, inventories outside the U. S. reached their low level some time in the fourth quarter of 1964.

Through November 1965, there was actually a moderate gain in overseas inventories, reflecting a general decline in economic activity in Japan and western Europe.

Through the first half of 1965, prices held closely to the high 50¢ to 60¢ range. The market psychosis was sustained by the fear of Russian or Chinese involvement in Vietnam, the possible devaluation of the pound sterling, labor unrest in Zambia and at Chuquicamata and the Chilean rail strike. The major exception to the high price in the first two quarters, occurred at the beginning of March, when quotations dropped by almost 10¢ per pound to 48 1/8¢, largely as a result of final approval of the 100,000-ton stockpile release. But the "rummage sale" type of material in this stockpile release, the temporary delay in the bill's passage, and a threatened strike at the Ndola mine in Africa soon returned prices to their lofty level."

Latter Part of Year

Taken in the order of their occurrence, these were the more ominous events in the second half of 1965:

- 1) A threat by the Chilean Copper Works Confederation to call a political strike.
- 2) A 30-40% deferral of Anaconda's October shipments to domestic fabricators, traceable to the U. S. shipping strike.
- 3) Threat of a general strike in the Copperbelt by the Zambian Mineworkers Union.
- 4) Escalation of the Vietnam conflict, causing a substantial increase in military procurement.
- 5) Four-week walkout at Chilean copper producing properties in protest of some of the key points in President Frei's Chileanization bill. This forced a subsequent curtailment of shipments of Chilean copper effective Jan. 1, 1966.
- 6) The declaration of Rhodesian independence and the implementation of economic sanctions against Rhodesia by many of the Free World nations, followed by the threat of reprisals that could cripple the Copperbelt mines in Zambia and the Congo.
- 7) Labor dispute at Kennecott's Braden properties in Chile at yearend.

Consumption

"Of all factors contributing to the continued tight supply during 1965, none was as important - nor as unexpected - as the continued surge in U. S. consumption. Even a moderate decline in U. S. consumption of copper, combined with a decrease outside the country, and the earlier two releases of stockpiled copper would have given relief. What makes the performance in the U. S. all the more remarkable is that it represented an increase in the demand for copper for the fourth successive year. Furthermore, statistics on fabricator inventories confirm that all of the copper delivered in both 1964 and 1965 went into consumption channels - electrical apparatus, power distribution equipment, other industrial goods, automotive vehicles and parts, construction materials, general consumer products and military uses.

The effect of government involvement has been to insulate this country from the world-wide influences of copper production, consumption, marketing and pricing. Any efforts to mandate artificially low prices could lead to such undesirable moves as subsidies, allocations and controls - actions that would be unnecessary with the recognition of the economic facts that exist in a world commodity such as copper.

In addition to the confusion imposed on the world copper industry by recent government attitudes, there exist the continued uncertainties in the supply and distribution of copper in Chile, Zambia, and the Congo, which together account for about 40% of Free World Capacity."

Merchants Report

by Kurt Friedlander

Year's Events

"These were the main features of the outside market in the United States for electrolytic copper in 1965:

- 1) More consumers were using the outside market to augment the supplies allocated to them by their normal producer sources.
- 2) Consumers whose supplies from producer sources had been curtailed bought in the outside market larger tonnages than the amounts of the curtailments.
- 3) In contrast to previous years when consumers would only look to the outside market to cover spot or reasonably

current requirements, most consumers bought much farther forward, with contracts often written for 6 or 12 months, indicating that consumers were using the outside market as a more permanent rather than a sporadic source of supply.

4) Since sources of supply in the outside market did not increase significantly during the year, the inevitable consequence was that consumers had to pay much larger premiums for the copper they bought in the outside market.

Outside Market's Main Trading Pattern

"The market performance during 1965 might be divided into four periods as follows:

1) A short movement at the beginning of 1965 of sharply declining prices caused by Senator Mansfield's proposal in December 1964 to lend U. S. Government stockpile copper to producers and the subsequent release of 20,000 tons from the stockpile. These developments occurred against a background of expert predictions that balance of supply and demand would be achieved by mid-1965.

