THE DEPENDENCY OF
ARIZONA
ON THE COPPER INDUSTRY

A brief, submitted November 11, 1939, to the Committee For Reciprocity Information by the Arizona Copper Tariff Board in opposition to the inclusion of copper in a reciprocal tariff treaty with Chile.

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ARIZONA
COPPER TARIFF BOARD

SAM H. MORRIS, Chairman
Globe, Arizona

LIN B. ORME, Secretary
Phoenix, Arizona

MICHAEL CURLEY
Ajo, Arizona

WM. KOERNER
Superior, Arizona

JOS. W. WALTON
Prescott, Arizona

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GREAT SEAL OF THE STATE OF ARIZONA
DITAT DEUS
1912

ARIZONA COPPER TARIFF BOARD

528 TITLE AND TRUST BUILDING

PHOENIX, ARIZONA

SAM H. MORRIS, CHAIRMAN
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PRESCOTT, ARIZONA

CHARLES F. WILLIS,
ASSISTANT TO THE SECRETARY

The Chairman, Committee for Reciprocity Information,
Old Land Office Building,
Eighth and E Streets, N.W.,
Washington, D. C.

Dear Sir:

Being advised that, under the authority of the Trade Agreements Act of June 12, 1934, there is to be discussed a trade agreement between the United States and Chile, we, the Governor of Arizona and the Arizona Copper Tariff Board, on behalf of the people of Arizona, desire to present this statement as to why copper should not be included among the commodities so affected.

The presentation is largely confined to the effect which any lowering of the present excise tax would have upon the State of Arizona, and the same applies, in varying degrees, to the other large copper producing states of Montana, Utah, Nevada, New Mexico, and Michigan. Arizona's future will be particularly affected by any change in the status of copper inasmuch as copper mining is the principal primary industry in the state.

There has been no time since the enactment of the copper excise tax in June, 1932, that its need has been as apparent as it is today. The original purpose of the tax was to reserve the domestic market to domestic copper producers and the unsettled conditions that confront the world today make this defensive measure more necessary than ever before to the welfare of the copper producing areas.

BRITAIN PEGS COPPER AT 9 CENTS

Since September 12, just after the outbreak of the European war, the price of copper in Great Britain has been pegged at approximately the equivalent of 9 cents a pound. To be exact, the British Ministry of Supply has set the price of electrolytic unwrought copper at £51 0s 0d, c.i.f. United Kingdom ports, which is equal to 9.14 cents a pound with sterling exchange at $4.01½ as quoted September 12.

Inasmuch as British markets have been the principal copper trading centers in the world and in view of the fact that the British fleet can seriously impede shipments of the metal to Germany, thereby largely eliminating that market, the action of the British Government in setting a fixed copper price has already had a profound influence on the world copper industry. The full impact of the blow has not been

felt in the United States for the sole reason that there is a protection of 4 cents a pound which is limiting shipments of copper to this country.

Copper is now selling for 12½ cents a pound in this country and this price, which the President of the United States in a recent press conference implied is about right, would undoubtedly be considerably lower if the excise tax were not in existence.

It is only because of the action of the British Government in fixing the price at its present level, however, that there is a differential between domestic and foreign prices as great as is seen today. By the end of last August, 86 months had elapsed from the time the excise tax was first enacted. In 14 of those months the domestic price was fixed by the government under the authority of the National Recovery Act, and throughout the remaining 72 months domestic and foreign prices have exhibited a close relationship.

During 60 months of the period, the average monthly price of domestic copper, as compiled by the American Metal Market, did not exceed that same source's average foreign price by as much as one-half cent a pound and during 22 months of the period the British quotation was actually higher than that in this country. This clearly shows that the price of copper in this country has not been unjustifiably advanced by the producers in order to take a profit advantage of the copper excise tax.

It is doubtful if the producers could have done so had they wanted to because this country has a substantial exportable surplus when scrap output is taken into account. However, a different situation confronts the producers today and because of war conditions and an artificially low price in Britain, a substantial differential between the domestic and foreign prices has developed that can only be maintained by means of the copper excise tax. A reduction in this duty would undoubtedly force a lower domestic price, inasmuch as the quotation in this country is currently 3½ cents higher than it is in England.

Not only would the price be lowered, but importation of foreign copper into the United States for domestic consumption might well occur for the first time since the tax went into effect with the signing of the Revenue Act of 1932. The importation of any copper is important because it lessens production in the United States and seriously affects conditions in the copper mining communities.

FOREIGN COSTS LOW

In regard to the ability of foreign producers to ship copper to the United States for consumption domestically, Minerals Yearbook, 1939, makes some extremely pertinent statements. (1) After pointing out that several outstanding developments in the world copper industry during the last decade have had a pronounced effect on the price of copper and in the international trade in the commodity, it states:

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(1) Minerals Yearbook, 1939; United States Bureau of Mines; pp. 93-95.

"Perhaps the most important of these has been the remarkable growth in the production of the British Empire to a point where the Empire now has an exportable surplus. Contemporaneous with this expansion there has been a substantial increase in South American production, most of which is controlled by subsidiaries of United States companies. Both sources apparently can produce copper at a cost considerably below the average cost of production in the United States; in consequence, the position formerly enjoyed by domestic producers in the international market, particularly in Great Britain, Germany, and France, has been weakened to a considerable degree. With minor exceptions, exports from the United States have decreased steadily, and more and more domestic producers are forced to depend on the home market for the absorption of their mine output. During 1938 . . . exports from the United States increased materially, but as this was due largely to the abnormal demand abroad for armament it can be considered only a temporary situation."

The statement that domestic producers are being forced to rely more and more on the home market because of competition from relatively low cost foreign producers is especially significant because it means that there is no other outlet for United States copper. It also means that greater tariff protection, rather than less, is essential if the domestic copper industry is to retain its status.

Even though the reciprocal trade treaty, in which a reduction in the copper excise tax will be discussed, is being negotiated with Chile, British production, as well as the output of all other major producers abroad, will obtain the same advantages due to our "most-favored-nation" policy. It is realized that, because of the war, Chilean copper producers are having difficulty in marketing their copper, but the United States market should not be opened to copper production from all countries in the world just in order to give Chile a hand.

Furthermore, Chile producers are much better equipped to dispose of their copper in world markets than are domestic mines because the cost of copper production in the South American country is much lower. Many United States producers could not export copper and survive the competition and would be forced to shut down if copper from Chile were to invade the domestic market. The Minerals Yearbook makes some interesting comments regarding Chile's position as follows:

"Chile occupies a unique and powerful position in the international copper trade. The resources of copper in Chile are far greater than those developed so far in either Canada or South Africa and as a matter of fact are larger than the combined total for these two countries. It is evident from the reports published that the Chuquicamata deposit contains more metallic copper than do the combined deposits of Rhodesia and the Congo. The largest mines in Chile are controlled by citizens of the United States and as these mines can produce copper at a price that cannot be equalled by any group of mines throughout the world on a similar tonnage basis they occupy a strategic position in the industry. . . ."

In 1938 Chile produced 387,315 tons of copper. Domestic consumption during the same year amounted to 521,675 tons which compared with a domestic output of 553,430 tons. (2) It can readily be seen, therefore, that a reduction of the excise tax in a trade agreement with Chile permitting that country alone to ship its copper into the United States would serve to completely demoralize the domestic copper industry.

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(2) Yearbook of the American Bureau of Metal Statistics, 1938, pp. 10-11.

The very fact that foreign copper has not been allowed free access to the domestic market since the enactment of the excise tax has played a large part in the recovery of the copper industry in this country since 1932. It is true that the general business revival that has been experienced has been a most important factor, but it is obvious that if foreign copper, produced at a lower cost and available at a lower price, had been allowed to enter the United States unrestrictedly the copper producers in this country would not have been able to participate as completely in the progress that has been made since the depths of the depression.

Until the foreign producers were denied access to the domestic copper market, cutthroat competition prevailed throughout the world and what was left of the home market was rapidly being taken over by the low-cost South American, African, and Canadian copper producers. All attempts toward cooperation to avoid over production failed and stocks in the United States mounted to unprecedented levels. It was only after the enactment of the excise tax that the United States producers were able, by their own action, to halt the steady rise in stocks and bring the domestic situation under control.

WAR FACTORS INVOLVED

Copper consumers might have to pay a severe penalty if domestic mines find it impossible to operate and domestic buyers rely on foreign copper to fill their needs. In view of the war situation in the world today it would be a serious mistake for the United States to rely on foreign copper to meet domestic consuming requirements.

Just as serious, however, is the threat to the stability of the domestic market that will be seen when foreign nations seek to dispose of their surplus following the completion of a war. Foreign nations have been buying an unprecedented amount of copper in recent years and shipments have been at record levels. Foreign apparent consumption of copper in 1938 amounted to 1,656,134 tons against 1,529,553 tons in 1937 according to the American Bureau of Metal Statistics.

Much of this copper has been used to build up a reserve for war purposes for foreign nations recognize that copper is a strategic war material and is indispensable in military activity. Heavy buying of the metal is continuing today, but when hostilities end and nations feel that they no longer need great reserves they will dump their surplus on the world markets.

This is exactly what happened after the last war and many United States mines were forced to shut down while others curtailed their output drastically until the excessive war stocks that had been built up could be consumed. In 1921, United States copper production amounted to only 238,420 tons against 635,248 tons in 1920 as a result of this condition.

A similar situation following this war can only be prevented by a continuation of the protection that the domestic copper industry now enjoys. While it is true

that a 2-cent tax would help, the protection would only be half what it was formerly and the depressing effect on the United States price would be 2 cents greater if the domestic market is to be reserved to United States production.

It is doubtful, however, that a 2-cent tariff would be sufficient to safeguard the home market under such conditions. Two cents is less than the difference in costs of production between many domestic and foreign mines as it is, but when nations dump copper neither costs of production nor the price they paid for the metal have any real significance. Importation of foreign copper would inevitably result with protection of only 2 cents and it is questionable if even the present 4-cent tax is sufficient.

ARIZONA'S DEPENDENCY ON COPPER

The situation would be particularly serious in Arizona where copper is the great primary industry. Industries may be grouped into two general classifications - primary and service. The former is one which produces new wealth or exportable products while the latter exists to serve the primary industries and their dependents.

There are few primary industries in Arizona and mining is the outstanding one. Because copper accounts for the great bulk of the state's mineral output, any change in the status of the copper industry is bound to be reflected quickly in conditions within the state. Without this industry many Arizona towns would not have been heard of and many great areas would never have been developed.

Bisbee, Douglas, Clifton, Morenci, Ajo, Jerome, Clarkdale, Superior, Globe, Miami, Ray and Hayden are among the towns which owe their existence today to the copper mines. And the larger cities, Phoenix, Tucson, and Prescott, would never have grown to their present size without the support of the mining industry.

In 1937, the most prosperous year the state has experienced since the depression, Arizona's mines produced minerals valued at $94,564,494 of which $90,855,462 was in gold, silver, copper, lead, and zinc. Copper alone accounted for $69,811,676 while the value of metals produced from copper materials totaled $80,735,047 or 89 per cent of the total value of the metal output of the state. (3)

This leaves only 11 per cent of the state's metal production to mines which were not worked primarily for their copper content and a large part of this balance undoubtedly consisted of ores which were treated in copper smelters and which could not have been extracted commercially if those plants had not been available. Copper, therefore, is almost entirely responsible for the existence of an Arizona industry which produced $90,000,000 in 1937 and which produced $150,000,000 in 1929.

Next in importance among Arizona's primary industries is agriculture which produced crops valued at $35,375,000 in 1937 and that was followed by livestock and

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(3) Figures from Minerals Yearbook, 1939, Bureau of Mines, pp. 15, 200, 202.

animal products with $26,375,000. (4) Lumber production in 1937 is estimated to have been worth approximately $3,000,000. (5)

ARIZONA LARGEST COPPER PRODUCING STATE

The importance of copper mining to Arizona and the stake that the state has in the coming trade negotiations with Chile cannot be emphasized too strongly. Not only is Arizona primarily dependent on the copper industry for its welfare, but it is also the most important copper producing state in the nation and one of the principal sources of the metal in the world.

Since 1851, the United States has accounted for 44 per cent of the smelter output of copper in the world and Arizona has been responsible for 15 per cent. World output during this period totaled 58,176,952 short tons, that of the United States amounted to 25,871,745 short tons, and Arizona's production came to 8,535,964 tons. (6)

Official figures show that Arizona has produced 32.99 per cent of the copper output of the United States since 1845 or just the same as shown in Table II for the period since 1851. The next largest producing states were Montana with 22.12 per cent, Michigan with 17.39 per cent, Utah with 11.54 per cent, and Nevada with 4.75 per cent. In 1938, Arizona's smelter production was 210,176 tons or 37.38 per cent of the United States total. Other large producing states in the order of their importance were: Utah, 20.44 per cent; Montana, 13.89 per cent; Nevada, 8.33 per cent; and Michigan, 6.69 per cent. (7)

There are seven principal copper districts in Arizona which are known as the Globe-Miami district, the Verde (Jerome) district, the Ajo (New Cornelia) district, the Warren (Bisbee) district, the Mineral Creek (Ray) district, the Copper Mountain (Morenci) district, and the Pioneer (Superior) district. In these seven districts, which contributed more than 98 per cent of the state's copper production in both 1937 and 1938, are located the properties of Phelps Dodge Corporation, Inspiration Consolidated Copper Company, Miami Copper Company, Magma Copper Company, and the Ray property of the Nevada Consolidated Copper Corporation.

There are many more mines than these, however, the United States Bureau of Mines having reported 1,264 producing mines in 1937 of which 888 were lode mines and the rest placer. In 1938, there were 1,214 producing mines of which 885 were lode mines. It is therefore evident that there are many small mines which are producing a substantial amount of metal. Based on a questionnaire to custom smelters, there were 542 small lot shippers of custom ores that shipped 248,350 tons of ore to smelters in 1938. (See Table II).

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(4) Crop and Market Reports issued by the United States Department of Agriculture.
(5) 1936 production valued at $2,553,480. Source: Statistical Abstract of the United States, 1938.
(6) See Table I.
(7) Minerals Yearbook, 1939, U. S. Bureau of Mines, p. 97.

MANY PERSONS DEPEND ON MINES

The importance of mining to the state of Arizona is further demonstrated by the fact that about 30 per cent of the state's population is dependent upon the industry. A recent study made by the Arizona Department of Mineral Resources revealed that at the time of the 1930 census 31.69 per cent of the State's population was located in the six mining counties of the state and that in 1938 those counties accounted for 28.26 per cent of the population.

The study was based on the premise that in the counties predominantly dependent on mining, the entire population was supported by the mining industry. While it is true that there were other persons living in the counties not dependent on mining, it was assumed that these were offset by persons living in other counties who derived their livelihood from the industry.

The six counties in which mining is the principal industry are Cochise, Gila, Greenlee, Mohave, Pinal, and Yavapai. These counties contained 81.6 per cent of those gainfully employed in the extraction of minerals in the state at the time of the 1930 census and they accounted for 81 per cent of the value of the state's production of gold, silver, copper, lead, and zinc in 1938. Twenty-seven per cent of all those gainfully employed in the mining counties derived their livelihood from mining in 1930 according to the United States Census and, by virtue of their employment, practically all others in those counties received support since there has been no other important primary source of income.

The population of the mining counties in 1930, according to the United States Census, aggregated 138,023 persons or 31.69 per cent of the state total of 435,573 persons. In 1938, an estimate of the Department of Mineral Resources, based on the school enrollment in the various counties, placed the population of the mining counties at 123,736 persons, the decline in school attendance and population having been due to decreased mining production. The population of the state in 1938 was estimated at 437,890 persons indicating that the total population of the state grew while that of the mining counties showed a decline.

The reason for the increase in the state's population was primarily due to the tourist trade, for Maricopa and Pima Counties, which are particularly attractive to tourists and where only 2.6 per cent of the population is engaged in mining, increased in population from 206,646 persons to 223,652. There was practically no change in the population of the other six counties in the state which were primarily dependent on agriculture and livestock raising, their population in 1930 having been 90,904 which compares with 90,502 in 1938.

The study indicated that the welfare and the population of the counties fluctuates in sympathy with conditions in the mining industry. At the time of the 1930 census the depression, which began the latter part of 1929, had not yet affected employment in the copper camps. The copper price did not break until April, 1930, and employment was not influenced until mid-year.

Following 1930, however, the population of the mining counties dropped steadily and the declining trend was not reversed until 1937 even though the low ebb of the depression so far as the state's mineral output was concerned was in 1933. The number of persons in these six counties was lowest in 1935 and 1936 when the department calculation showed that there were approximately 114,500 residents.

COPPER A SOURCE OF WEALTH TO STATE

These figures illustrate the loss the state suffers when the mining industry encounters hard times and provide the reason for the justifiable interest the people of Arizona are showing toward the pending negotiations with Chile when a reduction in the protective excise tax on copper is to be considered. The expenditures of the copper mining companies and of their employes play a most important part in the state's economy.

A tabulation of the expenditures of the five principal copper mining companies in the state and elsewhere has been made from questionnaires sent to the five principal copper mining companies by the Arizona Copper Tariff Board and the results have been compiled in Table III. The five companies include Phelps Dodge Corporation, Ray Branch of the Nevada Consolidated Copper Corporation, Magma Copper Company, Inspiration Consolidated Copper Company, and Miami Copper Company which operate the seven principal copper mines in the state.

During the year 1938 these companies made expenditures of $45,397,000 which compares with $11,795,000 in the depression year, 1932, and $109,990,000 in 1929, a prosperous year. Of the total amount spent in 1938, $21,590,000 or 47.5 per cent was distributed in Arizona and the balance outside the state.

At first glance the table would indicate that the companies did very well last year inasmuch as they paid $5,683,000 in dividends or approximately 43 cents for each dollar of payroll. Analysis of these figures indicates, however, the varying costs of production at different properties and emphasizes the fact that a higher price is required by some companies to justify operations than by others, for only two of the five companies paid dividends.

ARIZONA PRODUCTION COST HIGH

The difficulty in establishing a fair price for copper is shown by this variation in the costs of production at the various properties. A 10-cent price will justify a certain output, a 12-cent figure will permit greater production by allowing the higher cost mines to be worked, and similarly, as the price is increased greater production is justified and at the same time the profits of the low-cost producers swelled.

The average cost of producing copper in Arizona's mines from 1922-1932, based on net earnings, has been 12.700 cents a pound as listed in Table IV. This table includes all the important mines in the state which were in operation during the period with the exception of the United Verde Copper Company on which data are not

available. The figures for the individual mines were obtained from United States Bureau of Mines Bulletin No. 405, Copper Mining in North America, which was published in 1938. The bulletin shows that costs in Arizona's mines were considerably higher than the total for the United States during the period, the average for 82.7 per cent of the total production of the country having been 11.012 cents.

