

TO THE SUBCOMMITTEE ON THE IMPACT
OF IMPORTS AND EXPORTS ON AMERICAN EMPLOYMENT

John H. Dent, Chairman, U.S. House of Representatives

PRESENTED ON BEHALF
OF THE
ARIZONA COPPER TARIFF BOARD
AND THE
ARIZONA DEPARTMENT OF MINERAL RESOURCES,
PHOENIX, ARIZONA

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Subject: Domestic Copper Production

In presenting a brief on the impact of imports on the domestic labor situation in the copper producing industry, it is necessary to define certain economic facts that are peculiar to copper production and generally do not apply to the manufacturing industries.

First of all, world copper production capacity is in excess of world consumption, and production areas are located far from copper markets. The copper produced is in unfinished ingot form which requires transportation to refineries, refining, and transforming into marketable shapes and sizes, and finally marketing. Thus it is many months before the ingots produced at the copper smelters reach the market as a manufactured product. To insure continuity of operation, a reasonable copper price stability is required.

The factors governing price fluctuations are:

1. Reasonable balance between production and consumption.
2. Volume of surplus stocks, and trend.
3. Economic and political outlooks in both producing and consuming areas.
4. Prospects of change in demand several months after the mining operation.
5. Necessity for investments in ingot copper during the period of converting to finished products from ingot stage.
6. Too high prices bring about increase in use of substitutes, such as plastics and substitute metals.
7. Increase in production of secondary copper. Copper is an indestructible metal, and much of each year's production comes back on the market when prospective profits are indicated. Only a very small percentage is actually consumed.
8. High prices for copper encourage production from small mines, as that is the only time small mines can do business profitably.

Over 90 percent of our domestic copper comes from low-grade mines handling huge tonnages. They have but little flexibility of operation, but a definite requirement of prices high enough to keep them in operation under their present cost conditions. They get their lowest costs only when running at full production. They have but limited possibilities as to selective mining. As production comes down because of curtailing to fit markets, their per pound costs go up.

The larger producers have their own smelters located near their mines, but a few custom smelters handle production from the other mines. To avoid speculation as to futures, the custom smelters ordinarily make it a practice to sell each day, at whatever price the consumer is willing to pay, a quantity of copper about equal to their daily intake from smaller producers. Thus their operations largely govern prices. Custom smelters, or refineries, also handle the secondary copper coming from scrap recovery, which increases in quantity as prices go up and thus increases the amount of metal at current bid prices. Thus the producing units of the large mines themselves have but little to say about markets and prices yet they are the ones most influenced by the ups and downs.

These large mines are in one-industry communities. For each man employed there are about six in population. They have nothing else to turn to when curtailment cuts their hours of labor. Yet there is no local available labor market when higher production is indicated by demand. When market conditions require a curtailment of production, it is done by shortening the work week, and thus giving every man a job and his family some income, even though it makes a lessened take-home pay for family support. If more drastic curtailment is called for, some miners are laid off. The only cure for such a depressed area is a reasonably stable production program. Whatever part of the domestic market that is taken away from domestic mines is largely paid for by those with fluctuating employment at the large mines because of lessened demand, and the labor at the small mines operating only when metal prices are high.

What the domestic copper mining industry needs to maintain full employment is a tariff sufficient to put the domestic industry on an equitable competitive cost basis with foreign mines when prices are below certain "peril points". The foreign mines with low wage scales, higher average grades of ore, cheap water transportation and other cost advantages are in position to take any or all of the domestic market that they wish, now or in the future.

National security demands a going domestic copper mining industry, rather than dependence upon foreign sources for this metal. This was revealed to us expensively by submarine sinkings during World War I. There is no metal more important to armed conflict than copper.

THE NEED FOR CONGRESS TO FOSTER A STRONG HEALTHY DOMESTIC COPPER INDUSTRY

The weak and declining copper market of 1957-1958 resulted in substantial curtailment in output at most of the properties in the United States, and some mines were actually shut down. A significant point is that virtually all of the curtailment in 1957 was at mines in the United States. Production from foreign mines was actually about 50,000 tons greater in 1957 than in 1956.

The most deplorable evidence of the deterioration of 1957-1958 was the unemployment in the mining communities. In addition to actual layoffs of 6,000 men, consequent to both curtailment and shutting down, there was widespread shortening of the work week.

The mining communities in Arizona are completely dependent on copper mining, milling and smelting. When a mine is shut-down, the damage extends not only to the

mine employees but to hundreds of citizens indirectly affected by the shut-down. It has been estimated that a total of 13.5 persons (including the miners and their families as well as service employees and their families) are dependent on the output of one miner. With a normal employment of 16,000 by the copper companies in Arizona, that means that the livelihood of over 216,000 persons is affected. The industry is a major element in the economy of five Western States, and is important to at least five other states. Drastic curtailment of production and suspension of operations has unusually bad effects on the mines themselves, on the mining communities, and on the surrounding regions.

The impact of shutting down the typical metal-mining enterprise on the employees and the community is much more serious than with most other kinds of industry. Copper mining is carried on largely in isolated areas, where not only the working forces in the mines and reduction works but the families of the miners, the thousands of men and women engaged in essential business activities and the professions, community life itself, are dependent on the fortunes of the mining business. The mere statistics of mine employment are, therefore, utterly inadequate to measure the population dependent on the mines. Modern and stable towns and villages have been built up, enjoying every sort of civic advantage. Unfortunately, such communities depend on a single industry.

Indirectly dependent on the copper-mining industry, of course, are thousands of people engaged in producing and distributing foodstuffs and miscellaneous merchandise; machinery; supplies and equipment of many kinds. The industry is an important user of fuels, electricity, cement, explosives, steel, electrical machinery, automotive equipment, and power shovels.

Because of the location of most of the copper mines at long distances from manufacturing and consuming centers, the industry generates a great deal of long-haul as well as short-haul freight. The suspension of copper-producing operations consequently reacts seriously not only on the immediate community but on the surrounding region and the economy in general.

One not inconsiderable factor is the loss of tax revenue by local, state and Federal governments. In Arizona such taxes constitute a very important proportion of their total revenues.

The suspension of operations, even though temporary, of any industrial operation involves expense; but because of characteristics unique to mining operations the "shutdown" or "standby" expense is exceptionally high. This is particularly true of underground mines. The problem of supporting the ground is a continuing one; and constant repair and replacement of timber in haulageways, stations, and shafts is necessary whether the mine is producing or not. Pumps must be run continuously to prevent flooding of the workings. Hoisting machinery and other surface equipment and plant must be kept in repair. These are costly operations; but unless they are carried on, the likelihood is that the cost of future rehabilitation will be so great that valuable ore will be lost beyond retrieve.