2) A long period of steady if not firm prices when it appeared that consumption would remain at a very high level. Bearish factors, such as the avoidance of strikes in Chile and Africa and the settlement of the Mt Isa strike, seemed to have little influence on market behavior.

3) A short hectic, almost frenetic buying spree in the fall, against a background of increasing American involvement in Vietnam, a strike in Chile lasting more than a month and the uncertainty caused by the Unilateral Declaration of Independence in Rhodesia.

4) A period of hesitance following Defense Secretary McNamara's statement in November and the 200,000 ton stockpile release, when it appeared certain that Washington was determined to bring the outside market down to levels the copper fabricators could live with.

O u t l o o k

"With consumption, especially for military needs, showing no sign of abatement and with production rather regularly interrupted by one strike or another, the prospects that outside market prices will continue at

their present level through most of 1966 and possibly beyond seem reasonably good. However, one's outlook should not be based solely on economic factors. Political considerations are of paramount importance, and it is quite clear that the Administration is not only determined to prevent price increases by the primary producers, but also to restore the outside market price to levels the fabricators can live with. What then can the Administration be expected to do to achieve this goal? Many believe that there will be additional stockpile releases coupled with tighter controls on exports of both scrap and virgin copper. Action in the first direction will, of course, relieve the general world-wide shortage while action in the second direction will bring relief only to this country, with shortages elsewhere in the world possibly increased correspondingly.

Last year was an exciting year for copper; 1966 may be even more so."

ABSTRACT

INCREASE IN GOVERNMENT-INDUSTRY CO-OPERATION URGED

by Director of U. S. Bureau of Mines

Dr. Walter R. Hibbard Jr., recently appointed director of the Interior Department's Bureau of Mines has been quoted in the American Metal Market of February 18, 1966 as urging "Cooperation efforts" with the U. S. Bureau of Mines to discover and bring into the market additional copper. Speaking before the Annual Copper Club meeting in New York; Dr. Hibbard said that the "total investment in joint efforts (between the bureau and industry) seems to me to be dangerously small."

Predicting the copper industry's shortage problems probably would be "long-term," Dr. Hibbard called on copper producers to "seek in every way practicable to guarantee adequate economic reserves of essential raw materials."

He pointed out that cooperative efforts toward closing the shortage gap not only should be expanded for discovery and development of new ore bodies, but also in the field of metallurgy.

COMMENTS ON COPPER OUTLOOK BY THE U. S. INDUSTRY'S

BIG THREE PRODUCERS

Charles M. Brinckerhoff, Anaconda Board Chairman

Anaconda's board chairman believes Free World copper production will increase five percent per year over the next six years. He says that copper plants are being expanded for greater production as well as for the treatment of still lower grade reserves.

Mr. Brinckerhoff said Anaconda Co. has increased its world-wide production from 315,000 tons in 1952 to 584,000 tons in 1964, with the company's new program calling for further expansion. Between now and 1970, he told the Society of Mining Engineers, "we expect to increase our annual copper producing capacity by an additional 316,000 tons at a cost of \$300 million. This is to be done through the development of new mines, the expansion of existing operations and through improved methods of treatment, and should bring Anaconda's productive capacity to 900,000 tons yearly."

The Anaconda executive said that a broad viewpoint now exists regarding the economic guidelines for the copper ore deposit of the future. "Today", he said, "geologists find quick approvals for drilling programs that thirty years ago would ^{not} have received even slight consideration at the home office."

Frank R. Milliken, President of Kennecott Copper Corp.

Abstract from Milliken's Report to the Stockholders, Jan. 28, 1966

"The current copper situation is in many ways reminiscent of that in 1955 and 1956 when copper also was in tight supply. However, there is one important difference. In 1955 and 1956, most producers selling in Europe used the London Metal Exchange quotation for pricing their sales. In 1956 the LME price, and

therefore our European price, reached 54.6 cents a pound.

"Early in 1964 when LME prices started to advance rapidly, many primary producers ceased using the LME as a pricing basis for sales in Europe. We followed this action. As a result, in the face of LME prices that have recently reached as high as 87 cents, our European price is, as noted, 42 cents.

"The answer to the tight copper market is increased production. Kennecott's copper productive capacity will be increased by 121,000 tons per year upon completion of the Utah and Chino (New Mexico) expansion programs.