These cost figures may sound high, but it must be remembered that they were computed on a net earnings basis over a 10-year period and that they include the expenses incurred during depressed times when production was curtailed and many mines were shut down as well as in more prosperous times when they were maintaining steady operations. The excessive costs of production during periods of depression, when output is negligible, cause a considerable increase in the average which would be much lower if uninterrupted output were possible. The importation of foreign copper, curtailing mining in the United States, would tend, therefore, to raise average domestic costs and at the same time lower foreign costs.

Table 62 in the bulletin, Copper Mining in North America, lists the costs of important foreign producers and shows their average during the same period to have been 9.736 cents a pound, making a difference between the costs in Arizona and the costs of the principal foreign mines of approximately 3 cents a pound. Chile Copper Company, one of the outstanding producers in the nation which is seeking concessions in a coming trade agreement, had a production cost of 8.930 cents, according to the bulletin.

Thus, Chile Copper is able to produce copper at a cost that is 3.770 cents a pound cheaper than the costs recorded by Arizona mines, which clearly indicates the need of not less than a 4-cent protective duty if Arizona's costs are to be equalized with those of Chile Copper.

Other foreign properties, which presumably would derive the same benefits as Chile Copper Company due to the "most-favored-nation" policy, have reported costs substantially lower, ranging down to less than 6 cents a pound. Therefore, it can be seen that the present 4-cent excise tax is fair and that any reduction will threaten the existence of Arizona's copper industry.

Furthermore, if copper is imported into the United States, costs will increase, because the low cost properties in Arizona are dependent on a large volume of output in order to keep their costs down. Thus, if some of the mines are forced to curtail, the cost of the remaining production will increase and aggravate the situation.

WAGE EXPENSE LARGEST COST ITEM

There are a number of reasons for the wide differences in costs of production between Arizona's mines and mines in foreign nations and one of the principal reasons is due to differences in labor costs. Table III shows that in 1938 the greatest expenditure made by the five principal Arizona copper mining companies was for labor.

Sixty per cent of the money spent in the state of Arizona by these companies was for wages and salaries and 29 per cent of the total expenditures inside and outside the state were for the same purpose. Reports of the Arizona Unemployment Compensation Commission, as compiled in Table V, show that the average wage per month per employe in the mining and smelting industry in Arizona in 1938 amounted to $131.26. This compares with an average for all industries in the state subject to the unemployment compensation law of $111.21 and an average for the employes not engaged in mining or smelting of $106.26. The excellent wages which employes in Arizona mines receive is illustrated by Table VII showing representative wages of various classifications of employes at a typical Arizona copper mine.

Table V does not list all the employes in the state because it applies to only those firms covered by the Unemployment Compensation Law. Companies with less than three employes are not subject to the law, and neither are the wages of agricultural labor, domestic services, government employes, nor the wage earners of certain non-profit organizations.

There was an average of 10,849 mining and smelting employes in the state last year covered by the law, as shown in Table V. During the first six months of this year the number had been increased to 11,757, while the average monthly wage per employe was $130.42. This is shown in Table V-A. In 1938 the mines employed 19.79 per cent of the employes subject to the law and paid them 23.36 per cent of the wages. Wholesale and retail trade reported the largest number of employes to the commission, but many of these were dependent upon the expenditures of the mining companies and their employes for their existence. Similarly, in the transportation, service, manufacturing, construction, utility, and other industries, many employes owed their livelihood to the expenditures of the mining companies.

Inasmuch as the unemployment compensation law applies only to firms employing three or more persons, a large number of employes in small operations are not covered and do not appear in the figures. It probably is reasonable to assume that by adding the workers at smaller properties not covered by the law the total would be raised to 15,000 persons.

Substantiation of this figure may be obtained from the fact that the 1930 census listed 18,134 persons engaged in all types of mining and 17,009 in copper mining. In addition, there were 3,711 persons engaged in the smelting and refining of non-ferrous metals that year making a total of 20,720 persons engaged in mining, smelting, and refining of copper.

The census also pointed out that there were 165,304 gainful workers in the state in 1930, and, inasmuch as the total population that year was 435,573, the state dependency factor was 2.635. Assuming that this same factor held true in 1938 and that there were 15,000 mining employes in the state that year, the direct dependents on the mining industry totaled 39,525 persons, or, in round numbers, 40,000.

That this is a conservative estimate is indicated by a very able survey of the dependence of a state upon mining which was made in Utah a few years ago. (8) Utah is an important source of non-ferrous metals and particularly of copper, ranking second only to Arizona as a copper producing state.

The Vandegrift Survey determined that slightly more than 3.5 persons are directly dependent on each wage earner in the mining industry, which includes the miner himself and his family. On this basis, the direct dependents on Arizona's mining industry would approximate 52,500 persons (which would indicate that the miners are more prolific than the general run of the population).

It was also found in Utah that for each person directly dependent on the Utah mining industry there were three more persons indirectly dependent, comprising the service population and their dependents. These include doctors, lawyers, teachers, clerks, salesmen, government employes, workers in the utility and amusement industries, etc.

Thus, it was determined that for each miner employed in Utah there were 14 persons, including the miner himself, directly or indirectly dependent upon him. Applying these results to the 15,000 mine employes in Arizona gives a total of 210,000 persons directly and indirectly dependent on the mining industry in Arizona.

If the Arizona state dependency factor of 2.635 as indicated by the 1930 census is used instead of the factor of 3.5, as determined by the Vandegrift analysis, and the same indirect factor of 3 is applied, a total of 7.9 persons directly and indirectly dependent on the Arizona mining industry is obtained, or 118,500 persons in 1938. This is 27 per cent of the state's population of 437,890, as calculated from school enrollment statistics, while the figure of 210,000 is 48 per cent of the estimated population.

The actual number of persons dependent on the mining industry in Arizona is probably somewhere between 27 and 48 per cent of the state's population. Whether it is nearer the upper or lower limit, the point being made is that an important part of the population of Arizona, probably about one-third, is directly or indirectly dependent on the mining industry for its livelihood.

The higher than average wages paid by the mines would tend to justify a greater than average number of dependents on the miner in Arizona, for the miners spend their pay checks promptly for food, clothing, amusement, and the necessities of life. The welfare of these dependents is therefore sensitive to fluctuations in the price of copper.

WAGES FLUCTUATE WITH PRICE OF COPPER

Wages are subject to changes in two ways as the price of copper varies. First, a reduction in the price of copper, which would inevitably occur as a consequence of

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(8) Vandegrift, Rolland A. and Associates; The Economic Dependence of the State of Utah; May 15, 1931.

a reduction in the copper excise tax, would have a tendency to curtail production and thereby lower total wage payments. Second, wages paid to workers in the principal copper camps are on a sliding scale which varies in relation to changes in the price of copper.

The sliding scale contract under which the majority of the employes in the Arizona copper mines work is shown in Table VIII. The wages in effect August, 1936, were taken as a base and those wages remain in effect as long as the price exceeds 9 cents, but is less than 9.75 cents a pound. When the price is 9.75 cents or more, but less than 11.5 cents, the wage is approximately 110 per cent of the base rate. The wage increases 5 per cent thereafter for each 1.5 cent gain that is made in the price.

A decrease of 10 per cent from the base becomes effective if the price falls below 9 cents a pound. The changes in wages become operative upon the expiration of a period of 30 days after the quotation of copper moves into a different price bracket.

Table VII, which lists representative wages of various classifications of employes, shows that present wages (October, 1939) are 15 per cent above the base rate, the price being in the 11.5 to 13 cents a pound bracket. Thus, the lowest paid underground employe, a mucker, is now receiving $5.06 per day against a base rate of $4.40. A more skilled worker such as a hoist engineer is now receiving $6.96 as compared with a base of $6.05. Thus, the income of the employes varies with the price of copper and the cost to the companies also fluctuates.

Contrasted with the above wage scale, which permits the maintenance of that which we boast of as the American standard of living, are the wages paid in Africa and South America. A report of the United States Tariff Commission to the United States Senate on Copper shows clearly the great difference between labor costs in this country and those in other important copper producing areas. (9)

This report stated that the daily cash wage paid to native mine labor in Northern Rhodesia averages from 19 cents for unskilled to 58 cents for skilled labor while the range in Katanga is from 5.5 to 34.75 cents. It was further pointed out that the African labor is much less efficient, but, because it is so much cheaper mine labor costs an average of 1.61 cents per pound of copper in Africa against 3.08 cents per pound in the United States.

In South America, standards are higher, but there still is a substantial difference between labor costs there and in the United States. The commission's report stated that the wages per worker in South America in 1928 and 1929 averaged about 42 per cent of the corresponding wages in the United States. Their efficiency was not nearly this low, however, South American labor having been 57 per cent as efficient.

There are other new factors which are causing an increase in wage expense in Arizona mines and which are tending to make present costs higher than they were a

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(9) United States Tariff Commission: Report to the United States Senate on Copper; Report No. 29, Second Series, 1932.

few years ago. Among these is the Social Security tax which is an expense not only to the employer, but to the employe as well.

The Wage-and-Hour law, on the other hand, while increasing the cost to the company, advances the income of the employes in the principal copper mines in Arizona. Because it was impractical to reduce the number of hours worked in an industry which requires continuous operations, as the mining industry does, the principal mines in Arizona elected to pay time and one-half for overtime rather than to shorten the work week of the employes when the Wage-and-Hour law went into effect.

Since the 42-hour week provision of the law became effective on October 24, the mines have been paying their employes for 42 hours of work at the regular rate, as indicated in Table VII, and paying time and one-half for the remaining 6 hours. This constitutes an increase of 6.25 per cent in wage expense over the level in existence before the Wage-and-Hour law was enacted. During the first year, when the "ceiling" was 44 hours of work in a week, that number of hours was compensated for at the regular rate and the remaining 4 at time and one-half.

ARIZONA DEPENDS ON MINES FOR TAXES

The second most important expenditure of the five major copper producers in Arizona is for taxes and the manner in which taxes have been growing is illustrated by the fact that in 1912, at the time of statehood, the per capita tax for state purposes in the state was $6.26; in 1920, it was $12.67; in 1930, it was $19.93; and in 1938, an all-time high of $32.60 was reached. (10)

In 1938, Arizona's mines paid direct taxes to the state totaling $1,861,274, and when direct county taxes paid by the mines are added to the state taxes, there is a further substantial rise. This is indicated by the fact that the five principal companies reported that their state and county taxes in 1938 amounted to $2,827,000, or 0.67 cents for each pound of copper produced in the entire state by all producers.

These figures do not take into account the indirect taxes paid by the company employes in the form of property taxes on their homes, fuel tax on the gasoline they buy, sales tax on their purchases, and the income, inheritance, luxury, and liquor license taxes. Such taxes play an important role in the support of the state government.

The need for protection of the industry and its continued operation is revealed in a study made by the Arizona Department of Mineral Resources which determined that in 1937 the Arizona mining industry paid $147.90 in state property taxes alone for each $10,000 of production. On the same basis, agriculture paid $32.75 and the livestock industry, $33.07, showing that the mining industry

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(10) Calculated from tax reports of the Arizona State Tax Commission and population figures as compiled by the Arizona Department of Mineral Resources. Figures on population in 1920 and 1930 taken from U. S. Census reports; in 1912 and 1938 based on school enrollment.

was assuming a large part of the burden of other primary industries in the state. Therefore, if the mines, which are the greatest tax contributors to the state, are forced to curtail or suspend operations and their properties lose their value, other industries and businesses will have to make up the difference. This will contribute to the general depression in the state that would ensue should there be any marked curtailment in mine production.

In Table IX is listed the assessed net valuation by general classifications of all taxable property in Arizona in 1938 which was taken from the Fourteenth Biennial Report of the Arizona State Tax Commission. This shows that the assessed valuation of the five principal copper mining companies alone exceeds that of any other classification, amounting to 21.38 per cent of the total for the state. When other mining property is included, the assessed valuation of mining property is 23.29 per cent of the total.

Actually, the amount of property tax for which the mines are responsible is considerably higher than is indicated in Table IX since they also participate in practically all of the other classifications. They pay taxes on city lots and improvements, and on their railroads, lands, utilities, motor vehicles, and the stocks of merchandise in company stores.

The county taxes paid by the five principal mining companies in the six counties in the state are listed in Table X. These companies pay more than 71 per cent of the taxes in Gila and Greenlee counties, about 40 per cent of the taxes in Cochise and Pinal counties, and 30 per cent of the taxes in Pima county, which is not primarily dependent on the mining industry. None of these companies operate in Mohave county which, nevertheless, is an important source of non-ferrous metals.

The state and county taxes paid by the mines go primarily to the support of the schools and the state's education system. Table XI lists the distribution of the total tax levy for state purposes and shows that 54.45 per cent of these funds goes to education. Special appropriations take 18.61 per cent, state institutions get 9.35 per cent, and agriculture and livestock, 5.34 per cent.

Table XII shows how important mining is as a source of sales taxes. With the exception of the retail trade classification, the mines pay more than any other group, their direct taxes having totaled $518,684 or 13.38 per cent of the 1938 total. It should be noted, furthermore, that the sales tax paid by the mines is a production tax - they are taxed at the rate of 1 per cent on their sales, even though the product is sold outside the state.

No other classification is so taxed. The other industries are able to pass the tax on to the consumers, acting as collection agencies. Retail stores merely add the tax to the price of the merchandise they sell, utilities place it on the bill, as do the moving picture houses, restaurants, printing concerns, and other groups.

Arizona's copper mines, however, are competing with copper mines in other parts of the country and they are not able to add the sales tax on to the price they charge. In addition to this direct tax, the mining companies pay an indirect sales tax that is passed on either to the companies or to their employes when goods are sold to them. Thus, the figure that shows that the mining industry is responsible for only 13.378 per cent of the sales taxes is far too small while the retail trade figure of 65.334 per cent is much too high.

A better method by which to judge the proportion of sales taxes paid is on the basis of the earnings of an employe in an industry, for, in the last analysis, sales are made in direct relation to the incomes of the employes in the various groups. Therefore, sales taxes should be proportionate to salaries. When sales taxes are figured in this manner, using as a basis the incomes of the various groups as reported by the Arizona Unemployment Compensation Commission and as listed in Table V, the mines and their employes are found to account for one-third of the state's sales taxes.

This method has flaws and the total is undoubtedly lower than one-third because two important industries, agriculture and the tourist trade, are not subject to the unemployment compensation law and a figure of around 25 per cent is probably more nearly accurate. Evidence that this is true is gained from the fact that at the time of the 1930 census 18,134 persons or 11 per cent of all those gainfully employed in the state were engaged in mining.

Assuming, therefore, that the mines account for 11 per cent of the payroll, which is undoubtedly low, inasmuch as mining employes are paid wages much higher than the average, they would have paid 11 per cent of the total sales tax collected with the exception of that paid as a production tax by the mines. This amounted to $369,515 and when the direct mining tax is added a total of $888,199 is obtained, which is 23 per cent of the sales tax collections in the state.

This calculation does not include the sales tax payments made by those persons who are indirectly dependent on the mines and who owe their jobs to the money distributed in the state by the mining industry. Mining is thus established as a heavy contributor to the state's sales taxes, providing about 25 per cent of the total.

Any cut in copper output or reduction in the price resulting from a decrease in the 4-cent copper excise tax would serve to reduce direct sales or production tax collections from the mining companies materially since the tax is paid on an ad valorem basis. Likewise, the sales tax contributions of the employes would decline if the copper price were reduced since earnings and employment in the copper camps vary directly with the price.

Besides the property and sales taxes there is the income tax which is extremely sensitive to changes in the price of copper inasmuch as a slight change in the price can create a wide variation in earnings. In 1938 the income tax was

estimated by the Arizona Department of Mineral Resources to have amounted to 34.9 per cent of the total direct taxes paid by the mining industry. The only year in which the Arizona State Tax Commission segregated the income taxes paid by the mining industry from those paid by the balance of the state was 1936, and in that year it was found that the mines paid 42.73 per cent of the state total. Incidentally, the Arizona mines also contribute substantially to the federal government in the form of income taxes, but what is needed is a higher and not a lower price in order to get all the copper mining companies, instead of just two of them, on a dividend paying basis and earning profits which can be taxed by the state and federal governments.

EQUIPMENT PURCHASES LOOM LARGE

The next important expenditure of the mines in the state of Arizona is the item of supplies and equipment. This is even more important outside the state since much of the material used in mining is manufactured elsewhere and has to be brought into Arizona.

The five principal copper producers in Arizona spent $2,599,000 for supplies and equipment in the state in 1938 and these purchases were by no means confined to the copper camps. Phelps Dodge Mercantile Company, for example, spent $325,000 for products of the Salt River Valley, bought more than $110,000 worth of products from San Pedro Valley and Sulphur Springs, purchased goods valued at $15,500 in Gila Valley, and spent $13,300 for Duncan Valley products; altogether, a total of $465,552 was spent by the company for Arizona merchandise. The various branches of the corporation spent practically $1,291,000 in addition to this for supplies and equipment used in their mining operations.

This demonstrates an interesting point for it shows that for every dollar spent by the mines of the company for equipment, 36 cents was spent by its mercantile company for products which were sold to those dependent on the mines for their living. Furthermore, Phelps Dodge Mercantile Company by no means has a corner on all the business done in the communities served by the parent company. Many other stores are available which buy and sell a substantial amount of Arizona products.

It is through these purchases that many persons not directly dependent on the mining industry gain their livelihood and the purchases will continue only as long as the copper industry is able to maintain its position. The effect of the copper mines on businesses outside the state is just as important to the nation as a whole as are the purchases made inside the state, although the influence is not concentrated in as small an area.

LARGE EXPENDITURES OUTSIDE ARIZONA

The wide distribution of Arizona's copper yield and its far reaching effects were portrayed recently in a study by Morris J. Elsing, mining engineer and at that time statistician with the Arizona Bureau of Mines. Elsing undertook an

analysis of the distribution of Arizona's copper yield from 1874 to 1936 during which time Arizona produced 16,150,000,000 pounds of copper with a value of $2,533,000,000.