Conservation of an Invaluable Natural Resource

It has been urged in some quarters that, if copper can readily be obtained from foreign sources, the United States should be content to import the metal and leave its copper reserves in the ground. This idea rests on a profound misconception of peculiar aspects of the business of mining and the true meaning of

conservation. In its best sense, conservation means not hoarding in the ground; but efficient and beneficial discovery, production, and utilization. Only a healthy, vigorous copper-mining industry can and will explore for new ores, develop and equip new deposits, and devote itself to the manifold problems of converting ore bodies of successively lower grade into profitable enterprises. The incentive to do these things is the prospect of maintaining a reasonably prosperous, "going" industry.

The development of an ore deposit and the provision of necessary facilities for production typically are undertakings requiring from two to five years. Consequently, it is highly important that exploration be not only adequate but forehanded. Advocates of the "hoarding" conception of conservation assume that geologists and engineers know of every pound of copper in the ground; and that the supply can be drawn upon in emergency in the same way as could the gold buried in the vaults at Fort Knox, Kentucky. They are, of course, entirely mistaken.

At this point it may be useful to say a word on the matter of undeveloped resources as distinguished from known reserves. The notion -- once too widely current -- that the United States is a "have-not" nation in respect to metals, including copper, will not bear careful scrutiny. Competent geologic evidence is convincing that many important deposits must exist that are covered by lava flows, sedimentaries, or detrital material, laid down after the ore was deposited. The search for such deposits is expensive; but techniques are being improved; and, unless the most competent geologists and engineers are all wrong, many large ore bodies will be found.

THE DISCOVERY, EXPLOITATION AND PRUDENT USE OF THE NATION'S NATURAL RESOURCES OF COPPER DEPEND ON THE EXISTENCE OF A THRIVING COPPER-MINING INDUSTRY.

ARIZONA'S PART IN THE ECONOMY OF THE COPPER INDUSTRY

In the last ten years Arizona has increased its copper production from 415,870 tons in the year 1951 to an estimated 539,300 tons in the year 1960, or almost 30 percent. The annual tonnage of copper ore to produce this copper has increased from 42,874,000 to an estimated 66,000,000 tons, or about 54 percent. New producers have come into the picture during that time, such as Phelps Dodge Corporation's Lavender Pit, Magma Copper Company's San Manuel Mine, Asarco's Silver Bell Mine, Pima Copper Company's Pima Mine, and Duval Sulphur and Potash Company's Esperanza Mine. In addition Kennecott Copper Corporation has expanded its Ray Mine by almost 50 percent.

As a result of this new production, Arizona has not only maintained its rank as the Number One copper producing state, but has raised its proportions of United States production from 44.8 percent in 1951 to about 51.0 percent in the last two years. In other words, Arizona is producing more copper than all the other states combined. See Table I.

A study of Table II, showing United States copper production and consumption by years from 1945 to 1960 inclusive, brings out some pertinent statistics. The small increase in domestic consumption of refined copper is especially notable. The average annual domestic consumption from 1945 to 1952 inclusive (8 years) was 1,362,610 tons, and from 1953-1960 inclusive (8 years) it was 1,396,858 tons, only 2.5% increase for the 8 years, or only 0.3% increase per year. It would seem that the competition from copper substitutes might be held liable for this low increase-

rate of consumption, where one would expect a normal growth-rate of about 2 percent per year.

With the increase in refined copper production totaling 19.2% for the 8 years, or 2.4% per year, the United States has become self-supporting in copper production. This has been the case in 1957, 1958 and 1960, and would also have been the case in 1959 if it had not suffered a loss of almost 300,000 tons production due to the labor strike in the last 5 months of the year. Mine capacity production has reached 1,250,000 tons per year, and with an estimated added production of 300,000 tons of secondary unalloyed copper, this country is now well prepared to produce all the copper it will need for some time to come. Meanwhile, the copper tariff should be high enough to bar out low-cost foreign copper, as from now on domestic copper will be mostly high-cost, due chiefly to lowering grade and rapidly increasing costs. The new mines must be kept going not only for security reasons but for employment stability in a very important industry in our economy.

The part Arizona has played in the economy picture has been noteworthy because its mines have reached the point where they are producing as much copper as all the rest of the states combined. What happens to the copper industry affects the state's economy and the welfare of its citizens, for its copper is a vital source of the state's wealth.

Over ninety percent of Arizona's copper is produced from its low-grade copper ore-bodies, and since foreign ores contain at least three times the grade of Arizona's, and foreign producers pay less than one-third the wages to recover the copper, it would seem that a tariff of 4 cents a pound when prices are low, would be the least to expect in order to balance the competitive cost position. In order to insure continuous production of the number one strategic metal, the domestic copper industry must be protected against a flood of low-cost foreign metal. Our foreign aid program has helped the foreign producer to develop his copper production techniques, and he can find a ready market for his product in a rapidly expanding economy throughout the world. The growth-rate of copper consumption throughout Europe has been amazing*, but they still have a long way to go before they reach the United States consumption per capita.

The problem facing Arizona and other U. S. copper producing states is the maintenance of a price that will meet competition from substitutes. A new association has recently been organized to find new markets for the red metal, and progress is already being made. As already stated, the U. S. productive capacity, now being attained, of 1,250,000 tons of new copper and over 300,000 tons of secondary unalloyed copper, indicates that the "peril point" of substitution should be somewhere between 32 and 35 cents per pound.

* According to the Copper Institute figures for deliveries of copper outside the U.S.A., the average annual consumption of copper for the period 1945-1952 was 950,000 tons, and for the 8-year period 1953-1960 inclusive it was 1,500,000 tons. In 1960 alone it amounted to over 2,300,000 tons.

EXCESSIVE IMPORTS THREATEN STATUS OF U.S. BRASS MILL INDUSTRY *

Summary of Statement by James M. Kennedy, Chairman Revere Copper & Brass, Inc.

Historically the United States has been a net exporter of brass mill products.

In 1936 we exported 39,600,000 lbs. and imported 600,000 lbs.

In 1947 we exported 58,600,000 lbs. and imported 900,000 lbs.

In succeeding years our export position declined until in 1951, for the first time, we became net importers to the extent of 13,000,000 lbs. Since 1951 imports have climbed steadily to a record of 199,000,000 pounds in 1959, against exports of only 16,000,000 pounds, which in terms of the 1947 balance, means an annual loss of over 240,000,000 pounds to U. S. industry.

In 1960 brass mill shipments will be down an estimated 55 percent from the 1943 level to 812,000 short tons. Obviously, we must not suffer any further tariff concessions. Today we permit and encourage the importation of products for which we have domestic capacity double the yearly domestic market in the foreseeable future.

Labor rates in England, Western Europe and Japan are one-eighth to one-third of ours. This, added to their comparably lower rates of factory overhead, salaried personnel and selling and administrative expense, based on their respective standards of living, accounts for an estimated 25 percent differential in manufacturing costs.