"Plans for substantial increases in copper production capacity throughout the world have been announced. When they materialize, the supply-demand relationship for the metal should be brought into better balance.

"The greatest potential for expanded copper production is in Africa and South America. The copper output of these two continents is around 2,000,000 tons a year, mainly from Zambia, Congo, Chile and Peru. Ores are relatively high grade and unit production costs are correspondingly low. Under favorable circumstances, production from these countries probably could be doubled. Active exploration for new copper deposits is also being conducted in Australia, Canada and the United States.

"There are known low grade copper deposits in the United States and elsewhere which with presently known technologies cannot be brought into profitable production at current primary price levels.

"Practically all economic forecasters predict that the year 1966 will continue to be one of high industrial activity. Unless some unforeseen downturn in the economy occurs, the demand for copper should remain strong."

Robert G. Page, President Phelps Dodge Corp.

Abstract from President's Report to Shareholders

Pointing to the disparity between the current domestic copper producers' price of 36 cents a pound insisted upon by the Government, and the foreign producers' price of 42 cents, the report predicted that this would tend to aggravate the shortage in the United States this year.

"All indications," Mr. Page said, "point to continued high demand for copper and copper products in 1966, with consumer spending continuing to rise, a further increase in business outlays for plant and equipment, and greater military requirements growing out of the war in Vietnam. Under these circumstances, copper is likely to remain in tight supply for some time to come."

The release of additional copper from the government stockpile last December moderated to some extent the tight supply situation prevailing in this country the early part of this year, the report stated. "An interesting sidelight on this sale," the report continued, "is that, because of shipping and treatment charges, copper from the stockpile is costing consumers something between 36½ and 38 cents a pound, in spite of the government's insistence that the producers' price be kept down to 36 cents."

What the government's increased role in the copper market will achieve remains to be seen, the report concludes. "It is already quite clear, however, that government intervention in the market place, once begun, tends inevitably to be extended, and that normal operation of economic forces, which would tend to restore a balance between supply and demand, becomes ever more narrowly restricted," the report said.

Attached hereto is Table I, giving a summary of the U. S. Copper Industry Preliminary Statistics for 1965, and final figures for 1964.

TABLE I

SUMMARY OF U. S. COPPER INDUSTRY PRELIMINARY COPPER STATISTICS FOR 1965

COMPARED WITH FINAL FIGURES FOR 1964

Unit: Short Tons
Source: U. S. B. M.

	<u>Final 1964</u>	<u>Prelim. 1965</u>
Mine Production of New Cu from U. S. ores . . .	1,246,780	1,354,734
Ref. Production of New Cu from U. S. ores . . .	1,259,852	1,335,660
Ref. Production of New Cu from Foreign ores . . .	<u>396,543</u>	<u>376,133</u>
Total Ref. Production of New Copper . . .	1,656,395	1,711,793
Imports of Refined Copper . . .	137,757	137,405
Stocks at Beginning of Year . . .	<u>52,000</u>	<u>37,000</u>
Total Available Supply . . .	<u>1,846,152</u>	<u>1,886,198</u>
Exports of Refined Copper . . .	311,479	316,231
Refined Stocks at end of Period . . .	<u>37,000</u>	<u>35,000</u>
TOTAL . . .	<u>348,479</u>	<u>351,231</u>
Withdrawn on Domestic Account (Apparent Consumption) . . .	<u>1,493,000</u>	<u>1,526,000</u>
Actual Consumption . . .	1,808,765	1,983,095
Imports of Ores, Matte and Regulus (Copper Content)	52,037	36,938
Imports of Blister Copper . . .	389,579	332,560
Imports of Refined Copper . . .	<u>137,999</u>	<u>137,405</u>
Total Imports of Crude & Refined . . .	<u>579,615</u>	<u>506,903</u>
Exports of Ores, Concts., Matte (Copper Content).	5,395	15,511
Exports of Refined Copper . . .	<u>316,230</u>	<u>324,963</u>
Total Exports of Crude & Refined . . .	<u>321,625</u>	<u>340,474</u>
Excess Imports of Crude & Refined . . .	257,990	166,429
Secondary Copper Recovered as Unalloyed Copper .	<u>366,197</u>	<u>418,000</u>