Elsing determined that during that period the average weighted price received for the copper produced was 15.7 cents per pound and that gold, silver, and other metals produced incidentally to copper mining accounted for another cent, giving a total average price of 16.7 cents received for the copper produced in the state. This money was distributed as follows:

	Cents Per Pound	Per Cent	Total
Wages and salaries	5.0	30	$ 800,000,000
Supplies & equipment	3.6	21	560,000,000
Taxes (State & Federal)	1.5	9	240,000,000
Freight on Copper	0.9	6	150,000,000
Refining	1.0	6	165,000,000
Selling	.2	1	33,000,000
Intangibles	1.4	8	220,000,000
Dividends	3.2	19	522,000,000
	16.7¢	100%	$2,690,000,000

Inasmuch as dividends over the period amounted to 3.2 cents, Elsing's study would indicate that the average cost of producing copper was 13.5 cents a pound if it is assumed that the value of the assets of the mines in 1936 equalled the original capital investments in properties and subsequent expenditures for expansion.

An accompanying chart shows graphically how the expenses in the above table were distributed and a companion chart gives a further breakdown of the $560,000,000 spent for supplies and equipment. Table XXIV lists the same material as is presented in the latter chart. This study dramatically pictures how wide spread the effects of purchases of Arizona's copper mines are, and how they contribute to the business of the nation as a whole as well as that of Arizona.

In 1938, the principal copper mining companies spent over $6,000,000 for supplies and equipment outside the state, most of the material bought coming from the eastern and mid-western manufacturing centers. In addition, $5,683,000 in dividends was distributed widely throughout the nation, $3,330,000 went to refining and selling expense, largely in the east, and a like sum went to the railroads for interstate freight shipments.

While the interstate freight expenditures created extensive business for the railroads throughout the nation, the intrastate freight bill was much more important to the railroads that serve Arizona. In 1938 the five principal companies paid freight bills on shipments within the state aggregating $1,362,000.

COPPER'S IMPORTANCE TO ARIZONA RAILROADS

The importance of mining to the railroads of the state was recently shown by a survey undertaken by the Arizona Department of Mineral Resources which showed that the state's mines have been responsible for the great majority of revenue rail

freight tonnage originating within the state. During the 27 years since statehood, the railroads have carried 147,545,490 tons of revenue freight from points within the state and 86.48 per cent of this, or 127,632,635 tons, has been attributable to the mines. Second on the list is agricultural products with only 4.77 per cent. (11)

These figures include the tonnage of the Southern Pacific and Atchison, Topeka and Santa Fe railroads as well as the company operated Ray and Gila Valley, Verde Tunnel and Smelter, and Tucson, Cornelia and Gila Bend lines. In 1937, the Southern Pacific Company carried 2,212,057 tons of freight which originated within the state; 1,533,015 tons of this consisted of products of the mines.

The influence that changes in economic conditions in the copper industry have upon the railroads is revealed by the fact that in 1915, the peak year, when the copper price averaged about 17 cents a pound, 96.36 per cent of the freight shipped from state points emanated from the mines, while in the depression year, 1933, when the average price was about 7 cents, they provided only 46.08 per cent. Over one-fifth of the property values of the state consists of railroad holdings and the mines have played an important part in creating these values since practically every branch line in the state was originally built for the purpose of serving some mining area and would be totally useless if mining activities were stopped.

The Arizona State Tax Commission assessed railroad property at $77,842,197 in 1938 or 20.14 per cent of the combined assessed valuation of all property. The rails ranked third on the list and were exceeded only by the mines, in first place, and city lots and improvements.

IMPORTANCE TO AGRICULTURE AND UTILITIES

The mines and their employes are also important consumers of power and Table XIV shows that the use of power for residential and commercial purposes and street lighting amounted to more than 18,000,000 kilowatt hours in eight mining districts in 1938. This figure does not include the consumption of power by the mining companies.

In six mining districts of the state figures of total consumption of power were available and these are listed in Table XV. In these districts the consumption of power by the mining companies and by all other users came to 235,666,000 kilowatt hours and in five of them the mines used 92 per cent of the power consumed. In 1938, mines in the Miami and Superior districts alone bought $290,000 worth of power from the Salt River Valley Water Users Association. As a matter of fact, 22.2 per cent of the power sold by this system in 1938 went to the mines. (12)

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(11) See Table XIII

(12) Annual Report and Financial Statement of the Salt River Valley Water Users Association and the Salt River Project Agricultural Improvement and Power District, 1938.

The Salt River Valley agricultural area consists of the district surrounding Phoenix, the capital of the state, and in 1938 the gross value of the crops on the project was reported as being $18,460,319. (12) In 1929, the gross value was $25,432,000.

Through the Salt River project, water is supplied to a rich agricultural area by irrigation ditches, the water being controlled by a series of dams on the Salt River, the dams collecting the water in the rainy season permitting regular distribution throughout the year. The dams on the river include Roosevelt, Horse Mesa, Mormon Flat and Stewart Mountain, and another dam, Bartlett, is located on the Verde River.

A large amount of hydroelectric power is generated by the dams of the system, and the sale of this by-product power makes possible the delivery of water to the valley at a cost that will permit the raising of crops on a commercial basis on the valley's farms. If it were not for the power sales, the cost of water would be prohibitive, and the mines made possible the erection of the dams by providing a market for the power and are now providing the necessary revenue to permit the delivery of cheap water to the valley's farms.

The Salt River Valley project is unique in that it has been an economic success and is steadily paying off its debt to the government and this condition is largely due to the cooperative efforts of the copper mining industry of the state. Other government financed irrigation projects have failed to prove the complete success that this one has because they did not have the market for the by-product power generated.

The value of agricultural crops in the entire state of Arizona in 1937 amounted to $35,375,000 according to United States Department of Agriculture crop and market reports, while the Salt River Valley Water Users Association's annual report shows that in the same year the crops on the Salt River project were worth $20,150,858 or 57 per cent of the total of the state. In addition to this, livestock and animal products output of the state in 1937 amounted to $26,375,000, part of which was in the Salt River Valley where there is extensive dairying.

While the mines provided the outlet for hydroelectric power which justified the development of the richest agricultural area in the state and are continuing to buy power from the system in sufficient quantity to make water costs to the farmers reasonable, they are also providing an important market for the state's agricultural products.

As has already been pointed out, Phelps Dodge Mercantile Company alone spent $325,000 for products of the Salt River Valley in 1938 and other firms in the copper mining camps undoubtedly bought heavily in the various agricultural areas in the state. The railroads carried part of this, but, since agricultural products accounted for only 4.77 per cent of the intrastate revenue freight tonnage last year, it is probable that the bulk of the material bought by the mines was moved by trucks.

Although no statistics on trucking are available, it is likely that the mines provided a considerable amount of business for them.

The lumber industry, which is estimated to have had a production of about $3,000,000 in 1937, also finds an important market in the mines where it is used in construction work. Furthermore, construction is expected to expand sharply during the next few years as Phelps Dodge Corporation prepares its Morenci property for operation. The company has embarked on a $28,000,000 development program to prepare the enormous Clay ore body for production and an entire town, Stargo, Arizona, is being built to serve the mine and its employes.

DEPENDENCE OF MINING COMMUNITIES

Inasmuch as Arizona relies to such a great extent on the copper mines for its welfare, fluctuations in mining activity are of considerable interest and these are revealed in Tables XVI to XXI. The tables list vital statistics in certain Arizona mining towns, such as the population, school attendance, bank clearings, number of telephone connections, and post office data. These towns are all primarily dependent on the copper mining industry for their existence and include Bisbee, Douglas, Globe, Miami, Morenci, Clifton, Jerome, Clarkdale, Cottonwood, Clemenceau, Ray, Hayden, Winkelman, Superior, and Ajo.

The tables list the statistics in 1929, an exceptionally good year, 1932, a bad year, and the more recent periods of 1936 and 1938, and show how the welfare of the communities fluctuated with conditions during the various years. The population in the mining towns, for example, declined from 73,302 persons in 1929 to 58,197 in 1932 and has since increased to 71,307, and school attendance moved in sympathy with the population changes.

Bank clearings declined from $177,610,000 in 1929 to $65,750,000 in 1932 and have since advanced to nearly $112,000,000. The number of telephone connections in 1929 was 6,392 which compares with 4,339 in 1932 and 5,035 last year. Post office data have similarly shown an improvement since the depression year, 1932.

In Table XXI, much of the data in the preceding tabulations are condensed to show the fluctuations in copper production and the influence these changes have had. For example, the copper produced in 1932 was less than 8 per cent as valuable as the 1929 output, but it has since recovered to 28 per cent. On a tonnage basis, the copper output of the state in 1932 came to 22 per cent of the 1929 production and last year it was 50 per cent of the 1929 output.

Bank clearings probably demonstrate as clearly as any figures the relative prosperity of the industry in the different years. They slipped to 37 per cent of their 1929 total in 1932, but have since climbed back to 63 per cent.

REVISION OF EXCISE TAX THREATENS STABILITY OF COMMUNITIES

When it is considered that these towns were so largely dependent on the industry for their support, it is rather surprising that population and school

attendance did not show a more marked decline. This point brings out the fact that copper camps, despite the speculative nature of the industry, are fundamentally stable - that the people do not live in trailers, but own their own homes, and are buying automobiles and furniture on time just as are employes in any other normal American community.

However, the stability of these camps is threatened by the possibility that the excise tax will be lowered, for if copper can be produced from higher grade ore bodies and with cheaper labor abroad so that there is a difference of nearly 4 cents a pound in the cost of producing copper in Arizona as compared with foreign localities such as Chile, a continuation of the tax at its present level is absolutely essential. American labor cannot compete with foreign labor because of the almost infinite difference between American and foreign standards of living.

RELIEF GREATER IN MINING COUNTIES

At the present time the relief load in the mining counties of Arizona is greater than that in other sections in the state and it is obvious that anything that is detrimental to the mines will increase the relief load in the mining counties. Analysis of the Arizona relief load is a problem that is highly complicated. The material that is available is limited and there is much that cannot be ascertained.

However, statistics could be obtained showing that 13,359 persons were receiving WPA benefits on September 19, 1938; 18,327 persons were benefiting from unemployment compensation in 1938; and that 34,615 persons were receiving public assistance through the Arizona Department of Social Security and Welfare on December 31, 1938, or a total of 66,211. The latter group includes the persons and their dependents receiving direct relief from state funds and the unemployables such as the blind, aged, and dependent children receiving aid from state and federal funds.

The 66,211 number of persons listed does not present a complete picture because it does not include the dependents of either the WPA workers or of those receiving unemployment compensation. The assistance given by the Arizona Department of Social Security and Welfare does include dependents and records of the department show that on the average there are 2.67 persons to the case.

By applying this factor of 2.67 to the number receiving WPA funds and those assisted by unemployment compensation, figures of 35,669 and 48,933 are obtained, respectively, for persons benefiting from these two kinds of relief. On this basis, the total number of persons aided by social security, unemployment compensation and the WPA was 119,217.

This total of over 119,000 persons obtaining relief within the state does not include those working for the PWA or those enrolled in the CCC. Nevertheless, it amounts to 26 per cent of the population of Arizona which totaled 458,230 persons in 1937 according to a WPA estimate. This shows how important relief is to the state

of Arizona and what an important place it is taking in the state's activities; and further analysis reveals that the mining communities are worse off from a relief standpoint than the others.

Table XXII presents a compilation of the data gathered to show the relative importance of relief to the copper mining counties as compared with the balance of the state. It shows that while the copper mining counties account for 37.3 per cent of the population of the state, 44.3 per cent of the combined load of the three relief agencies was there when mining activities were lessened because of low metal prices.

While it is obvious that the greatest relief load is in the mining counties, it is just as apparent that this number will be increased if conditions in the copper mining industry become worse. In addition, if men lose employment in the mines the number that will be forced to seek assistance will be greatly multiplied because copper mining in those counties is the primary source of income and many who are not directly engaged in the industry are dependent upon the expenditures of the mines and their employes for their incomes.

Therefore, continued protection against importation of cheaper copper produced abroad must be afforded the industry; otherwise the greatest industry in the state will be unable to produce the wealth it has in the past, a greater relief load will appear, businesses will fail, and even thriving communities may suddenly find themselves with no excuse for existence and shortly become "Ghost Towns."

Arizona's mines pay about one-third of the state taxes, accounting for nearly the entire tax load in certain counties and municipalities; they support practically one-third of the state's population; and they have made possible the development of much of the state including the rich Salt River Valley agricultural area. The economy of the state is primarily dependent on a healthy copper industry and this industry must be protected if it is to maintain its position.

In an appendix accompanying this petition are a number of pictures of the copper camps of the state and scenes within them. Surely these cities are worth preserving.

These communities, the homes of the miners, and the businesses of those who serve them, are entirely dependent upon a stable copper industry. Should the mining activities cease, there is nothing to which these home owners and business houses can turn to make a living. Therefore, anything that is done which will be harmful to their means of providing a livelihood, will virtually confiscate their properties. The margin between a prosperous community and a "Ghost Town" is small in the copper industry and it requires the protection which will assure a market for that which is produced.

Miners have built homes and merchants have erected business houses on the basis that the copper industry is substantial and stable. Thus, they have built

for permanency, but remove the market, or even cut it down materially, and all that they have vanishes. They deserve the utmost consideration for they had been given reason to believe that they were locating their homes and businesses where security, both present and future, could be found. Any cut in the excise tax on copper removes all the security that they had.

It is, therefore, the petition and prayer of the people of Arizona that they be permitted the opportunity to exist as they have in the past and that foreign produced copper, whether from Chile or other countries, not be permitted to enter this country where American standards of living prevail and must be preserved.

Respectfully submitted on behalf of the people of Arizona.

R. T. Jones
Governor of Arizona

Phoenix, Arizona,
November 7, 1939.

The Arizona Copper Tariff Board
created by act of the Legislature
of the State of Arizona in 1933

Sam H. Morris, Chairman
Globe, Arizona

Lin B. Orme, Secretary
Phoenix, Arizona

Michael Curley
Ajo, Arizona

Wm. Koerner
Superior, Arizona

Jos. W. Walton
Prescott, Arizona

State of Arizona)
) s.s.
County of Maricopa)

R. T. Jones, Governor of Arizona, Sam H. Morris and Lin B. Orme, Chairman and Secretary, respectively, of the Arizona Copper Tariff Board, being by me first duly sworn, each for himself and not one for the other, deposes and says:

That he is a citizen of the United States of America, over the age of twenty-one, and is a member of the Arizona Copper Tariff Board; that he has read the foregoing protest filed on behalf of the people of the State of Arizona in opposition to any reciprocal trade agreement with the government of Chile, or any other country, which might reduce the existing 4-cent excise tax on foreign copper; that the statements therein made are true to the best information and belief of deponent; and that the sources from which figures and material are taken are deemed by deponent to be reliable and trustworthy.

Arizona Copper Tariff Board
created by act of the Legislature
of the State of Arizona in 1933.

SAM H. MORRIS, Chairman
Globe, Arizona

LIN B. ORME, Secretary
Phoenix, Arizona

R. T. JONES, Ex-Officio
Phoenix, Arizona

MICHAEL CURLEY,
Ajo, Arizona

WM. KOERNER,
Superior, Arizona

JOS. W.WALTON,
Prescott, Arizona

_____
R. T. JONES, Governor
State of Arizona

_____
SAM H. MORRIS, Chairman
Arizona Copper Tariff Board

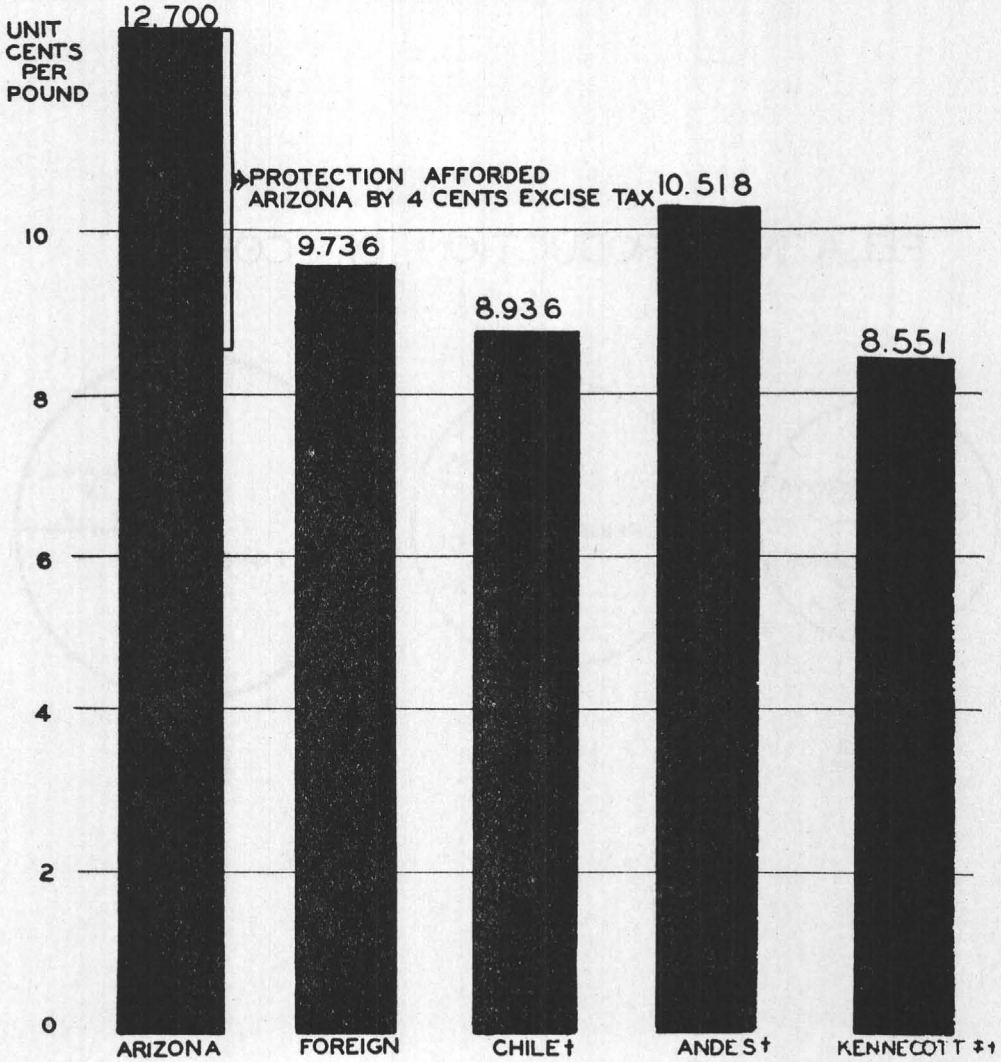
_____
LIN B. ORME, Secretary
Arizona Copper Tariff Board

Subscribed and sworn to before me this seventh day of November, A.D. 1939.