"Foreign man-hour production efficiency is a match for ours, their quality standards are the same. The old theory that the United States can out-produce, per man-hour, any country in the world is, in respect to the brass mill industry, obsolete. After the war innumerable foreign technical teams visited this country and our mills at the invitation of the U. S. Government. They obtained the information they needed to rehabilitate their industries and, with funds supplied by the Marshall Plan and our foreign aid, installed the latest and best equipment.

Little did we realize that this would boomerang and that part of their output would be channeled into this country at prices so low the domestic price level would be consistently forced down in a continuing effort to approximate - since we could not profitably meet- the foreign selling price."

EFFECT OF HIGH WAGES ON COST OF ARIZONA

AND UNITED STATES COPPER MINING

The attached table, (Table VI), taken from a recent report of the Arizona Department of Mineral Resources, showing copper mining employment, wages and hours in Arizona and the United States, as reported by the Arizona Employment Security Commission and the United States Department of Labor, gives an idea of the effect of high wages on the cost of mining copper. For example, in Arizona, in the base period, 1947-1949, it took an annual average of 24,943,412 man-hours of labor at \$1.432 per hour to produce 38,082,754 tons of copper ore with a recovery of 748,056,267 pounds of equivalent copper; a labor cost of \$35,718,466 for copper mining, or \$0.04775 per pound of copper.

In the period 1958-1960 it took an annual average of 27,055,906 man-hours of labor at \$2.531 per hour to produce 58,492,451 tons of copper ore with a recovery of 949,560,000 pounds of equivalent copper; a labor cost of \$68,478,498 for copper mining or \$0.07212 per pound of copper. This was an increase of 51% in the labor cost of copper mining in Arizona.

Comparative figures for the United States: in the base period, 1947-1949: it took an annual average of 62,145,720 man-hours of labor at \$1.431 per hour to produce 82,875,491 tons of copper ore with a recovery of 1,625,975,640 pounds of equivalent copper; a labor cost of \$88,930,525 for copper mining, or \$0.05470 per pound of copper.

In the period 1958-1960, it took an annual average of 55,203,963 man-hours of labor at \$2.525 per hour to produce 120,362,020 tons of copper ore with a recovery of 1,916,546,000 pounds of equivalent copper; a labor cost of \$139,610,822 for copper mining, or \$0.07285 per pound of copper. This was an increase of 33% in the labor cost of copper mining in the United States.

With modern-day mining practiced all over the world, it is easy to imagine the effect of using a cost-divisor, in South Africa, for instance, amounting to three times the cost divisor used in the United States. And when wages in Africa are known to be less than one-fifth to one-third of those in the United States, the spread must be at least five cents per pound of copper.

The effect of production curtailment in the United States brought about by imports of low-cost copper is also a handicap which domestic producers have to suffer. And when this curtailment results in closing a few of the large high-cost producers, the danger to our national security is obvious.

Foreign producers will acknowledge that their wage-rates often are less than one-fifth of those in the United States, but they will also maintain that they are saddled with additional labor costs in the form of special allowances for housing, food, hospital and other welfare costs. These are along the line of "fringe benefits," which, in Arizona amount to about twenty-five percent of the payroll, and although not included in the above labor cost comparison, they would amount to more than enough to offset the fringes paid by the foreign producers.

THE IMPACT OF COPPER IMPORTS ON DOMESTIC LABOR

The question has been asked, "What is the impact of copper imports on domestic labor?" As to wages paid in copper mining, there is most certainly no adverse impact, for such wages have been rising steadily every year at a rate of more than twice the productivity rate. However, excess copper imports do have some impact on productivity and profit when they cause curtailment of domestic production. Curtailment brings about shortened work-weeks and smaller pay-checks. Nevertheless, unless the curtailment is drastic, the annual wage increases continue to more than offset the effect of shortened work-weeks. The biggest impact on labor is really caused by labor-strikes, which result in the importation of large tonnages of foreign low-cost copper, and, because of the shortage of domestic copper, the price of the metal rises and means more money for the working miners and the producers.

There is an indirect effect from excess copper imports on domestic labor, brought about by the wide spread in labor costs in producing copper. For example, in the period, 1958-1960, it has been shown that U. S. copper mines produced 35 pounds of copper per man-hour of labor at a cost of \$.073 per pound. The hourly earnings in the U. S. averaged \$2.53. If we assume a recovery of 87.5 pounds of copper per man-hour of foreign labor, (which assumes a minimum grade of only 2.5 times the U. S. ores), and a labor cost of only \$1.00 per man-hour (which is 40 percent of U. S. hourly earnings), we arrive at a cost of only \$0.012 per pound of copper by foreign labor. This is over 6 cents less than U. S. labor costs, and would permit the foreign producer to reduce the price of his copper in the United States, by the difference between the 6 cents and 2.2 cents (tariff plus freight). As the object of a copper tariff was primarily to equate the difference in wage-rates, a proper tariff should be between 5 and 6 cents.

But when it comes to the impact of imports of copper manufactures on domestic labor, we do have a measurable impact. Here, imports have hurt in three ways:

1. The domestic industry has lost approximately 200,000,000 pounds of brass mill shipments.

2. Its profits have been seriously impaired by lower prices necessitated by low-priced foreign competition.

3. American labor has lost 2,857 jobs in the brass mill industry. (This is computed on the basis of 35 pounds per man-hour and 2,000 hours per year for an annual production, per individual employee, of 70,000 pounds, divided into 200,000,000 pounds).

T A B L E S

TABLE I

ARIZONA, UNITED STATES AND WORLD MINE PRODUCTION OF COPPER

E. & M. J. DOMESTIC AND EXPORT PRICE OF COPPER

Source: U.S.B.M.