JESS R. FICKAS, Notary Public

(NOTARIAL SEAL)

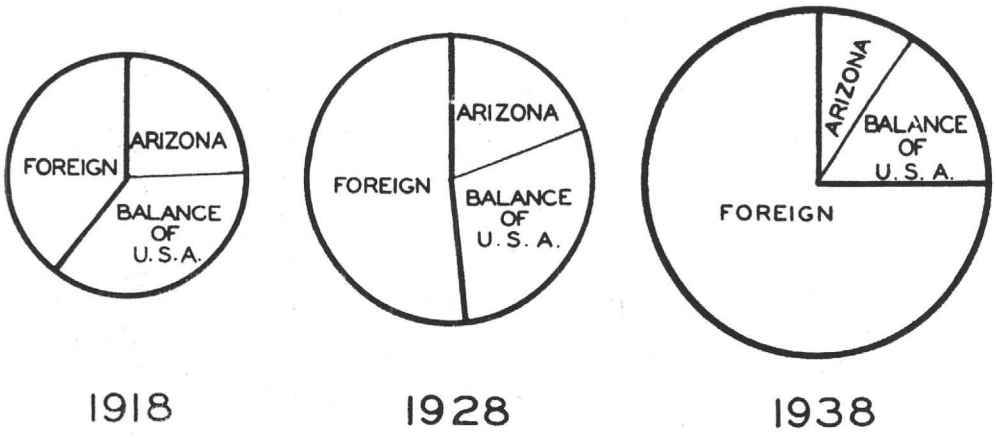
AVERAGE COSTS OF PRODUCING COPPER IN ARIZONA COMPARED WITH COSTS ABROAD AND AT SOME CHILEAN PROPERTIES



SOURCE: U.S. BUREAU OF MINES, BULLETIN 405, "COPPER MINING IN NORTH AMERICA", TABLE 62

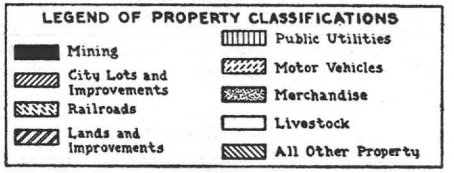
‡EXCLUSIVE OF U.S. PRODUCTION †COMPANY

RELATIVE PRODUCTION OF COPPER



MINING PROPERTY IN COMPARISON WITH OTHER CLASSES OF ASSESSED VALUATIONS, BY COUNTIES, FOR THE YEAR 1938

SHOWING THE SEVERAL COUNTIES IN THE ORDER OF THEIR RELATIVE DEPENDENCY UPON THE MINING INDUSTRY

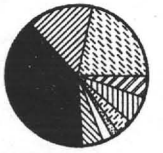


1. GILA COUNTY
Assessed Valuation $17,976,449
State Ranking - Seventh

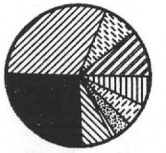
2. GREENLEE COUNTY
Assessed Valuation $9,600,799
State Ranking - Tenth

3. YAVAPAI COUNTY
Assessed Valuation $47,200,836
State Ranking - Fourth

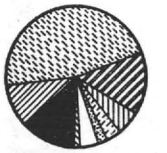
4. PINAL COUNTY
Assessed Valuation $28,120,331
State Ranking - Fifth



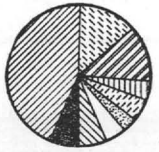
5. COCHISE COUNTY
Assessed Valuation $50,424,162
State Ranking - Third



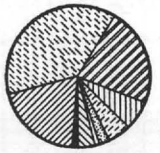
6. PIMA COUNTY
Assessed Valuation $71,221,460
State Ranking - Second



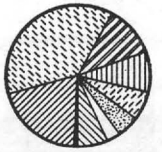
7. MOHAVE COUNTY
Assessed Valuation $13,152,562
State Ranking - Ninth



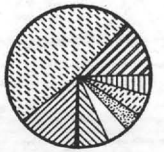
8. SANTA CRUZ COUNTY
Assessed Valuation $8,181,763
State Ranking - Twelfth



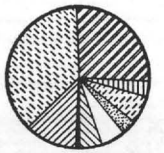
9. YUMA COUNTY
Assessed Valuation $20,596,913
State Ranking - Sixth



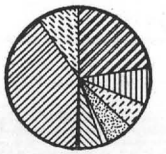
10. NAVAJO COUNTY
Assessed Valuation $9,553,325
State Ranking - Eleventh



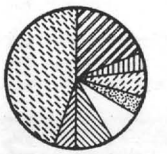
11. COCONINO COUNTY
Assessed Valuation $16,050,045
State Ranking - Eighth



12. GRAHAM COUNTY
Assessed Valuation $7,298,709
State Ranking - Thirteenth



13. MARICOPA COUNTY
Assessed Valuation $116,578,909
State Ranking - First

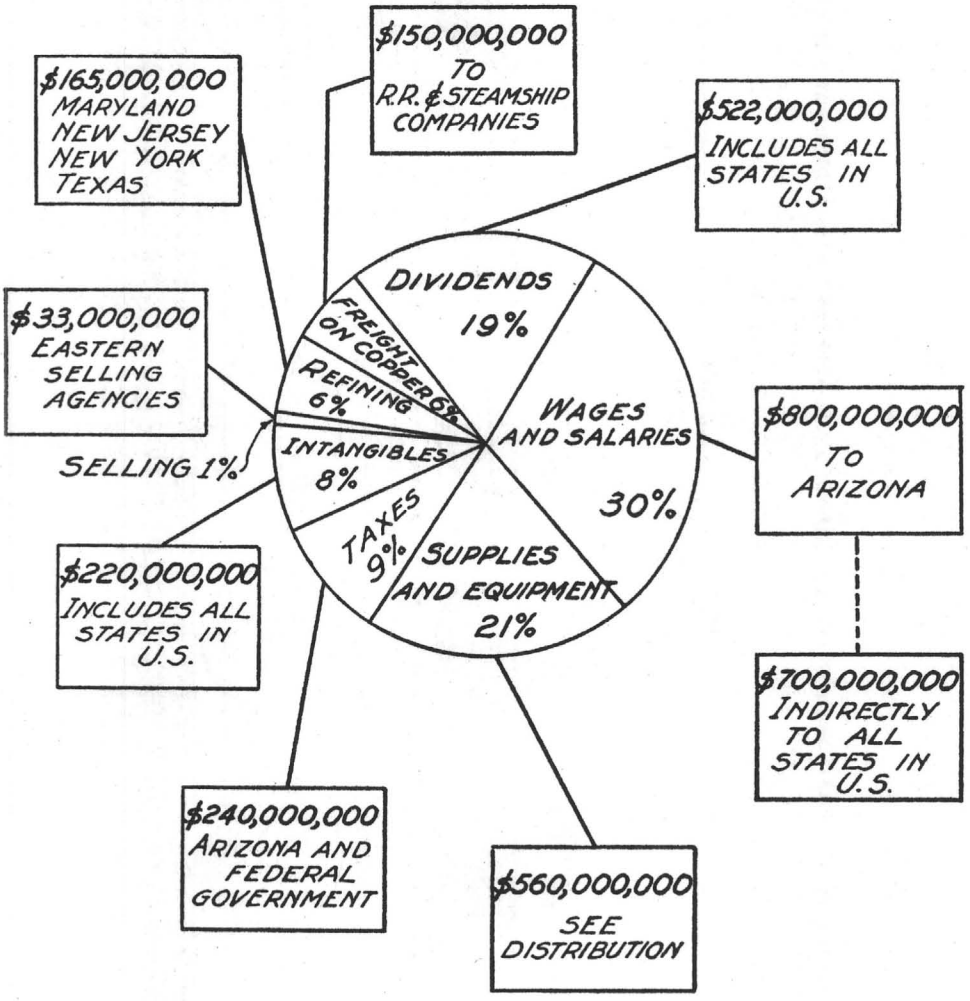


14. APACHE COUNTY
Assessed Valuation $6,975,459
State Ranking - Fourteenth

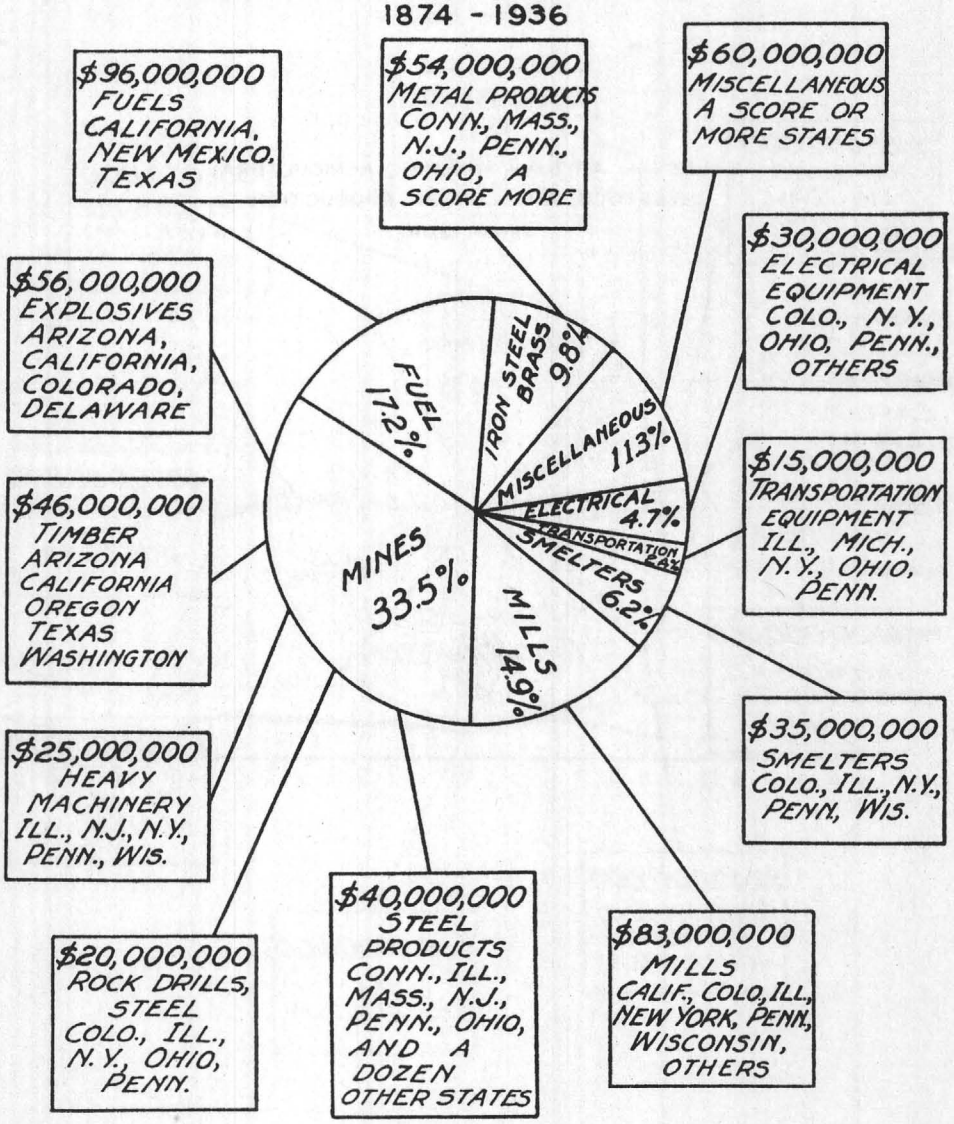
DISTRIBUTION OF ARIZONA'S COPPER YIELD

$2,690,000,000

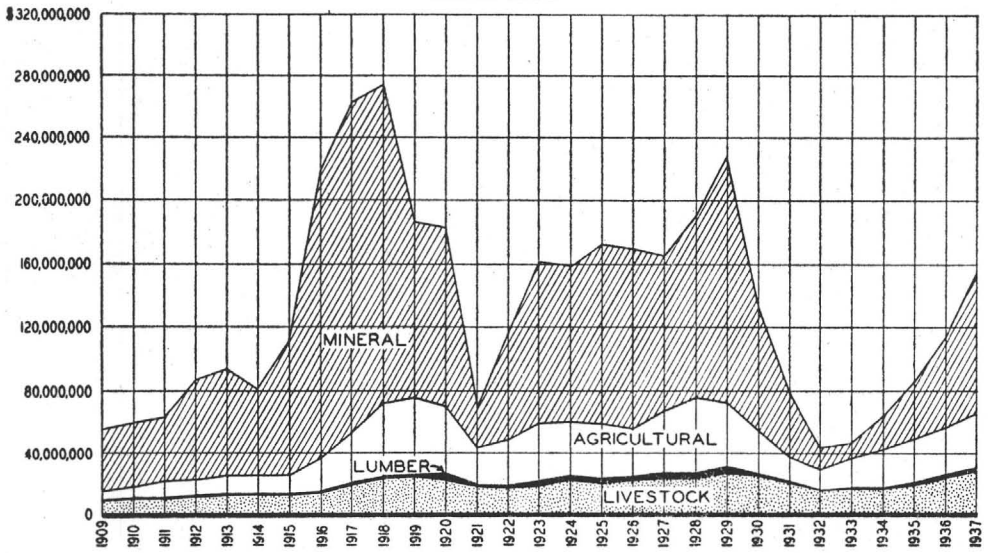
1874 - 1936

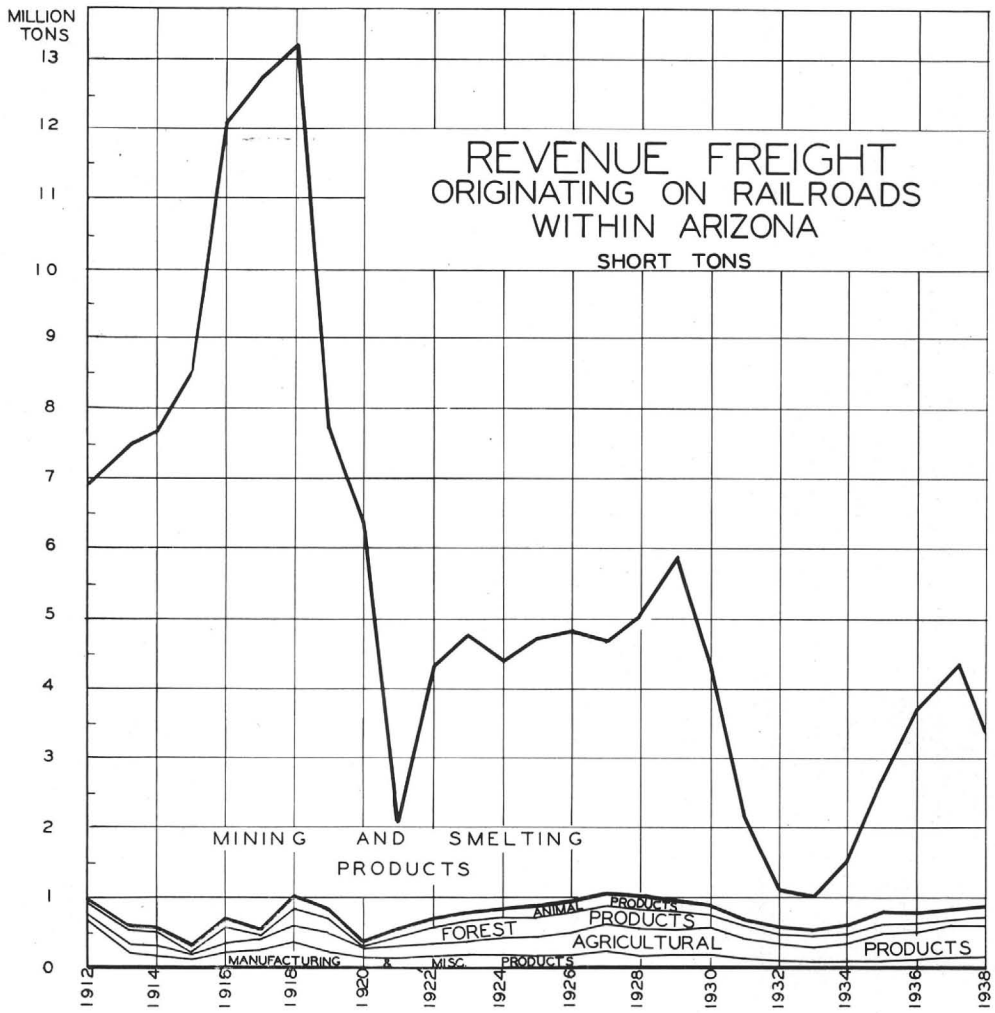


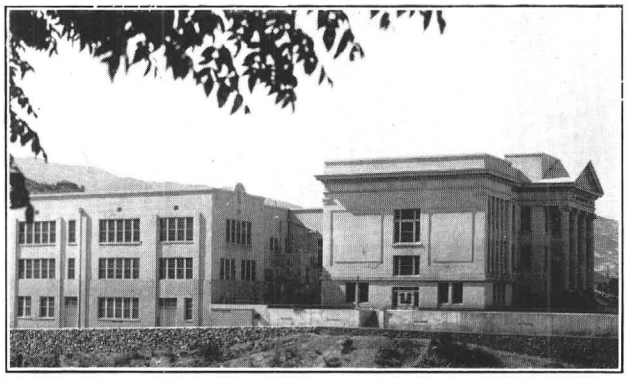
DISTRIBUTION OF $560,000,000
SPENT FOR
SUPPLIES AND EQUIPMENT
1874 - 1936



VALUE OF ARIZONA MINERAL, AGRICULTURAL, LIVESTOCK, AND LUMBER PRODUCTION SINCE 1909




MILLION TONS
13
12
11
10
9
8
7
6
5
4
3
2
1
0
REVENUE FREIGHT
ORIGINATING ON RAILROADS
WITHIN ARIZONA
SHORT TONS
MINING AND SMELTING PRODUCTS
ANIMAL PRODUCTS
FOREST PRODUCTS
AGRICULTURAL PRODUCTS
MANUFACTURING & MISC. PRODUCTS
1912
1914
1916
1918
1920
1922
1924
1926
1928
1930
1932
1934
1936
1938

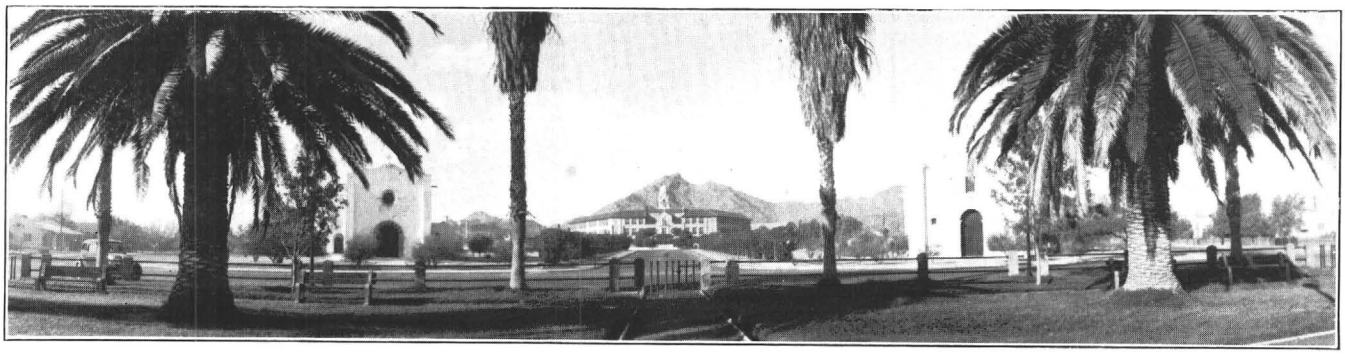


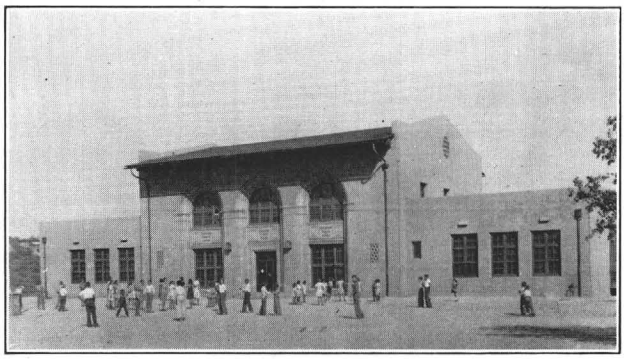
MIAMI, ARIZONA

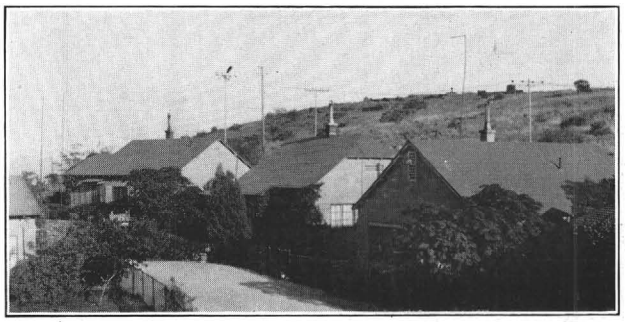
The three upper views show two schools and the Y.M.C.A. in Miami, Arizona, home of the Miami Copper Company and the International Smelting and Refining Company. The latter treats the ores produced at Inspiration as well as the output of many small producers in the vicinity. The employes of these companies are mostly married men and as such they give a stable character to the town. Well-constructed buildings feature this important copper camp.