ARIZONA				UNITED STATES		WORLD	E. & M. J.	E. & M. J.
Year	Tons	% of	% of	Tons	% of	Tons	PRICE	EXPORT
		U.S.	World				Per	Per
		Prod.	Prod.		Prod.		Pound	Pound
1945	287,203	37.2	12.0	772,894	32.2	2,400,000	11.775¢	11.700¢
1946	289,223	47.5	14.5	608,737	30.4	2,000,000	13.820¢	14.791¢
1947	366,218	43.2	14.6	847,563	33.9	2,500,000	20.958¢	21.624¢
1948	375,121	44.9	14.4	834,813	32.1	2,600,000	22.038¢	22.348¢
1949	359,010	47.7	14.4	752,750	30.1	2,500,000	19.202¢	19.421¢
1950	403,301	44.4	14.4	909,343	32.5	2,800,000	21.235¢	21.549¢
1951	415,870	44.8	14.3	928,330	32.0	2,900,000	24.200¢	26.258¢
1952	395,719	42.8	13.1	925,359	30.6	3,020,000	24.200¢	31.746¢
1953	393,525	42.5	12.9	926,448	30.4	3,050,000	28.798¢	30.845¢
1954	377,927	45.2	12.2	835,472	27.0	3,100,000	29.694¢	29.889¢
1955	454,105	45.5	13.3	998,570	29.2	3,420,000	37.491¢	39.115¢
1956	505,908	45.7	13.4	1,106,215	29.2	3,790,000	41.818¢	40.434¢
1957	515,854	47.5	13.3	1,086,141	27.9	3,890,000	29.576¢	27.157¢
1958	485,839	49.6	12.9	979,329	25.9	3,780,000	25.764¢	24.123¢
1959	430,297	52.2	10.7	824,846	20.5	4,020,000	31.182¢	28.892¢
1960P	539,300	49.8	12.4	1,082,650	24.9	4,350,000	32.053¢	29.894¢

P = Preliminary

TABLE II

U. S. PRODUCTION AND CONSUMPTION OF COPPER

Source: U.S.B.M.

YEAR	MINE PRODUCTION	SECONDARY PRODUCTION	TOTAL	ACTUAL CONSUMPTION TOTAL	PRODUCTION AS % OF CONSUMPTION
1945	772,894	112,856	885,750	1,379,272	64.2
1946	608,737	136,909	745,646	1,187,009	62.8
1947	847,563	303,092	1,150,655	1,463,294	78.6
1948	834,813	284,026	1,118,839	1,420,584	78.8
1949	752,750	250,089	1,002,839	1,129,686	88.8
1950	909,343	260,704	1,170,047	1,424,434	82.2
1951	928,330	186,462	1,114,792	1,416,865	78.7
1952	925,359	173,904	1,099,263	1,479,732	74.3
Totals 1945-52	6,579,789	1,708,042	8,287,831	10,900,876	
8-Yr.Avg.	822,474	213,505	1,035,979	1,362,610	76.0
1953	926,448	242,855	1,169,303	1,494,215	78.3
1954	835,472	212,241	1,047,713	1,254,729	83.5
1955	998,570	246,928	1,245,498	1,502,004	82.9
1956	1,106,215	273,060	1,379,275	1,521,389	90.7
1957	1,086,141	248,015	1,334,156	1,347,815	99.0
1958	979,329	255,121	1,234,450	1,250,677	98.7
1959	824,846	261,588	1,086,434	1,463,031	74.3
1960P	1,082,650	304,000	1,386,650	1,341,000	103.4
Totals 1953-60	7,839,671	2,043,808	9,883,479	11,174,860	
8-Yr.Avg.	979,584	255,476	1,235,435	1,396,858	88.4

TABLE III

IMPORTS AND EXPORTS OF COPPER IN THE UNITED STATES

YEARS 1951-1960

Source: Bureau of Census

Unit: Short Tons

<u>YEAR</u>	<u>IMPORTS</u>	<u>EXPORTS</u>	<u>EXCESS IMPORTS</u>
1951	482,555	132,991	349,564
1952	614,343	174,783	439,560
1953	668,856	110,179	558,677
1954	585,551	218,320	367,231
1955	580,521	207,105	373,416
1956	590,004	236,253	353,751
1957	587,863	361,490	226,373
1958	488,410	396,343	92,067
1959	584,244	162,683	421,561
1960	519,402	444,873	74,529

TABLE IV

ESTIMATED ANNUAL COPPER PRODUCTIVE CAPACITY
ARIZONA, UNITED STATES, OTHER FREE COUNTRIES, COMMUNIST COUNTRIES

- 1960 -

Based on Continuous Full Operation - 350 Days Per Year

<u>ARIZONA:</u>		<u>Tons Copper</u>
Morenci		130,000
New Cornelia		65,000
Copper Queen		30,000
Lavender Pit		35,000
		<u>260,000</u>
Ray		70,000
Miami - Copper Cities		40,000
Inspiration		40,000
San Manuel		72,000
Magma		21,000
Silver Bell		21,000
Pima		21,000
Bagdad		11,000
Duval		25,000
Miscellaneous		19,000
Sub-Total - Arizona		<u>600,000</u>
<u>OTHER STATES:</u>		
Utah (chief mine Utah Copper)		260,000
Montana (chief mine - Butte)		125,000
Nevada (chief mine - Ely & Yerington)		90,000
New Mexico (chief mine - Chino)		70,000
Michigan (chief mines - White Pine & Cal. & Hecla)		65,000
Tennessee (chief mine - Copper Hill)		15,000
Miscellaneous		25,000
Sub-Total - Other States		<u>650,000</u>
GRAND TOTAL UNITED STATES		<u>1,250,000</u>
<u>OTHER FREE COUNTRIES:</u>		
Canada		500,000
Chile		720,000
Peru		230,000
Western Europe		150,000
Asia		250,000
Africa		1,000,000
Australia		100,000
Other Countries		100,000
Sub-Total - Free Countries Other Than U.S.		<u>3,050,000</u>
GRAND TOTAL - All Free Countries		<u>4,300,000</u>
<u>COMMUNIST COUNTRIES</u>		<u>600,000</u>
GRAND TOTAL - WORLD		<u>4,900,000</u>

TABLE V

METHOD OF DETERMINING CONSUMPTION OF COPPER IN 1960

Source: United States Bureau of Mines
 Copper and Brass Institute
 Mining World - Annual Survey - April, 1961
 Annual Metal & Steel Number - Daily Metal Reporter,
 Part II, page 47 et seq.

	<u>Tons</u>	<u>Tons</u>
United States Mine Production (Estimated).....	1,100,000	
Production of Secondary Unalloyed Copper	+ 304,000 <u>1/</u>	
	<u>1,404,000</u>	
Minus Increase in Stocks	- 80,000	
Estimated U. S. Consumption	<u>1,324,000</u> <u>2/</u>	1,324,000
Mine Production of Free Countries Outside U.S.A.....	2,650,000	
Production of Secondary Unalloyed Copper	+ 296,000 <u>3/</u>	
	<u>2,946,000</u>	
Minus Increase in Stocks	- 60,000 <u>4/</u>	
	<u>2,886,000</u>	
Minus Est. Shipments to Russia	- 150,000 <u>5/</u>	
Estimated Consumption Free World Outside U.S.A.....	<u>2,736,000</u>	2,736,000
Estimated Total Free World Consumption		<u>4,060,000</u>
Est. Communist Mine Production	600,000	
Est. Shipments to Russia	+ 150,000	
Est. Consumption in Russia	<u>750,000</u>	750,000
Estimated World Copper Consumption		<u><u>4,810,000</u></u>

1/ U.S.B.M. preliminary report for 1960.

2/ U.S.B.M. reports 1,341,000 tons.