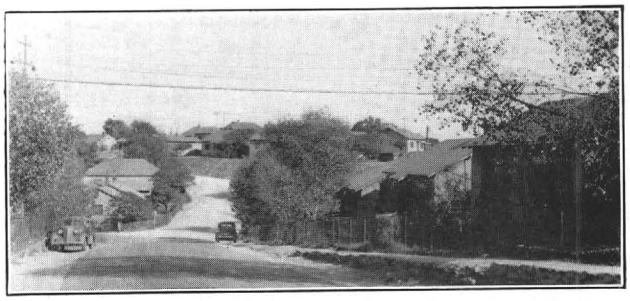
AJO, ARIZONA

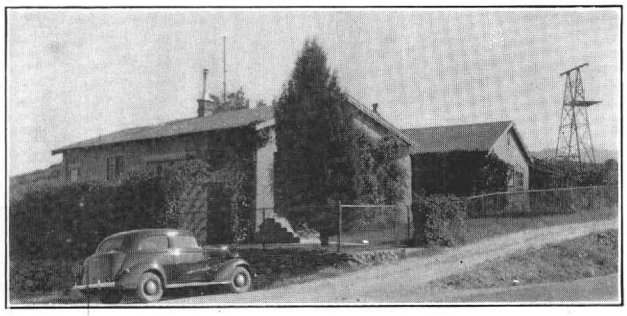
Below are the Ajo public school, at the upper left; the New Cornelia Hospital, upper right; and a panorama of the Plaza. There would be no excuse for the existence of this town, which has an estimated population of 6,500 persons, if it were not for the employment and business provided by the operations of the New Cornelia Branch of Phelps Dodge Corporation.

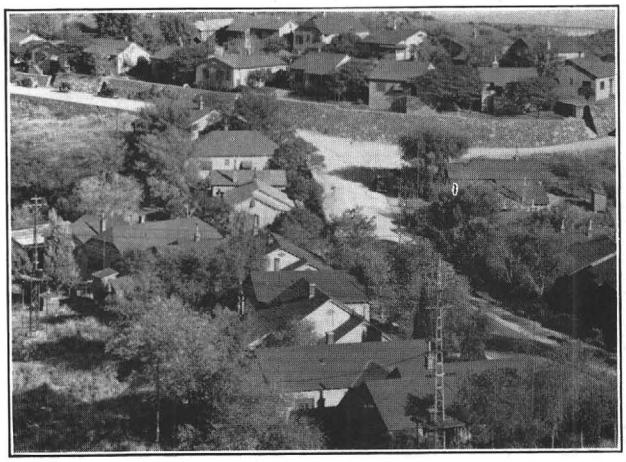








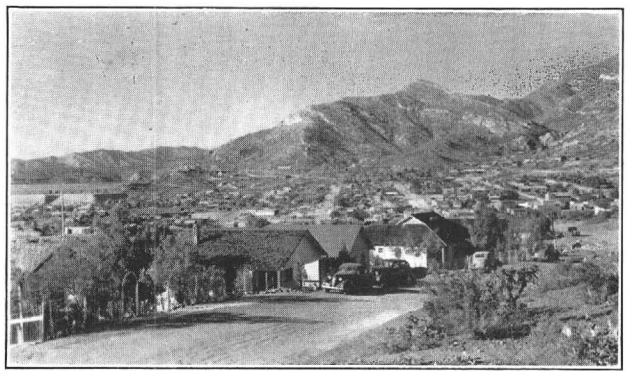




INSPIRATION, ARIZONA

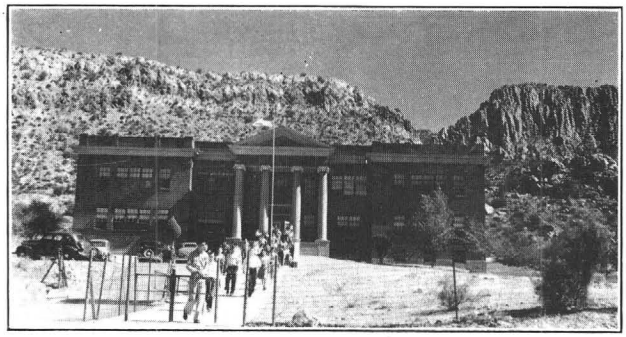
Showing the fine homes in which the employes of the Inspiration Consolidated Copper Company live and the school for children of the miners. Last year, 1,484,614 tons of ore were removed from the Inspiration mine and were treated in its leaching and flotation plants. This company is one of the state's higher cost producers and last year it reported a loss of $324,616 before depletion. Depressed conditions in the copper industry and lower prices might well force a suspension of operations and make a ghost camp out of this fine town.

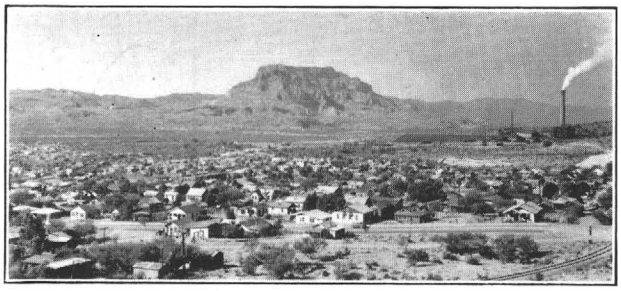
Miami Copper Company, Inspiration Consolidated Copper Company and the International Smelting and Refining Company employ 2,300 men who are residents of the Globe-Miami district, and many of them have been employed for a great many years. For the most part they own their own homes, and, out of the total, over 2,200 are American citizens. There are 1,855 married men and the average number of dependents is 4 persons per employe. In most cases the single men are supporting dependents.

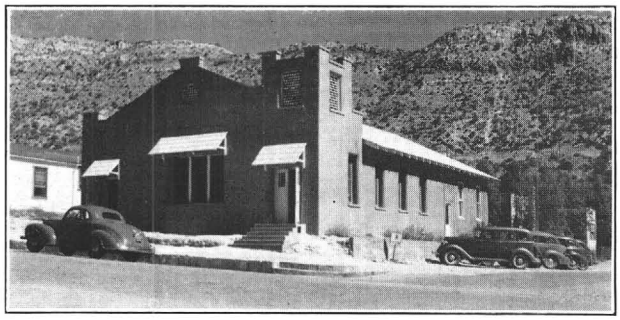


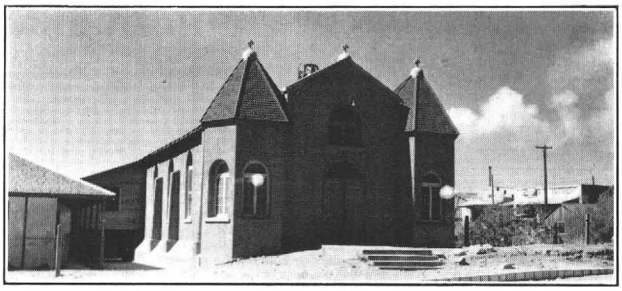
SUPERIOR, ARIZONA

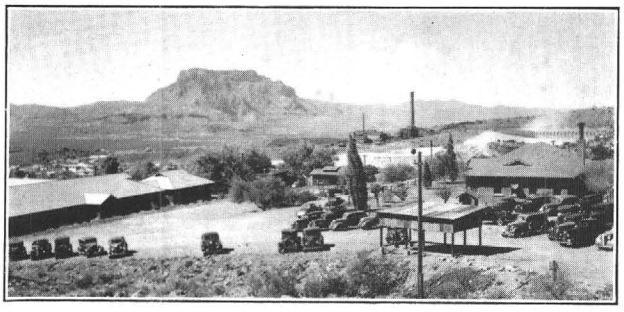
The presence of this picturesque copper mining community is entirely due to the wealth recovered from the hills that surround it. In the photograph immediately below may be seen smoke issuing from the stack of the Magma Copper Company smelter. Magma is the principal producer in the district and its copper smelter treats gold and silver ores which are recovered from nearby mines as well as copper. Such mines might not be able to produce if they could not market their output at this plant and the other copper smelters in the state because of the greater shipping costs to more distant plants.

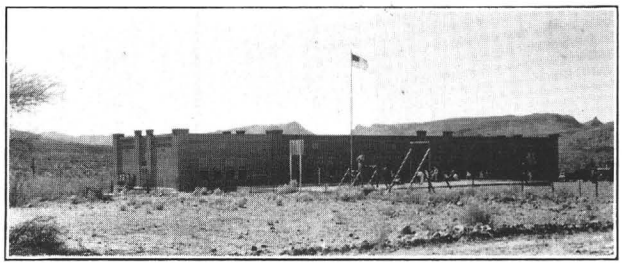


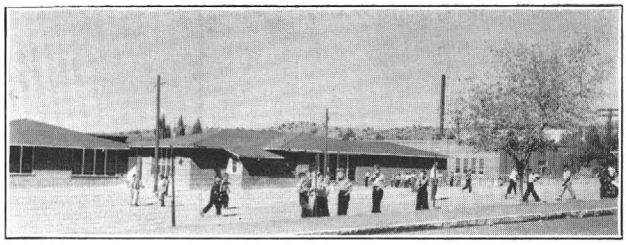


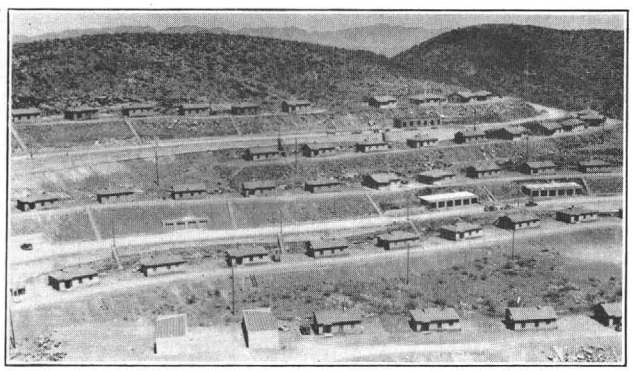


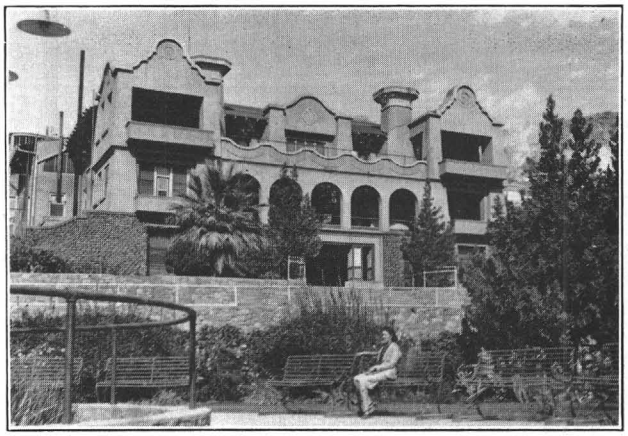






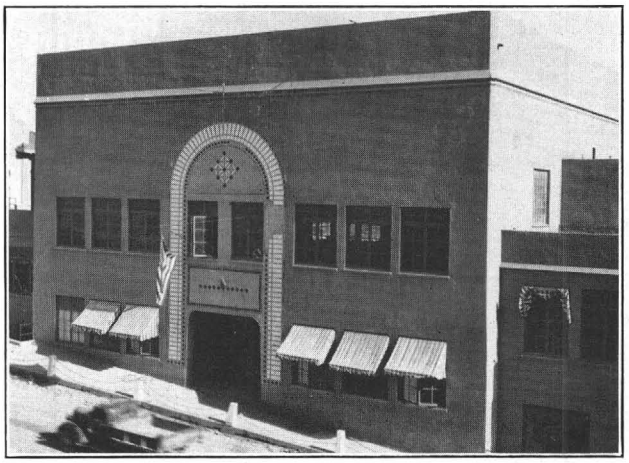


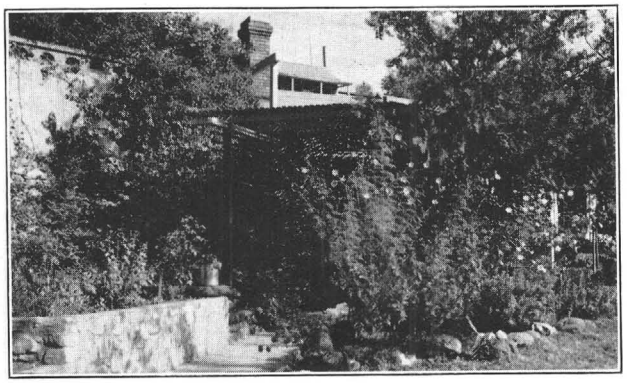


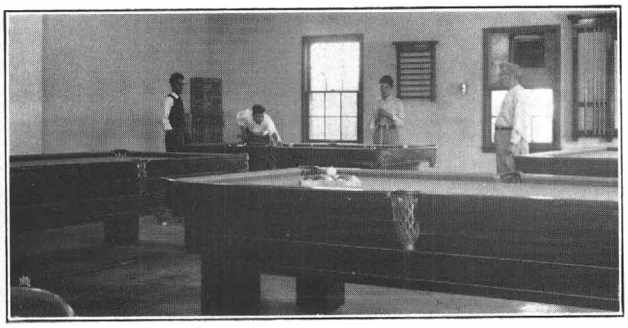


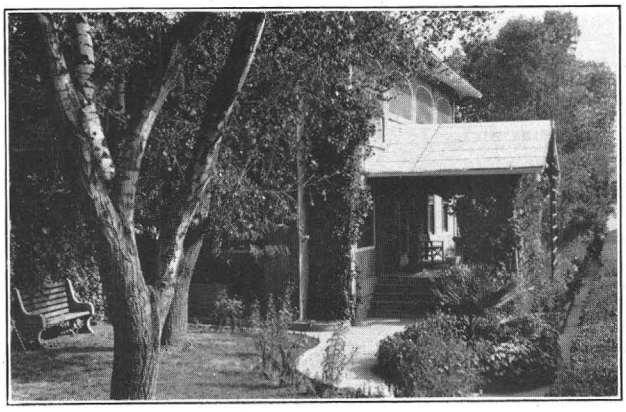
STARGO, ARIZONA

Stargo is a new town being built by Phelps Dodge Corporation to house employes at the Morenci Open Pit Mine which will be developed into one of the largest operations in the United States. The company is now in the midst of a five-year development and construction program and it is estimated that the capital expenditures of the company in preparing this mine for production will exceed $28,000,000. A daily output of 25,000 tons of ore averaging 1.06 per cent copper is planned.







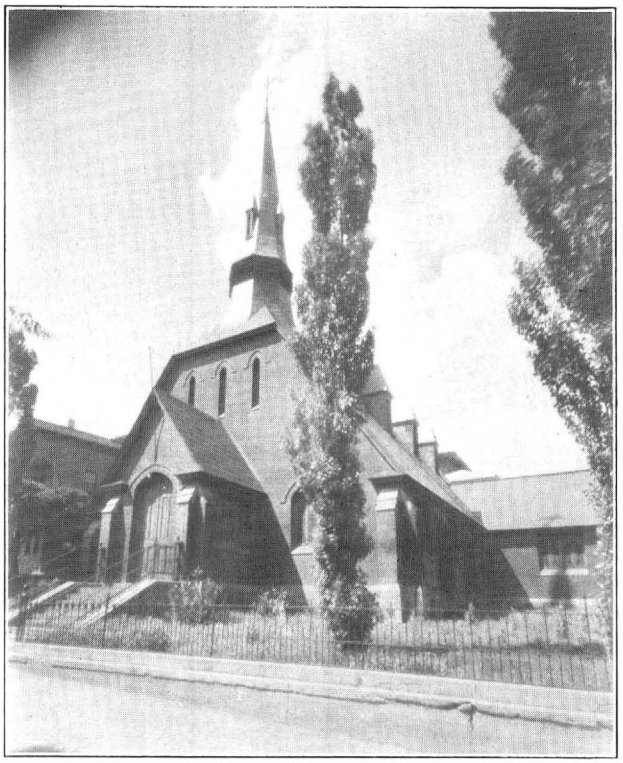


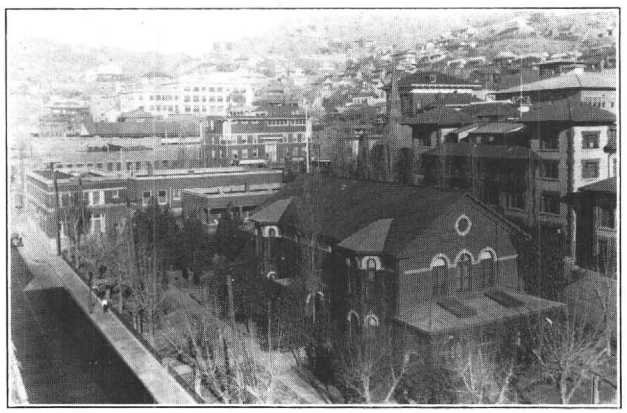
MORENCI, ARIZONA

Morenci is a copper camp that is being rejuvenated. Following the collapse in 1929 the Humboldt mine closed down and production from it since that time has been relatively unimportant; no resumption of underground operations there is contemplated. The development of the Morenci Open Pit Mine, however, is proving a great business stimulus to the community.