3/ Prain's estimate in Daily Metal Reporter, Jan. 13, 1961.

4/ Copper Institute.

5/ Prain's estimate in Daily Metal Reporter, Jan. 13, 1961.

TABLE VI

COPPER MINING EMPLOYMENT, WAGES AND HOURS IN U. S. AND ARIZONA

Source: "Employment and Earnings", U.S. Dept. of Labor. U.S.B.M. Mineral Yearbooks. "Arizona's Current Employment Development", Arizona Employment Security Commission.

	"A" Number Of All Employees		"B" Weekly Earnings		"C" Weekly Hours		"D" Hourly Earnings	
	ARIZONA	U.S.	ARIZONA	U.S.	ARIZONA	U.S.	ARIZONA	U.S.
Base Period: 1947-49 Avg.	10,700	27,100	\$ 64.20	\$ 63.11	44.83	44.10	\$ 1.432	\$ 1.431
Last Three Years:								
1958	13,500	28,400	\$ 95.40	\$ 94.62	39.8	39.1	\$ 2.399	\$ 2.42
1959	11,100	22,400	108.15	106.25	42.8	42.5	2.526	2.50
1960	12,733	29,600	116.83	114.75	43.7	43.3	2.674	2.65
1958-60 Avg.	12,444	26,800	\$106.50	\$105.27	42.08	41.63	\$ 2.531	\$ 2.529

	"E" Annual Man-Hours		"F" Annual Earnings		Annual Earnings Per Man	
	"A" x "C" x 52		"E" x "D"		"F" ÷ "A"	
	ARIZONA	U. S.	ARIZONA	U. S.	ARIZONA	U. S.
Base Period: 1947-49 Avg.	24,943,412	62,145,720	\$35,718,966	\$ 88,930,525	\$3,338	\$ 3,282
Last Three Years:						
1958	27,939,600	57,742,880	\$67,027,100	\$139,737,770	\$4,965	\$ 4,920
1959	24,704,160	49,853,440	62,402,708	124,633,600	5,622	5,564
1960	28,523,957	58,015,568	76,273,061	153,741,255	5,990	5,194
1958-60 Avg.	27,055,906	55,203,963	\$68,478,498	\$139,610,822	\$5,503	\$ 5,210

Continued -

TABLE VI (Cont'd)

	"G" Tons Copper Ores		"H" Lbs. Equiv. * Cu Produced From Copper Ores	
	ARIZONA	U. S.	ARIZONA	U. S.
Base Period: 1947-49	38,082,754	82,875,491	748,056,267	1,625,975,640
Last Three Years:				
1958	56,255,809	114,824,468	941,903,000	1,918,362,400
1959	53,121,545	103,715,843	821,777,000	1,594,926,200
1960 P	66,000,000	133,000,000	1,085,000,000	2,236,350,000
1958-60 Avg. P	58,492,451	120,362,020	949,560,000	1,916,546,000

P. = Preliminary.

* Includes value of gold and silver recovered from copper ores converted into lbs. of copper at average copper price.

	Tons Copper Ore Produced Per Man-Hour "G" ÷ "E"		Lbs. Equiv. Copper Produced Per Man-Hour "H" ÷ "E"		Earnings Per Man-Hour "D"	
	ARIZONA	U.S.	ARIZONA	U.S.	ARIZONA	U.S.
1947-49 Avg.	1.5268	1.3336	29.9901	26.1639	\$ 1.432	\$ 1.431
1958-60 Avg.	2.1619	2.1803	35.0962	34.7175	\$ 2.531	\$ 2.529
% Incr. in 11 yrs. Per Year	41.60% 3.78%	63.50% 5.77%	17.03% 1.55%	32.69% 2.97%	76.74% 6.98%	76.73% 6.98%

TABLE VII

SUMMARY OF ESTIMATED* COPPER MINING EMPLOYMENT, WEEKLY EARNINGS,
WEEKLY HOURS, HOURLY EARNINGS, IN ARIZONA AND UNITED STATES,
BY YEARS, 1947 TO 1960 INCLUSIVE

Source: "Employment and Earnings" - U. S. Dept. of Labor.
"Arizona's Current Employment Developments" -
Arizona Employment Security Commission.

	ALL EMPLOYEES		WEEKLY EARNINGS		WEEKLY HOURS		HOURLY EARNINGS	
	Arizona	U.S.	Arizona	U.S.	Arizona	U.S.	Arizona	U.S.
1947	10,700	25,700	\$ 59.40	\$ 59.27	45.0	44.8	\$ 1.32	\$ 1.32
1948	10,900	27,800	65.99	65.81	45.2	45.2	1.46	1.46
1949	10,500	27,300	66.98	63.96	44.3	42.3	1.512	1.512
Avg. 1947-1949	10,700	27,100	\$ 64.20	\$ 63.11	44.83	44.1	\$ 1.432	\$ 1.431
1950	9,500	25,800	\$ 75.80	\$ 72.05	46.5	45.0	\$ 1.63	\$ 1.601
1951	10,100	25,900	83.01	78.37	47.7	46.1	1.74	1.70
1952	10,700	26,500	90.31	85.73	47.06	45.6	1.92	1.88
1953	11,400	28,600	96.03	91.60	46.73	45.8	2.055	2.00
1954	11,900	27,400	96.60	87.33	45.31	42.6	2.132	2.05
1955	11,800	27,200	104.90	95.70	47.0	44.1	2.232	2.17
1956	13,300	34,400	112.07	100.95	47.1	43.7	2.377	2.31
1957	14,000	32,500	106.22	98.23	43.8	41.1	2.425	2.39
1958	13,500	28,400	95.40	94.62	39.8	39.1	2.399	2.42
1959	11,100	22,400	108.15	106.25	42.8	42.5	2.526	2.50
1960	12,733	29,600	116.83	114.75	43.69	43.3	2.674	2.65

* These estimates include all full and part-time wage and salary workers who worked or received pay during the pay period ending nearest the 15th of the month.

TABLE VIII

ARIZONA COPPER MINING - OUTPUT IN TONS COPPER ORE,
VALUE OF COPPER, GOLD, SILVER PRODUCED

Source: U. S. Bureau of Mines

	Tons Copper Ore Annual Rate	Gold Ounces & Value	Silver Ounces & Value	Copper Pounds & Value	Lbs. Cu Recov. Per Ton & Copper Price	Value of Copper, Gold & Silver	Lbs. Copper Equiv. to Total Val. Cu, Gold & Silver
1947-1949	38,082,754	79,612 \$2,786,420	2,603,485 \$2,356,154	723,353,767 \$150,588,843	19.0 lbs/ton 20.818¢	\$155,731,417	748,056,267
1950	41,757,037	79,562 \$2,784,670	2,853,375 \$2,582,304	765,334,514 \$162,250,916	18.3 lbs/ton 21.2¢	\$167,617,890	767,000,000
1951	42,784,388	83,521 \$2,923,235	3,087,865 \$2,794,518	775,609,514 \$187,697,501	18.1 lbs/ton 24.2¢	\$193,415,254	799,236,600
1952	44,472,522	83,692 \$2,929,220	2,900,851 \$2,625,270	730,809,903 \$176,855,996	16.4 lbs/ton 24.2¢	\$182,410,486	753,762,300
1953	45,187,838	89,724 \$3,140,340	3,164,255 \$2,863,809	738,404,453 \$211,922,077	16.3 lbs/ton 28.7¢	\$217,926,226	759,324,830
1954	43,072,894	94,648 \$3,312,680	3,380,060 \$3,058,954	714,154,795 \$212,103,976	16.6 lbs/ton 29.7¢	\$218,475,610	735,608,120
1955	52,189,728	105,330 \$3,686,550	3,629,191 \$3,284,418	856,270,850 \$321,101,569	16.4 lbs/ton 37.5¢	\$328,072,537	874,860,100
1956	60,468,580	119,435 \$4,180,225	3,963,579 \$3,587,039	935,039,400 \$390,846,469	15.5 lbs/ton 41.8¢	\$398,613,733	953,621,100
1957	59,571,834	123,375 \$4,318,125	4,088,618 \$3,700,200	947,840,100 \$280,560,670	15.9 lbs/ton 29.6¢	\$288,579,000	975,720,000
1958	56,255,809	114,262 \$3,999,170	3,543,044 \$3,206,455	913,973,800 \$235,805,240	16.2 lbs/ton 25.8¢	\$243,010,865	941,903,000
1959	53,121,545	96,153 \$3,365,355	2,724,701 \$2,465,854	803,087,000 \$250,563,144	15.1 lbs/ton 31.2¢	\$256,394,353	821,777,000
1960	66,000,000	119,460 \$4,181,100	3,400,000 \$3,077,000	1,062,000,000 \$339,840,000	16.1 lbs/ton 32.0¢	\$347,200,000	1,085,000,000

TABLE IX

UNITED STATES COPPER MINING - OUTPUT IN TONS COPPER ORE,
VALUE OF COPPER, GOLD, SILVER PRODUCED

Source: U. S. Bureau of Mines

	Tons Copper Ore Annual Rate	Gold Ounces & Value	Silver Ounces & Value	Copper Pounds & Value	Lbs. Cu Recov. Per Ton & Copper Price	Value of Copper, Gold & Silver	Lbs. Copper Equiv. to Total Val. Cu, Gold & Silver
1947-1949	82,875,491	479,589 \$16,785,615	7,785,382 \$7,045,770	1,511,500,640 \$ 314,664,195	18.2 lbs. 20.818¢	\$338,495,580	1,625,975,640
1950	94,585,792	583,205 \$20,412,175	8,389,913 \$7,592,871	1,691,778,098 \$ 358,656,570	17.9 lbs. 21.2¢	\$386,616,616	1,823,876,000
1951	95,494,214	564,471 \$19,756,485	8,362,150 \$7,567,746	1,709,655,673 \$ 413,736,679	17.9 lbs. 24.2¢	\$441,060,910	1,822,566,000
1952	99,947,492	572,882 \$20,050,870	8,197,888 \$7,419,089	1,695,789,296 \$ 410,381,011	17.0 lbs. 24.2¢	\$437,850,970	1,809,300,000
1953	101,064,945	617,712 \$21,619,920	9,163,964 \$8,293,387	1,712,438,757 \$ 493,182,374	16.9 lbs. 28.8¢	\$523,095,681	1,816,305,000
1954	93,654,258	502,091 \$17,573,185	8,073,017 \$7,306,080	1,547,643,795 \$ 459,650,209	16.5 lbs. 29.7¢	\$484,529,474	1,631,412,000
1955	112,549,665	581,421 \$20,349,735	11,527,224 \$10,432,138	1,871,640,306 \$ 701,865,113	16.6 lbs. 37.5¢	\$732,646,986	1,953,725,000
1956	131,775,959	579,617 \$20,286,595	11,512,013 \$10,418,372	2,049,455,804 \$ 856,672,524	15.55 lbs. 41.8¢	\$887,377,491	2,122,912,000
1957	129,715,586	562,234 \$19,678,190	11,097,267 \$10,043,027	2,006,037,881 \$ 593,787,218	15.5 lbs. 29.6¢	\$623,508,435	2,106,447,000
1958	114,824,468	464,051 \$16,241,785	9,182,070 \$ 8,309,773	1,819,464,806 \$ 469,421,918	15.8 lbs. 25.8¢	\$493,973,476	1,914,626,000
1959	103,715,843	367,455 \$12,860,925	6,838,927 \$ 6,189,229	1,533,867,852 \$ 478,566,785	14.8 lbs. 31.2¢	\$497,616,939	1,594,926,200
1960 P	133,000,000	471,219 \$16,492,665	8,778,000 \$ 7,944,000	2,160,000,000 \$ 691,200,000	16.2 lbs. 32.0¢	\$715,636,665	2,236,350,000

P. = Preliminary

Arizona Department of Mineral Resources

June, 1961

TABLE X

AVERAGE NUMBER OF COVERED EMPLOYEES, TOTAL WAGES, AVERAGE ANNUAL WAGE, AND AVERAGE WEEKLY WAGE

Base period 1947-1949, 1958, 1959 & 1960

Arizona Covered Industry

Compiled by Department of Mineral Resources

Source: Arizona Employment Security Commission

	Average No.Of Employees*	Total Wages	Average Annual Wage	Average Weekly Wage	Average No.Of Employees*	Total Wages	Average Annual Wage	Average Weekly Wage
	Base Period 1947 - 1949				Year 1958			
Copper Mining Only	11,278	\$ 39,432,008	\$ 3,496	\$ 67.23	14,100	\$ 74,726,972	\$ 5,300	\$101.93
All Mining & Quarrying	12,870	44,345,018	3,446	66.27	16,403	86,199,194	5,255	101.06
Smelting **	1,500	5,175,000	3,450	66.35	1,831	8,892,801	4,857	93.40
All Mining, Quar., & Smelting	14,370	49,520,018	3,446	66.27	18,234	95,091,995	5,215	100.29
Manufacturing (Excl. Smelting)	12,639	36,910,624	2,920	56.15	38,485	203,624,961	5,291	101.75
Construction	10,844	35,424,826	3,267	62.83	26,680	150,239,757	5,631	108.29
Transp. & Utilities (Excl. RR's)	10,530	29,948,944	2,844	54.69	18,041	87,436,788	4,847	93.21
Wholesale-Retail Trade	36,213	91,916,860	2,538	48.81	63,640	234,196,004	3,680	70.77
Services & Misc. (Incl. Agri.)	18,643	43,103,526	2,312	44.46	37,734	135,450,709	3,590	69.04
Totals and Averages	103,239	\$286,824,898	\$ 2,778	\$ 53.42	202,814	\$906,040,214	\$ 4,467	\$ 85.90