Like many other copper camps, Morenci is off the beaten track and its existence is entirely due to copper. Faith in the future and that American standards will be protected is clearly demonstrated by Phelps Dodge's expansion program.

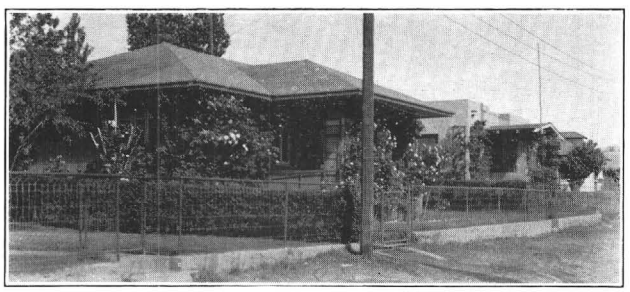
The picture at the upper right is of the Morenci Hotel which was built in 1900 and immediately below it is the Morenci High School, erected 20 years ago. At the lower left is an interior view taken in the Morenci Club for employes. The other photographs show two of the residences in the community.

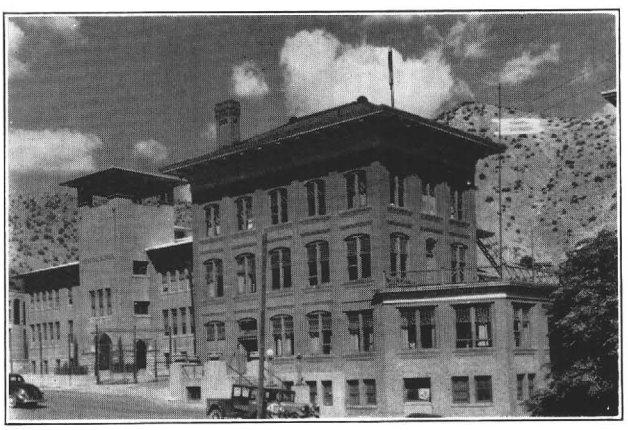


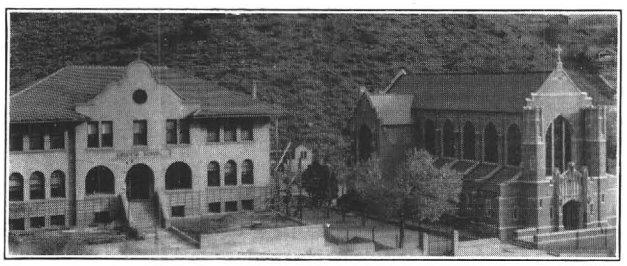


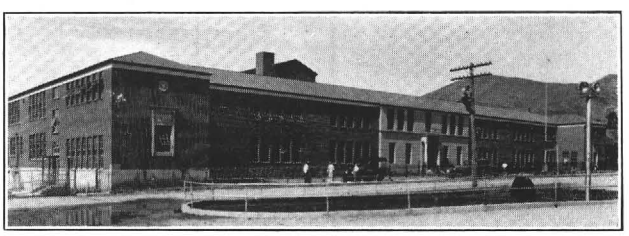
BISBEE, ARIZONA

The Copper Queen mine in Bisbee is one of the oldest copper properties in the state and was first opened up in 1880. Ever since that time this city has been a constant producer of wealth to Arizona and the nation. Immediately above is a photograph of the Presbyterian Church, and the Catholic Church and school may be seen in the lower left hand corner. To the left is a general view of the city. Other pictures show schools, employes' homes, and the general office of Phelps Dodge Corporation.





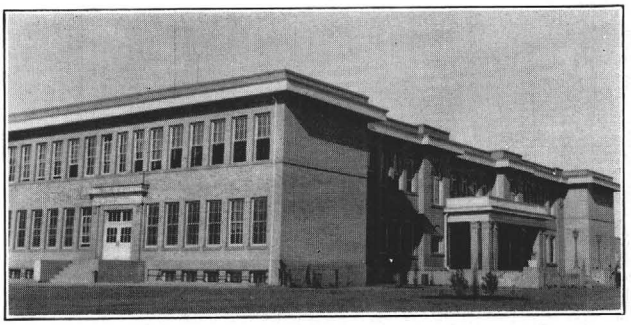


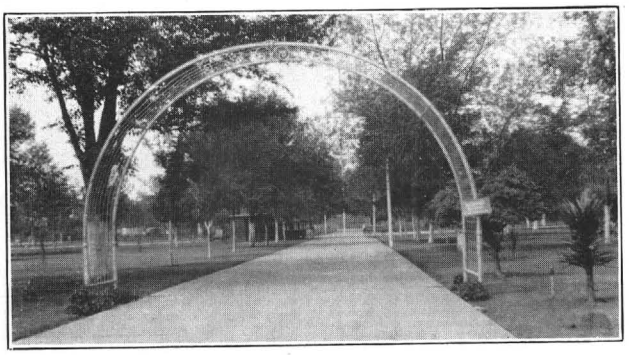


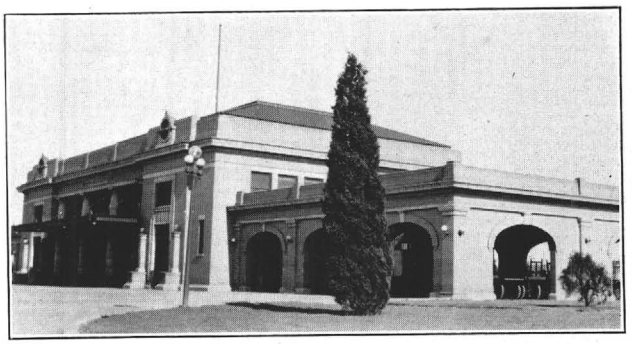
DOUGLAS, ARIZONA

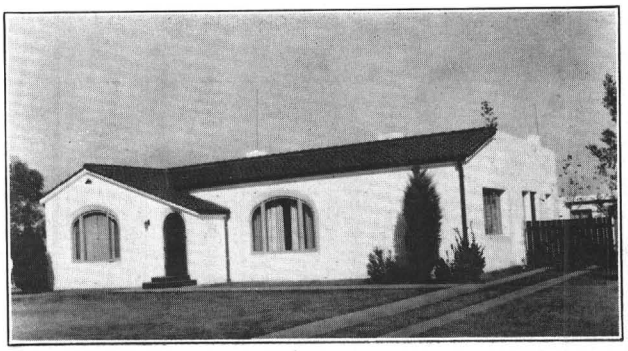
Ores from the Eisbee mines, from the New Cornelia mine at Ajo, and from the Miami Copper Company, Miami, Arizona, as well as production from many properties in the United States and Mexico are shipped to this border city where they are smelted. Douglas boasts a population of 11,820 persons, most of whom are directly or indirectly dependent on the copper mining and smelting industry for their livelihood.

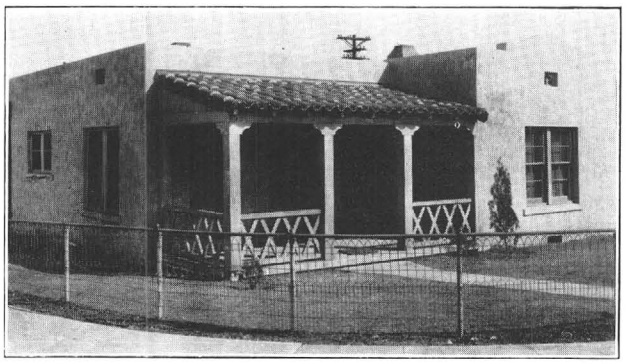
The photographs clearly show the substantial character of the city, part of which is shown in the aerial view immediately below. Homes, schools, and public buildings may be seen in the other pictures.

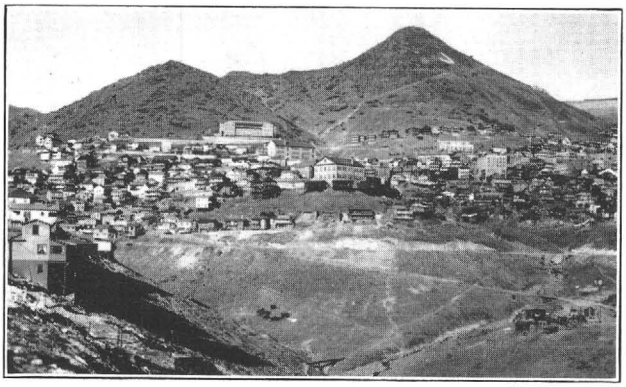






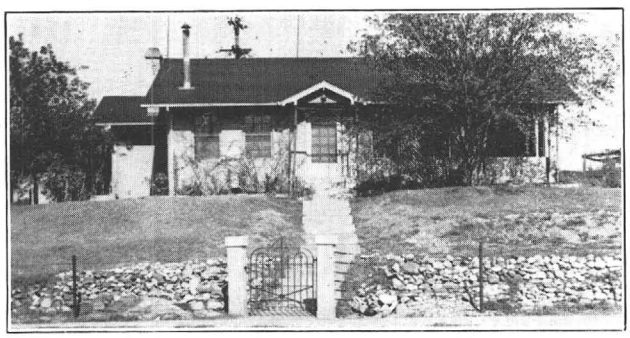


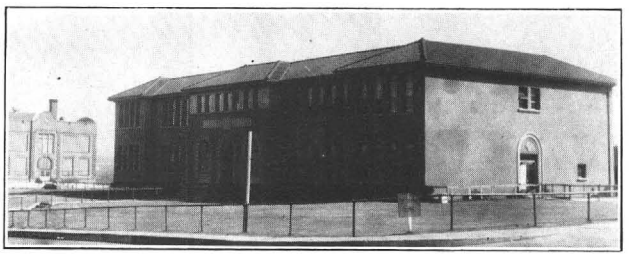


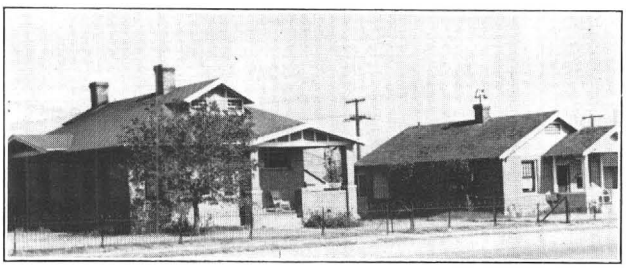


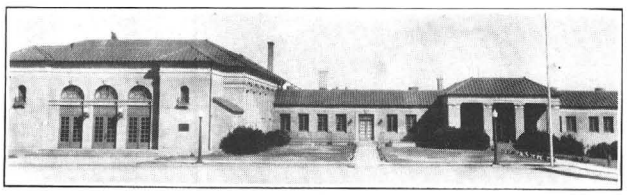
JEROME, ARIZONA

Immediately above is a photograph of Jerome, Arizona, which was built by the copper mines in the vicinity, principally the United Verde and United Verde Extension properties. This is one of the most unique towns in America; it was erected on the side of a hill, close to the mines it long has served.









CLARKDALE, ARIZONA

Ores mined in Jerome are treated in the Clarkdale smelter which is situated in the valley below. Clarkdale, with a population of 2,500, is just half as large as Jerome. At the lower right is a photograph of the Clark Memorial Club, which was erected for the employes of the United Verde mine and Clarkdale smelter, and over that is a picture of the high school and junior high school. The other three views show typical miners' residences.

The residents of Clarkdale are largely married men with families entirely dependent on them for support. An indication of this is provided by the fact that there were 928 children in the Clarkdale schools last year which compares with a total population of 2,500. Besides the employes of the smelter, there are many merchants and business men in the city who owe their livelihood to the copper industry.

Panorama of Miami, Arizona, showing, from left to right, workers' homes and business district; Miami Copper Company plant in center; tailing dump to right; International smelter in right background and more workers' homes and high school in right foreground.

TABLE I

COPPER PRODUCTION OF ARIZONA, THE UNITED STATES, AND THE WORLD
(SMELTER OUTPUT)

1851 - 1938 IN SHORT TONS

Period	ARIZONA			UNITED STATES		WORLD
	Production	Per Cent of U. S.	Per Cent of World	Production	Per Cent of World	Production
1851 - 1900	488,536	14.57	4.90	3,353,784	33.64	9,970,111
1901 - 1905	408,415	22.31	12.16	1,830,475	54.52	3,357,378
1906 - 1910	698,614	28.50	16.36	2,451,242	57.39	4,270,956
1911 - 1915	940,861	30.83	17.53	3,051,567	56.86	5,366,397
1916 - 1920	1,636,454	39.83	23.99	4,108,993	60.24	6,820,944
1921 - 1925	1,296,939	41.84	21.94	3,099,995	52.45	5,910,731
	5,469,819	30.56	15.32	17,896,056	50.13	35,696,517
1926	364,662	41.92	22.67	869,811	54.08	1,608,272
1927	340,584	40.45	20.34	842,020	50.29	1,674,411
1928	367,816	40.29	19.51	912,950	48.43	1,884,952
1929	414,603	41.40	19.75	1,001,432	47.71	2,098,800
1930	285,449	40.94	16.45	697,195	40.18	1,735,000
1931	200,155	38.39	13.15	521,356	34.25	1,522,000
1932	100,568	36.97	9.75	272,005	26.38	1,031,000
1933	61,349	27.27	5.62	225,000	20.62	1,091,000
1934	84,204	34.48	5.82	244,227	16.87	1,448,000
1935	139,260	36.52	8.28	381,294	22.68	1,681,000
1936	207,072	33.87	10.93	611,410	32.26	1,895,000
1937	290,247	34.77	11.24	834,661	32.31	2,583,000
1938	210,176	37.38	9.43	562,328	25.24	2,228,000
TOTAL	8,359,964	32.99	14.67	25,871,745	44.47	58,176,952

Source: 1851 - 1925 **Summarized Data of Copper Production, Economic Paper 1, U. S. Bureau of Mines, Tables 1, 2, 12**
1925 - 1938 **Mineral Resources of the United States and Minerals Yearbook of U.S. Bureau of Mines**

TABLE II

SMALL LOT SHIPMENTS OF CUSTOM COPPER ORES FROM ARIZONA PROPERTIES

Year	Number of Shippers	Tons of Ore
1929	387	465,287
1932	268	60,621
1936	654	302,683
1938	542	248,350

Source: Based on Questionnaires to Custom Smelters

TABLE III

EXPENDITURES OF FIVE PRINCIPAL ARIZONA COPPER MINING COMPANIES

In Arizona	1929	1932	1936	1938
Wages and Salaries	$ 26,699,000	$ 5,859,000	$10,236,000	$12,938,000
Supplies & Equipment	3,838,000	687,000	2,304,000	2,599,000
Taxes (State & County)	4,695,000	2,953,000	2,669,000	2,827,000
Freight - Intrastate	2,173,000	412,000	1,291,000	1,362,000
Hydro-Electric Power				290,000
Miscellaneous	2,837,000	718,000	1,956,000	1,574,000
TOTAL	$ 40,242,000	$10,629,000	$18,456,000	$21,590,000
Out of Arizona				
Wages and Salaries	$ 150,000	$ 124,000	$ 116,000	$ 202,000
Supplies & Equipment	14,309,000	1,299,000	5,509,000	6,016,000
Taxes (Federal)	2,550,000	3,000	1,579,000	1,567,000
Freight (Interstate)	10,225,000	1,343,000	3,611,000	3,331,000
Refining ' Selling	6,870,000	1,232,000	2,875,000	3,330,000
Miscellaneous	5,894,000	3,485,000 credit	3,928,000	3,678,000
Dividends	29,750,000	650,000	8,146,000	5,683,000
TOTAL	$ 69,748,000	$ 1,166,000	$25,764,000	$23,807,000
GRAND TOTAL	$109,990,000	$11,795,000	$44,220,000	$45,397,000

Source: Mining Company Questionnaires

TABLE IV

AVERAGE COST OF PRODUCING COPPER AT ARIZONA MINES

1922-1932, BASED ON NET EARNINGS

Mining Companies	Production Thousands of Pounds	Net Earnings Total Dollars (1)	Net Earnings Average per Pound, Cents	Average Selling Price Pound, Cents (2)	Average Cost per Pound, Cents	Ratio of Copper Sales to Total Sales Per Cent
Calumet and Arizona (3)	524,913	$24,840,791	4.73	14.71	9.98	85.6
Inspiration Consolidated	840,991	14,095,448	1.68	12.99	11.31	100.0
Magma Copper	274,061	7,947,117	2.90	13.65	10.75	86.3
Miami Copper	594,408	6,682,632	1.12	13.38	12.25	100.0
New Cornelia (4)	431,367	13,580,320	3.15	13.74	10.60	96.4
Old Dominion (5)	210,685	- 3,504,749	- 1.66	13.64	15.31	94.7
Phelps Dodge (6)	1,879,513	- 24,548,941	- 1.31	13.23	14.53	56.4
United Verde						
United Verde Extension	460,696	41,788 (7)	.01 (7)	13.35	13.36	93.6
TOTAL	5,216,634	$39,134,406			12.70	

(1) Take into account in most instances depreciation and depletion.
(2) Average selling price for each company is weighted according to company yearly output, based on average New York selling price for the year; also the average for all companies combined is weighted accordingly.
(3) Calumet and Arizona, 1922-30, inclusive.
(4) New Cornelia, 1922-28, inclusive
(5) Old Dominion, 1922-31, inclusive.
(6) No date available.
(7) Not actual deficit, but due to high rate charged for depletion.

Source: Gardner, E. D. Johnson, C. H., and Butler, B.S.: Copper mining in North America, United States Bureau of Mines, Bulletin 405, 1938, Table 62, p. 279.

TABLE V.

ARIZONA EMPLOYES AND WAGE PAYMENTS WITH PERCENTAGES OF TOTAL

BY MAJOR INDUSTRIES

FOR YEAR 1938

Industry	Average Number Of Employes	Wage Payments	Average Wage Per Employe (Monthly)	Percentages Wages	Percentages Employes
Mining	9,493	$15,140,606.55	$132.91	20.70	17.32
Smelting	1,356	1,947,701.78	119.70	2.66	2.47
Mining & Smelting	10,849	$17,088,308.33	131.26	23.36	19.79
Agriculture	42*	38,767.19	76.92	0.05	0.08
Contract Construction	3,742	5,115,943.59	113.95	6.99	6.83
Manufacturing (Other than Smelting)	5,241	6,617,754.88	105.22	9.05	9.56
Transportation	6,785	11,139,411.95	136.81	15.23	12.38
Communication	971	1,248,237.25	107.13	1.71	1.77
Utilities	1,464	2,232,405.55	127.07	3.05	2.67
Wholesale & Retail Trade	15,126	18,387,653.84	101.30	25.13	27.60
Finance	353	607,321.84	143.37	0.83	0.64
Insurance	329	603,083.93	152.76	0.82	0.60
Real Estate	414	531,914.87	107.07	0.73	0.76
Administration	216	466,062.67	179.81	0.64	0.39
Service	8,488	7,977,382.87	78.52	10.91	15.48
Professional Service	526	820,637.82	130.01	1.12	0.96
Miscellaneous	269	275,123.43	85.24	0.38	0.49
T O T A L	54,815	$73,150,010.01	$111.21	100.00	100.00

*Last three quarters of year only.
Source: Employers' contribution reports to the Arizona Unemployment Compensation Commission.

Note: The figures in the above table apply only to those firms covered by the Unemployment Compensation Law. Companies with less than three employes are not subject to the law. Neither is agricultural labor, domestic services, government employes, nor the wage earners of certain non-profit organizations.

TABLE V-A

ARIZONA EMPLOYES AND WAGE PAYMENTS WITH PERCENTAGES OF TOTAL

BY MAJOR INDUSTRIES

FIRST 6 MONTHS 1939

Industry	Average Number Of Employes	Wage Payments	Average Wage Per Employe (Monthly)	Percentages Wages	Percentages Employes
Mining	10,392	$ 8,269,190.36	$132.46	21.79	17.98
Smelting	1,365	930,572.13	113.62	2.45	2.36
Mining & Smelting	11,757	$ 9,199,762.49	130.42	24.24	20.34
Agriculture*	4	3,633.79	80.75*	0.01	0.01
Contract Construction	3,507	2,340,382.33	111.23	6.17	6.07
Manufacturing (Other than Smelting)	5,790	3,489,333.32	100.44	9.20	10.02
Transportation	7,427	6,039,151.82	135.52	15.92	12.85
Communication	973	615,834.33	105.49	1.62	1.68
Utilities	1,494	1,139,247.00	127.09	3.00	2.59
Wholesale & Retail Trade	15,755	9,383,750.11	99.27	24.72	27.26
Finance	330	291,126.79	137.03	0.77	0.57
Insurance	342	311,857.99	151.98	0.82	0.59
Real Estate	385	253,429.25	109.71	0.67	0.67
Administration	196	227,171.51	193.17	0.60	0.34
Service	8,994	4,096,358.23	75.91	10.80	15.56
Professional Service	569	433,224.31	126.90	1.14	0.98
Miscellaneous	270	121,550.96	75.03	0.32	0.47
T O T A L	57,793	$37,945,814.23	$109.43	100.00	100.00

* January only.
Source: Employers' contribution reports to the Arizona Unemployment Compensation Commission.

Note: The figures in the above table apply only to those firms covered by the Unemployment Compensation Law. Companies with less than three employes are not subject to the law. Neither is agricultural labor, domestic services, government employes, nor the wage earners of certain non-profit organizations.

TABLE VI

NUMBER OF MINING AND SMELTING COMPANY EMPLOYES AND WAGE PAYMENTS IN ARIZONA - 1938 and 1939

1938 Month	Number of Employes Mining	Smelting	Total	Wage Payments Mining	Smelting	Total
Jan.	9,043	1,521	10,564	$ 1,236,705.07	$ 188,707.30	$ 1,425,412.37
Febr.	9,028	1,471	10,499	1,194,585.28	168,657.23	1,363,242.51
Mar.	9,202	1,345	10,547	1,277,769.93	155,997.77	1,433,767.70
Apr.	9,552	1,265	10,817	1,261,027.49	153,526.23	1,414,553.72
May	9,446	1,287	10,733	1,246,529.15	162,329.64	1,408,858.79
June	9,069	1,361	10,430	1,182,917.63	166,695.53	1,349,613.16
July	8,333	1,226	9,559	1,024,935.05	143,050.65	1,167,985.70
Aug.	9,238	1,196	10,434	1,205,669.24	150,907.03	1,356,576.27
Sept.	9,583	1,227	10,810	1,271,472.86	143,754.96	1,415,227.82
Oct.	10,416	1,416	11,832	1,392,502.41	160,784.65	1,553,287.06
Nov.	10,607	1,469	12,076	1,394,675.42	170,037.24	1,564,712.66
Dec.	10,400	1,482	11,882	1,451,817.02	183,253.55	1,635,070.57
1938 Av.	9,493	1,356	10,849	1,261,717.21	162,308.48	1,424,025.70
TOTAL				$15,140,606.55	$1,947,701.78	$17,088,308.33
1939						
Jan.	10,521	1,470	11,991	$ 1,426,472.97	$ 164,464.21	$ 1,590,937.18
Febr.	10,316	1,355	11,671	1,355,923.71	151,477.96	1,507,401.67
Mar.	10,405	1,252	11,657	1,389,754.13	144,614.71	1,534,368.84
Apr.	10,380	1,322	11,702	1,355,967.35	144,703.89	1,500,671.24
May	10,336	1,399	11,735	1,372,996.46	163,335.45	1,536,331.91
June	10,397	1,391	11,788	1,368,075.74	161,975.91	1,530,051.65
6 mths. Av.1939	10,392	1,365	11,757	$ 1,378,198.39	$ 155,095.36	$ 1,533,293.75
6 mths. Total 1939				$ 8,269,190.36	$ 930,572.13	$ 9,199,762.49

Source: Employers' contribution reports to the Arizona Unemployment Compensation Commission.

TABLE VII.

REPRESENTATIVE WAGES OF VARIOUS CLASSIFICATIONS OF EMPLOYES AT A TYPICAL ARIZONA COPPER MINE

Classification	Base Rate	Present Wage (October, 1939)
Miner	$4.95	$5.69
Mucker	4.40	5.06
Timberman	5.23	6.01
Mechanic	5.23	6.01
Underground Motorman	4.95	5.69
Hoist Engineer	6.05	6.96
Unskilled Surface	4.00	4.06

TABLE VIII.

SLIDING WAGE SCALE UPON WHICH THE PAY OF THE MAJORITY OF THE EMPLOYES IN ARIZONA MINES IS BASED.

Price of Electrolytic Copper per E. & M. J. Quotations Delivered Connecticut Valley:	Wage Rate:
7½¢ and up to 9¢ per pound	August 1936 base less approximately 10%
9¢ and up to 9-3/4¢ per pound	August 1936 base
9-3/4¢ and up to 11½¢ per pound	August 1936 base plus approximately 10%
11½¢ and up to 13¢ per pound	August 1936 base plus approximately 15%
13¢ and up to 14½¢ per pound	August 1936 base plus approximately 20%
14½¢ and up to 16¢ per pound	August 1936 base plus approximately 25%
16¢ and up to 17½¢ per pound	August 1936 base plus approximately 30%

TABLE IX

ASSESSED NET VALUATION BY GENERAL CLASSIFICATION OF ALL TAXABLE PROPERTY IN ARIZONA-YEAR 1938

Classification	Valuation	Per Cent of Total
Property of Five Principal Copper Producing Companies	$ 82,668,362	21.38
All Other Mining Property	7,367,106	1.91
Total Mining Property	$ 90,035,468	23.29
City Lots and Improvements	79,230,509	20.49
Railroads	77,842,197	20.14
Lands and Improvements	51,467,149	13.31
Public Utilities	26,473,006	6.85
Motor Vehicles	18,095,131	4.68
Stocks of Merchandise	15,809,708	4.09
Livestock	8,898,092	2.31
All Other Property	18,699,128	4.84
T O T A L	$386,550,388	100.00

Source: Fourteenth Biennial Report of the State Tax Commission of Arizona

TABLE X

PERCENTAGE OF COUNTY TAXES PAID IN CERTAIN MINING COUNTIES OF ARIZONA BY THE FIVE PRINCIPAL COPPER PRODUCING COMPANIES - 1938

County	Percentage of Tax Paid
Cochise	40.8
Greenlee	71.2
Pima	30.0
Yavapai	38.3
Pinal	39.0
Gila	71.5

Source: Mining Company Questionnaires by Arizona Copper Tariff Board

TABLE XI.

DISTRIBUTION OF TOTAL PROPERTY TAX LEVY FOR STATE PURPOSES

YEAR 1938

Education	$1,620,703
State Institutions*	278,321
Administration	225,532
Legal, Legislative, and Judicial	67,007
Agriculture and Livestock	158,891
Interest and Redemption	32,957
Military	39,094
Special Appropriations	553,932
TOTAL	$2,976,437

* Other than Educational Institutions

Source: Fourteenth Biennial Report of the State Tax Commission of Arizona to the Governor, December 31, 1938.

TABLE XII

ARIZONA SALES TAX COLLECTIONS

JULY 1, 1937 TO JUNE 30,1938

Classification	Gross Income Reported	Sales Tax Collected	Per Cent Tax To Total
Manufacturing	$ 21,683,944.67	$ 54,210.53	1.399
Transportation	324,328.14	3,243.30	0.084
Mining	51,868,413.86	518,684.33	13.378
Utilities	11,832,935.19	118,329.65	3.052
Telephone & Telegraph	2,391,540.34	23,915.39	0.618
Railroads	2,654,042.52	26,540.45	0.685
Private Car Lines	70,808.44	708.12	0.019
Publications	4,515,685.10	45,156.86	1.165
Printing	1,433,181.78	14,332.12	0.370
Restaurants	19,884,835.65	198,853.83	5.129
Amusements	4,351,971.20	87,039.36	2.225
Movies	7,087,404.49	141,749.34	3.656
Wholesale & Meat Packing	15,628,594.58	39,071.93	1.008
Contracting	6,577,599.42	65,775.90	1.696
Feed - Wholesale	2,817,207.40	7,042.61	0.182
Retail	126,748,431.88	2,533,255.33	65.334
T O T A L	$279,870,924.66	$3,877,909.05	100.000

Source: Fourteenth Biennial Report of the State Tax Commission of Arizona.

TABLE XIII

REVENUE FREIGHT ORIGINATING WITHIN ARIZONA

1912 - 1938

Classification	Weight Tons	Per Cent of Total
Mining	127,632,635	86.48
Agricultural Products	7,037,711	4.77
Animal Products	3,330,625	2.26
Forest Products	4,860,204	3.29
Manufactured & Miscl.Products	2,962,531	2.01
L.C.L. Unclassified	1,085,041	0.74
N. O. S.	639,995	0.43
T O T A L	147,545,490	99.98

Source of Figures: Compilation by Arizona Department of Mineral Resources from Official Records of the Arizona Corporation Commission.

TABLE XIV

POWER CONSUMPTION IN CERTAIN ARIZONA MINING TOWNS AS REPORTED BY POWER COMPANIES

(DOES NOT INCLUDE MINING COMPANY CONSUMPTION)

IN KILOWATT HOURS

Town	1929	1932	1936	1938
Globe	2,558,058	1,318,010	1,767,628	3,516,421
Miami	1,887,109	1,594,364	1,528,417	2,241,782
Bisbee	6,419,963	3,040,167	3,146,669	4,413,186
Douglas	2,985,241	3,287,695	2,914,174	4,369,647
Jerome & Clarkdale	1,974,821	1,436,898	1,772,125	1,715,177
Morenci	652,927	579,302	499,332	710,535
Superior	494,709	410,318	646,600	979,530
Winkelman	50,000	43,295	41,500	62,680
T O T A L	17,022,828	11,710,049	12,316,445	18,008,958

Source: Utility company reports and mining company questionnaires

TABLE XV

TOTAL CONSUMPTION OF POWER INCLUDING MINING COMPANY CONSUMPTION

IN CERTAIN ARIZONA DISTRICTS

YEAR 1938

District	Kilowatt Hour Power Consumption
Bisbee	60,484,036
Douglas	25,976,972
Ajo	83,051,072
Jerome	29,176,648
Morenci	8,380,119
Superior	28,597,491
T O T A L	235,666,338

Source: Mining company questionnaires

TABLE XVI

POPULATION OF CERTAIN ARIZONA MINING TOWNS

(Partially Estimated)

Town	1929	1932	1936	1938
Bisbee	15,210	12,270	17,000	14,460
Douglas	9,878	9,878	9,878	11,820
Globe	7,143	5,000	5,000	7,250
Miami	8,179	5,000	6,000	6,250
Morenci	5,116	4,000	2,000	3,000
Clifton	2,636	2,500	2,500	2,700
Jerome	4,748	4,500	4,000	5,000
Clarkdale	2,667	1,800	2,500	2,500
Cottonwood	1,049	1,000	1,100	1,050
Clemenceau	775	700	1,000	950
Ray	4,097	2,877	1,144	3,000
Hayden	2,506	1,372	1,100	1,591
Winkelman	1,703	1,300	1,200	486
Superior	4,292	3,000	3,000	4,750
Ajo	3,303	3,000	3,000	6,500
T O T A L	73,302	58,197	60,422	71,307

Source: Mining company questionnaires

TABLE XVII

SCHOOL ATTENDANCE IN CERTAIN ARIZONA MINING TOWNS

Town	1929	1932	1936	1938
Bisbee	3,529	3,371	2,587	2,397
Douglas	3,481	3,334	3,107	2,701
Jerome	1,790	1,571	1,446	1,104
Clarkdale	587	486	590	928
Clemenceau	518	452	467	395
Miami	1,988	1,187	1,207	2,238
Globe	1,938	1,535	1,574	2,000
Superior	809	939	1,036	1,137
Ray	1,146	1,051	395	755
Hayden	744	701	423	645
Winkelman	173	106	121	130
Ajo	610	303	737	1,070
Morenci	1,212	945	679	913
Clifton	578	534	551	655
T O T A L	19,103	16,515	14,920	17,068

Source: Mining company questionnaires

TABLE XVIII

BANK CLEARINGS IN CERTAIN ARIZONA MINING TOWNS

Town	1929	1932	1936	1938
Bisbee	$ 57,700,000	$29,600,000	$20,886,000	$ 24,080,000
Douglas	44,320,000	12,560,000	17,650,000	20,830,000
Morenci				3,548,000
Clifton	3,985,000	2,990,000	2,855,000	4,805,000
Ajo	8,645,000	1,485,000	4,160,000	3,000,000
Jerome	16,110,000	2,425,000	6,425,000	3,910,000
Clarkdale	1,705,000	285,000	2,145,000	8,083,000
Superior	*	*	-	3,000,000
Miami	9,465,000	4,565,000	4,820,000	5,315,000
Globe	29,465,000	9,920,000	24,420,000	31,406,000
Hayden	6,215,000	1,920,000	2,135,000	3,984,000
T O T A L	$177,610,000	$65,750,000	$85,496,000	$111,961,000

* Not available

Source: Mining company questionnaires

TABLE XIX

NUMBER OF TELEPHONE CONNECTIONS IN CERTAIN ARIZONA MINING TOWNS

Town	1929	1932	1936	1938
Bisbee	1,497	998	1,102	1,220
Douglas	1,534	1,137	1,102	1,238
Jerome	567	385	368	394
Clarkdale	250	171	270	333
Ajo	54	55	80	57
Morenci	236	163	52	161
Clifton	211	129	120	124
Ray, Hayden & Winkelman	413	240	180	228
Superior	153	105	127	135
Miami	412	271	266	314
Globe	1,065	685	707	831
T O T A L	6,392	4,339	4,374	5,035

Source: Mining company questionnaires

TABLE XX

POST OFFICE DATA - ARIZONA MINING TOWNS

Town	Percentage of gain in postal receipts in 1938 over 1932	Percentage of gain in incoming money orders in 1938 over 1932	Percentage of gain in outgoing money orders in 1938 over 1932
Bisbee	33	10	113
Douglas	14	61	33
Morenci	12	*	93
Clifton	36	*	5
Ajo	200	114	360
Jerome	27	49	67
Superior	101	136	42
Hayden	39	142	95
Winkelman	128	29	115
Globe	35	23	44
Miami	75	21	106

* Not available

TABLE XXI

PERCENTAGE CHANGES IN COPPER MINING CONDITIONS IN ARIZONA

1929 = 100 Per Cent

Classification	1932	1936	1938
Value of Production of Gold, Silver, Copper, Lead, and Zinc	8.7%	37%	37%
Value of Copper Production	7.9	27	28
Tons of Copper Produced	22	51	50
Tons of Small Lot Custom Copper Ores Produced	13	65	53
Men Employed in Leading Copper Mines	24	42	88
Expenditures of Five Principal Copper Companies in Arizona	26	46	54
Expenditures of Five Principal Copper Companies outside of Arizona	1.6	47	34
Revenue Mine Railroad Freight	9.3	59	72
Power Consumption in Mining Towns (Does not include mining company consumption)	69	72	100
Population	79	82	97
School Attendance	87	78	89
Bank Clearings	37	48	65
Telephone Connections	68	69	79

TABLE XXII

APPROXIMATE SEGREGATION OF ARIZONA'S COPPER YIELD

1874 - 1936

	Cents Per Pound	Per Cent	Total
Wages and Salaries	5.0	30	$ 800,000,000
Supplies and Equipment	3.6	21	560,000,000
Taxes (State and Federal)	1.5	9	240,000,000
Freight on Copper	0.9	6	150,000,000
Refining	1.0	6	165,000,000
Selling	0.2	1	33,000,000
Intangibles	1.4	8	220,000,000
Dividends	3.2	19	522,000,000
T O T A L	16.7¢	100%	$2,690,000,000