	Year 1959				Year 1960			
Copper Mining Only	11,568	\$ 72,095,130	\$ 6,232	\$119.85	13,764	\$ 90,312,848	\$ 6,562	\$126.19
All Mining & Quarrying	13,680	83,038,890	6,070	116.74	15,837	102,175,093	6,452	124.08
Smelting **	1,525	8,439,106	5,534	106.42	1,033	5,995,780	5,804	111.62
All Mining & Quar., & Smelting	15,205	91,477,996	6,016	115.69	16,870	108,170,873	6,412	123.31
Manufacturing (Excl. Smelting)	43,400	241,713,804	5,569	107.10	46,470	265,799,784	5,720	110.00
Construction	29,260	169,187,767	5,782	111.19	32,174	200,203,313	6,223	119.67
Transp. & Utilities (Excl. RR's)	18,839	97,345,413	5,167	99.37	19,906	106,302,227	5,340	102.69
Wholesale-Retail Trade	68,990	263,771,499	3,823	73.52	74,423	291,911,971	3,922	75.42
Services & Misc. (Incl. Agri.)	42,727	162,489,695	3,803	73.13	47,190	187,753,626	3,979	76.52
Totals and Averages	218,421	\$1,025,986,174	\$ 4,697	\$ 90.33	237,033	\$1,160,141,794	\$ 4,894	\$ 94.12

* This number includes all covered employees on payroll, and is not restricted to production workers only, on which the average hourly and weekly earnings are reported.

** Smelting employment has been segregated from Manufacturing as reported by the Employment Security Commission.

Note: Fringe benefits are not included in the total wages.

TABLE XI

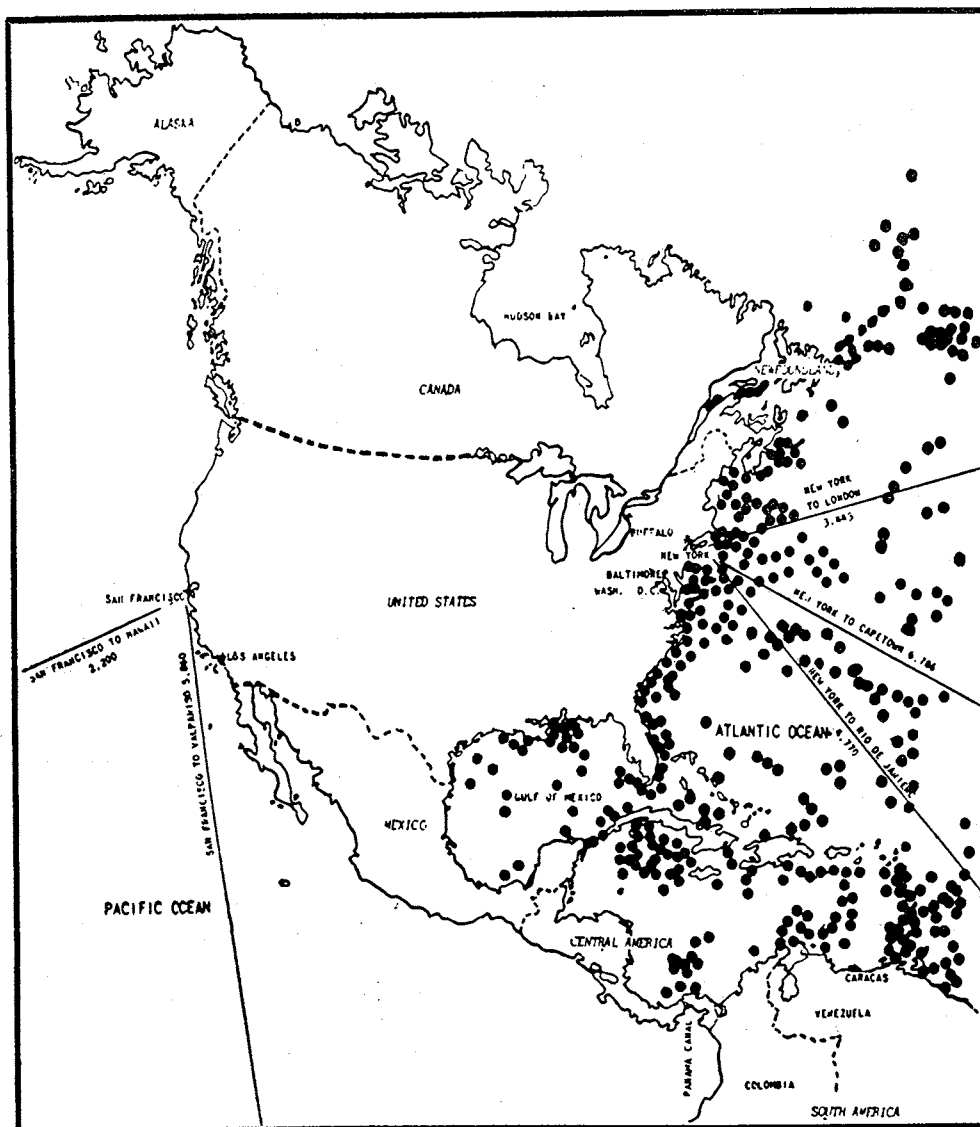
SUMMARY OF TOTAL COVERED EMPLOYMENT & WAGES IN ARIZONA COPPER MINING
1947-1960 Inclusive

Source: Arizona Employment Security Commission
United States Bureau of Mines

COPPER MINING:	No. Covered Employees	Covered Wages	Average Annual Wage	Tons Copper Ores	Average Weekly Wage
1947	11,340	\$36,365,277	\$3,207	37,810,448	\$61.67
1948	11,493	41,318,524	3,595	39,072,204	69.13
1949	11,001	40,612,224	3,692	37,365,611	71.00
1950	10,181	41,994,321	4,125	41,757,273	79.33
1951	10,754	47,825,698	4,447	42,784,388	85.52
1952	11,365	54,950,235	4,835	44,472,522	93.14
1953	12,068	62,742,982	5,199	45,187,838	99.98
1954	12,502	65,518,853	5,241	43,072,894	100.79
1955	12,399	71,293,263	5,750	52,189,728	110.58
1956	14,008	83,568,996	5,966	60,468,580	114.73
1957	14,652	85,125,320	5,809	59,571,834	111.71
1958	14,100	74,726,972	5,300	56,255,809	101.93
1959	11,568	72,095,130	6,232	53,121,545	119.85
1960	13,764	90,312,848	6,562	66,000,000 P	126.19

P. = Preliminary

Why a maximum national security requires that we place a minimum of dependence on foreign sources of strategic and critical materials.



This potent exhibit shows why metal and mineral development within the United States should be pushed to the utmost in the interest of national defense and security. The above map pinpoints the location of 425 ships which were sunk by submarine or other enemy action along the Atlantic seaboard during a six-month period in 1942. These ships were bearing minerals, metals and other raw materials from foreign countries. The total ship tonnage lost during World War II was 6,764,000 tons, of which 3,609,000 dead weight tons went down in 1942. The growing dependency on foreign production is a definite and unnecessary hazard.

Map Reproduced from the Publication "The Log" of March, 1951

COPPER TARIFF HISTORY

In 1932, the Congress of the United States placed into the Revenue Act of 1932 a section providing for a 4-cents per pound tax on foreign copper imported into this country for domestic consumption. The Act would have automatically expired in June 1934, if it had not been extended for one year by Presidential Proclamation.

In 1935, the same tax was written into the Revenue Bill of 1935, which automatically expired on June 30, 1937. The Revenue Act of 1937 extended the tax for 2 years, beginning July 1, 1937, and in effect until June 30, 1939. Again, in June 1939, the 4-cent excise tax on copper imported into the United States was extended to June 30, 1941.

When it became apparent in the last quarter of 1940 that U.S. production was not adequate to meet the needs of industry, the Metals Reserve Company began making arrangements to buy Latin American copper. The first government contracts were announced on December 19, 1940, and from that time on, the foreign copper contracted for paid no excise tax, as the government had contracted for the full annual production of the Latin American countries. This condition lasted until late in 1946, when all price controls were removed by the OPA order, effective November 10, 1946. With OPA ceilings removed, RFC announced it would begin to pay as soon as practicable the 4-cent excise tax on foreign copper imported. This tax continued in effect until April 30, 1947, when President Truman signed a bill suspending the tax through March 31, 1949. On March 31, 1949, the President again signed a bill suspending the excise tax until June 30, 1950. Meanwhile, on October 30, 1947, the General Agreement on Tariffs and Trade (GATT) made a cut from 4 to 2 cents in the excise tax on copper effective when the tax suspension ended.

As a result of the reduced demand for copper in the second quarter of 1949,

there was agitation in Congress for withdrawal of the tax suspension, but the year closed without such action having been taken.

Several attempts failed to enact legislation extending the suspension of the excise tax on copper beyond June 30, 1950. Therefore the 2-cent tax became effective on July 1, 1950. Demand for copper increased greatly outside of the United States in 1950, and production and prices rose. The Defense Production Act, which became law early in September gave the President the power to regulate the economy to assure adequate supplies of materials for expanded defense and essential civilian requirements. Pursuant to the Act, the Defense Minerals Administration was established in the Department of the Interior to render Government assistance to industry in expanding supplies of critical minerals. During 1950 it entered into a number of negotiations with private companies for new copper-production projects. For the next few years the copper producers co-operated to the extent of increasing copper production over 25 percent.

The 2-cent copper excise tax was suspended from April 1, 1951 to February 15, 1953. This time the law provided that the Tariff Commission must notify the President within 15 days after the end of any calendar month in which the average price dropped below 24 cents a pound delivered Connecticut Valley, and within 20 days thereafter he had to revoke the suspension. The Korean War had accentuated the demand for copper, and the metal was one of the commodities for which ceiling prices were established by the General Ceiling Price Regulation, effective January 26, 1951. The ceiling on domestic copper was set at 24.5 cents, and at 27.5 cents on imported copper. In spite of this ceiling price of 27.5 cents, and also in spite of the suspension of the 2-cent excise tax, an agreement between the United States and Chilean Governments in May, 1951 provided for payment of an additional 3 cents a pound over the ceiling - 27.5 cents to 30.5 cents!

Rising costs threatened some loss of output from high-cost mines. In December, 1951 the D.M.P.A. (Defense Materials Procurement Agency) moved to prevent such losses by offering to negotiate over-the-ceiling contracts with high-cost mines then in actual production.

When controls were removed on February 25, 1953, the domestic price of copper jumped from the ceiling price of 24.5 cents to 30 cents! Even at that price (30 cents), it was merely midway between the widespread extremes of approximately 24.5 cents for most domestic copper and 36.5 cents for foreign metal before February 25.

The excise tax on copper was again suspended from February 15, 1953 to June 30, 1954, and the Act of Congress had the same provisions for re-imposition of the tax if the price fell to 24 cents.* In 1954, the suspension was extended to June 30, 1955, with the same peril point of 24 cents. On June 24, 1955 the President signed another bill to continue until June 30, 1958 the suspension of the 2-cent per pound import tax on foreign copper. The measure became Public Law 91, 84th Congress - with the peril point still 24 cents.

At the June, 1956 meetings in Geneva on General Agreements on Tariffs and Trade, the United States agreed to lower the duties 15 percent on copper and other metals and minerals in exchange for reductions of tariffs by other countries on United States exports. Excises were to drop 15 percent on copper metal, ores and concentrates - 5 percent for each of 3 years - provided the tariff were re-imposed. For example, if Congress should decide to cancel the suspension then in effect, a tax of 1.8 cents would be re-imposed for the fiscal year 1958; 1.7 cents after June 30, 1958. There was a provision to re-impose the 2-cents tax if the market price for copper dropped to 24 cents. (Here again it would have been more realistic to have set the peril point at 30 cents, before making the 15 percent cut in the tax)

* It would have been more realistic, at this time, to have set the peril point at 30 cents.

The unprecedented demand for copper during World War II, for defense purposes since the War, and for replenishment of supply for peace-time re-construction and new construction, has furnished the domestic copper industry with a market for all the copper it could produce. This situation existed up to the last half of 1956, with only one period of "recession", that in 1949. This accounted for the industry's acceptance of the tariff suspensions. However, since June of 1956, the supply has exceeded the demand for copper, and the deterioration of the domestic market has been rapid. The success of the Government's efforts to increase the productive capacity of the domestic mines since 1950 has been remarkable. The mining industry has co-operated with this effort, and is continuing to co-operate by developing new ore-bodies to keep pace with a normal growth of copper consumption.

When the 24-cent peril point was first established in 1951, it was true that the domestic price was 24.5 cents, but this was a controlled price, and compared with negotiated import prices of 27.5 - 30.5 cents, and even up to 36.5 cents. In fact, when controls were removed in 1953, the domestic price shot up to 30 cents, indicating that 30 cents was the normal price at that time.

The cost of copper production has increased more than 33 percent since 1951, and even if 24 cents had been a fair peril point at that time, then 32 cents would be more realistic at this time (1961).

Arizona Department of Mineral Resources