TABLE XXIII

ARIZONA RELIEF LOAD

County	1930 Federal Census	1937 School Census(1)	Per Cent Per County	Sept.19, 1938 WPA Load(2)	Per Cent Per County	Persons Receiving Unemployment Compensation In 1938 (3)	Per Cent Per County	Persons Receiving Old Age Assistance, Aid to Blind, Dependent Children, Etc., from State & Federal Funds on Dec.31,1938(4)	Per Cent Per County	Persons Receiving Direct Relief From State Funds on Dec.31,1938(4)	Per Cent Per County	Persons Receiving WPA Direct State Relief and Unemployment Compensation	Per Cent Per County
Principal Copper Mining Counties:													
Cochise	40,998	32,111	7.0	1,057	8.0	2,012	11.0	2,404	9.9	536	5.1	6,009	9.1
Gila	31,016	19,782	4.3	1,105	8.2	2,275	12.4	1,687	7.0	297	2.8	5,364	8.1
Greenlee	9,886	7,324	1.5	341	3.0	401	2.2	681	2.8	208	2.0	1,631	2.5
Pima	55,676	58,310	12.7	1,392	10.4	2,715	14.9	2,292	9.5	1,326	12.7	7,725	11.7
Pinal	22,081	27,218	5.9	664	4.9	998	5.4	1,149	4.8	621	5.9	3,432	5.2
Yavapai	28,470	27,102	5.9	1,185	8.0	1,386	7.5	1,748	7.2	795	7.6	5,114	7.7
Total Copper Mining Counties	188,127	171,847	37.3	5,744	42.5	9,787	53.4	9,961	41.2	3,783	36.1	29,275	44.3
Other Counties:													
Apache	17,765	15,943	3.5	339	2.5	114	0.6	684	2.8	140	1.3	1,277	1.9
Coconino	14,064	17,701	3.9	287	2.0	538	2.9	426	1.8	182	1.7	1,433	2.2
Graham	10,373	12,315	2.7	290	2.0	334	1.8	732	3.0	497	4.8	1,853	2.8
Maricopa	150,970	180,470	39.3	5,554	42.0	4,948	27.1	9,783	40.5	4,937	47.2	25,222	38.1
Mohave	5,572	8,101	1.8	81	0.6	430	2.3	307	1.3	97	0.9	915	1.4
Navajo	21,202	22,667	4.9	394	3.0	418	2.3	799	3.3	168	1.6	1,779	2.7
Santa Cruz	9,684	10,963	2.4	474	3.5	202	1.1	527	2.2	336	3.2	1,539	2.3
Yuma	17,816	18,223	4.0	196	1.5	625	3.4	938	3.9	318	3.0	2,077	3.1
Total Other Counties:	247,446	286,383	62.5	7,615	57.1	7,609	41.5	14,196	58.8	6,675	63.7	36,095	54.5
State Wide						931	5.1		*			931	1.4
STATE TOTAL	435,573	458,230	99.8	13,359	99.6	18,327	100.0	24,157	100.0	10,458	99.8	66,301	100.2

Source: (1) As compiled by WPA
(2) Arizona Works Progress Administration
(3) Arizona Unemployment Compensation Commission
(4) Arizona Department of Social Security and Welfare

TABLE XXIv

AN ANALYSIS OF THE $560,000,000 SPENT IN THE PRODUCTION OF ARIZONA'S COPPER FOR SUPPLIES AND EQUIPMENT
THE AMOUNTS OF EACH CLASSIFICATION AND THE PRINCIPAL STATES FROM WHICH THESE SUPPLIES ARE OBTAINED

		States from which these materials are supplied
Fuel: - Coal coke, charcoal and wood	79,520,000	Calif., N.M., Colo., Tex.
Explosives: - Powder, fuse and detonators	59,360,000	Ariz., Calif., Colo., Delaware
Lumber and timber of all kinds	46,256,000	Ariz., Wash, Ore., Tex.
Electrical equipment and supplies: Motors, batteries, wire and cable, etc	26,096,000	N.Y., Penna, Ohio, Calif.
Machinery, mine, n.o.p. and parts: Steel shop equipment, hoists, mine pumps, etc	19,656,000	Penna., Ill., Wis., Colo.
Iron and steel bars, sheets, plates, and all structural steel	19,600,000	Penna., Ohio, Colo., Calif.
Pipe and fittings, plumbing supplies and valves	18,536,000	Penna., N. Y., Ohio, Calif.
Machinery, mill, n.o.p. and parts	17,136,000	Colo., Calif., Ill., Wis.
Fuel oil, kerosene and gasoline	16,856,000	Calif., Tex., N. M., La.
Smelter fluxes: - Fluorspar, limestone, quartz,sand, etc	16,800,000	Ariz., N. M., Tex., Colo.
Building materials: - Cement, brick, tile, roofing and building paper, insulating material, building hardware, glass, putty, paints, varnishes and brushes, wood screws, nails, screw hooks and eyes, sand, lime, and miscellaneous	16,016,000	Practically all states contribute.
Crushing, grinding and screening machinery and parts: ball and tube liners, roll shells, etc	14,224,000	Penna, Ohio, Ill., Calif.
Machinery, miscellaneous and parts: Machine, blacksmith, carpenter shop and general surface equipment	14,000,000	Practically all states contribute.
Balls and rods for grinding	11,872,000	Calif., Colo., Utah, Ariz.
Rock drills and parts	11,704,000	N. J., N. H., Ill., Calif.
Filter cloth, rotor covers and ore dressing blankets	10,696,000	Conn., Utah, N. Y., N. J.
Flotation reagents	10,856,000	Calif., Fla., La., Penna.
Refractories: - Brick, cement, fireclay, etc	9,632,000	Mo., Penna., Calif., Colo.
Cars and locomotives and mechanical parts for same	8,680,000	Colo., Iowa, Penna., Calif.
Machinery, smelter, n.o.p. and parts	8,120,000	Wis., Ill., Ohio, Penna.
Wire rope and fittings	7,840,000	N. J., Mo., Calif., Ohio.
Drill and tool steels	7,336,000	N. J., Ill., Penna., Calif.
Lubricants: - Oils, grease and waste	7,224,000	Calif., Penna., Tex., N. Y.
Cyanide and cyanide plant chemicals	6,720,000	Calif., N. Y., Mo., Colo.
Tools: - Brooms, picks, shovels, hammers, handles, saws, wrenches, machinists' tools, etc	6,160,000	Practically all states contribute.
Bolts, nuts, rivets, studs, washers, coach, set and machine screws, etc	5,504,800	Penna., Ohio, Ill., Wis.
Unfinished brass castings; brass and copper rods and sheets, babbit and non-ferrous metals of all kinds	5,359,200	N. Y., Conn., N. J., Ohio.
Acids and chemicals, n.o.p	5,040,000	N. J., Penna., N. Y., Del.
Safety equipment and apparel: - Safety hats, boots, gloves, goggles, respirators, etc. miners' lamps and accessories and lamp rentals	4,939,200	Penna., N. J., N. Y., Calif.
Motor cars, trucks and accessories	4,530,400	Mich., Calif., Ohio, Ill.
Rubber goods, suits, boots, hose and accessories, pump valves, launder linings, etc. (not including belts)	4,300,800	Ohio, Calif., Colo., Mass.
Stationery, office equipment and supplies, survey, and drafting equipment and supplies	4,284,000	Ariz., Calif., N. M., Tex.
Castings: - Unfinished iron and steel	3,718,400	Calif., Colo., Utah, Penna.
Belting of all kinds, including elevator, conveyor, transmission, etc. and fasteners for same	3,393,600	Ohio, Calif., Mass., N. J.
Welding and cutting equipment and accessories: - Oxygen, acetylene, welding rods, tips, etc	2,844,800	Penna., Ohio, Ill., Wis.
Diamonds and bort for drilling	1,747,200	Largely obtained from abroad.
Track materials: - Rails and fittings, switches, spikes and bolts, etc	828,800	Calif, Colo., Penna., Ohio.
Hospital equipment and medical supplies	649,600	N. J., N. Y., Penna., Calif.
Miscellaneous not otherwise classified	42,504,000	Practically all states contribute

NOTE - - Many other states supply the commodities mentioned above but only the four leading contributors are listed. Practically every one of the 48 states are called upon to supply materials for the use of the copper industry in Arizona.

JACKSON HOAGLAND* reviews

Accomplishments of the Copper Excise Tax

JUNE 30, 1939, is a particularly important date insofar as the western copper mining industry is concerned, for on that day the excise tax of 4 cents a pound on imports of copper will automatically expire unless it is included in the new revenue bill which will be written during the current session of Congress.

Although the excise tax has been in effect continuously since 1932, there is no guarantee that it will be extended indefinitely. Certain groups that would like to see foreign copper invade the domestic copper market continue to oppose this form of protection.

Yet the history of the copper excise tax is the strongest argument in favor of its extension. The tax has permitted the domestic copper industry to work its way out of a chaotic situation which threatened it a few years ago and has restored a semblance of prosperity to the metal with decidedly beneficial effects on producer and consumer alike.

Although a permanent tariff would be much more desirable than the excise tax, no tariff act has been written since 1930 and at that time a tariff on copper was not requested. It had not then become apparent that one was necessary.

Just two years later, however, the situation had become so serious that Congress considered it an emergency and enacted the excise tax to provide tariff protection. Although included in the revenue bill, the tax was by no means expected to produce revenue; its sole purpose was to keep foreign copper from entering the domestic market, and that it has done effectively.

The threat of importation is even greater now than it was at the time the excise tax was originally enacted. Chart II clearly demonstrates the growing importance of foreign production since 1914 and indicates that foreign mines have a potential capacity to produce at least 1,666,000 tons of copper yearly (that much was produced in 1937).

This figure becomes even more significant when compared with average foreign consumption which has been about 1,046,000 tons annually during the past 10 years, leaving an excess foreign productive capacity of 620,000 tons. This excess is considerably greater than the average domestic production of copper during the years 1928-1937 which amounted to 576,040 tons. It is easy to imagine what might happen if foreign copper were allowed to enter this country tax free.

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The copper excise tax has restored to the domestic copper industry a prosperity such as it could not possibly enjoy without protection against importation by lower cost producers abroad. In many cases foreign countries are directly subsidizing their copper industries as a defense measure. U. S. copper asks for no relief, but protection is imperative if the industry is to be prepared to meet the demands that may be thrust upon it in case of war.

Recently, under artificial stimulation, foreign consumption has been absorbing the unprecedented output abroad, but this cannot go on forever. Wars and threats of wars have resulted in a tremendous expansion of the armament programs of nations throughout the world, and, in addition, large quantities of copper have been purchased by different countries to build up their stocks.

Eventually there is going to be a slump in foreign consumption and nations will want to dispose of their excess reserves. When that time comes foreign companies will have to curtail their production or seek another market for their metal. The only other possible outlet is the United States.

As long as we are protected by the excise tax, the purpose of which is to equalize domestic and foreign costs of production, the U. S. industry can continue serenely on its way, but if this protection is withdrawn the inevitable reckoning might well force every domestic producer to cease operation.

OF ESPECIAL interest is the tremendous growth of production which has taken place in various parts of the world. The increasing rate has been particularly outstanding in Africa, Chile, Canada, and Russia, which is shown by the figures in Table I.

TABLE I

Production of Copper by Africa, Chile, Canada, and Russia in 1917, 1927, and 1937 in short tons.

	1917	1927	1937
Africa	47,007	123,470	416,231
Chile	112,985	264,242	455,455
Canada	55,790	70,698	262,432
Russia		14,988	101,963

Source: American Bureau of Metal Statistics

The comparative stability of United States production during the same years is shown by the fact that this country had an output of 961,016 tons in 1917; 847,419 tons in 1927; and 839,344 tons in 1937. Although the United States still remains the largest copper producing nation in the world, this country's importance has steadily declined because of the opening up of new deposits and expansion of production in other parts of the world.

The United States produced in 1917 over 60 per cent of the world's total output of copper; in 1927 our production was 50 per cent; by 1937 it amounted to only 33.5 per cent. Because we controlled the bulk of the world's production after the World War, domestic producers were able, by their own action, to curtail production and permit an orderly liquidation of the stocks that had been accumulated and which were dumped on the market at that time.

During the recent depression, however, curtailment simply made room for more foreign copper and stocks continued to pile up despite the action of the domestic producers. Numerous attempts were made to gain the cooperation of the major foreign producers in a world-wide restriction program, but all met with dismal failure until the excise tax was enacted.

Then the United States producers were able to accomplish something and the burdensome stocks that had been built up in this country began to gradually decline to more normal levels. This is illustrated by Chart III which shows how stocks reached their peak in 1932 and declined thereafter. Furthermore, after the domestic market had been closed to foreign copper, producers abroad formed a cartel to curtail their output, thereby liquidating excess stocks abroad, and cleaned their own house.

In this manner the excise tax has had a beneficial effect on foreign as well as domestic producers and its continuation is essential to the prosperity of the industry throughout the world. Domestic producers, however, are primarily concerned with the situation in this country.

In times of peak consumption throughout the world, no excise tax would be necessary since the present capacity is probably not greatly in excess of peak consumption. In 1929, domestic consumption of copper amounted to 1,119,386 tons which, according to the most reliable estimates, closely approximates the ability of mines in this country to produce. Likewise, foreign consumption in the peak year, 1937, amounted to 1,544,434 tons and was only slightly less than production, which was unrestricted throughout nearly the entire year.

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It is only on rare occasions, however, that consumption can absorb all the copper that the mines are capable of turning out; when foreign consumption is lower than foreign productive capacity, the domestic market must be protected from the lower cost producers abroad.

The purpose of the copper excise tax is not to give domestic producers an opportunity to demand unreasonable prices for their output. It is solely to protect this market from importation of copper that can be produced more cheaply abroad and, by reserving the home market for domestic producers, help maintain employment in this country and uphold American standards of living.

THERE are many reasons why foreign mines can produce at a lower cost than can United States properties. Probably the most important cost item is the grade of ore mined and on this score African properties have a tremendous advantage over domestic mines. The low-cost producers in this country mine ore containing on the average less than 2 per cent copper while African producers are able to extract ore having an average copper content of 4 per cent.

Another most important item is the cost of labor. In its report to the United States Senate on copper, the U. S. Tariff Commission in 1931 stated that 50 per cent of the operating cost of producing copper is for labor. In the same report it was pointed out that the daily wage paid in Northern Rhodesia amounts to but 19 cents for unskilled and 58 cents for skilled labor. Similarly, at Katanga the wages paid vary from 5.5 cents to 35 cents, depending on the type of work done.

Furthermore, the black laborers who work in the African mines, employed under a system of indenture by drawing up contracts with tribal chieftains, are barely removed from savagery. They live in huts that would be scorned by civilized people. Health and sanitation regulations issued by the department of mines in Northern Rhodesia require that a hut for four natives be only four feet high and 14 feet in diameter.

Comparison of living conditions such as these with those which United States miners enjoy is ridiculous. In no other country in the world is labor paid as high a wage as in the United States and labor costs are rising. Only recently a wage-and-hour law was placed into effect for the purpose of maintaining salaries at a high level and this new legislation has increased wages in practically every copper camp in the nation.

In South America, conditions are similar to those in Africa. The mines there employ peon labor of a type but little higher than that in Africa and pay less than half the wages that are paid in the United States.

Another cost advantage that the African mines enjoy is their adaptability to selective mining since the grade of the ore in the various deposits is not uniform. Thus it is possible to mine only the high-grade ore while in many of the low-cost domestic mines, where such methods as the caving system are used, this is impossible.

The cost of transportation of the ore to the market is another factor. While the African and South American mines are located much farther from the domestic market than those in the western part of the United States, transportation rates are comparable because rates for ocean freight are much less than the railroad freight rates in this country. At the same time, the rates to Connecticut Valley from Utah and Arizona are about 50 per cent higher than the rates from the Copper Cliff refinery of the International Nickel Company in Ontario, Canada.

There is still another point that has to do with reducing costs, and that is the presence of associated minerals in the ore body. While these have played an important part in lowering the costs of African and South American mines, they have been primarily responsible for the rapid development of Canada as a major copper producing nation.

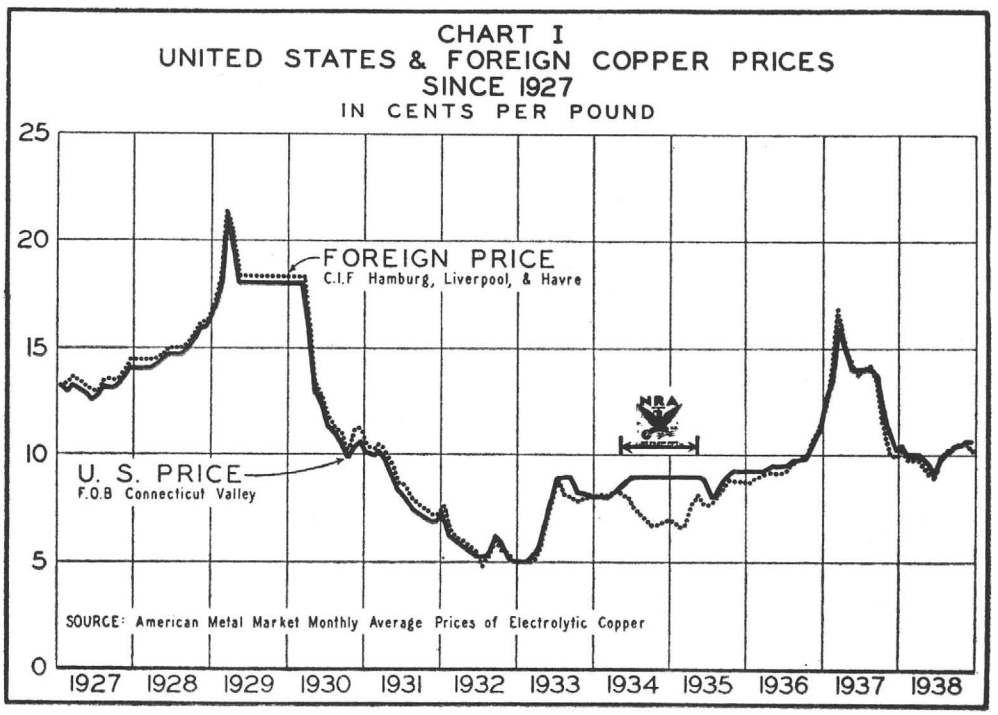
The growth of Canada's copper production from 70,698 tons in 1927 to 262,432 tons in 1937 was accounted for to a considerable extent by the expansion of production by the International Nickel Company of Canada which reported sales of 145,940 tons in 1937 and which produces its copper as a by-product of nickel. During the same year, 103,850 tons of nickel were sold by the company and the value of its nickel sales, figured at 35 cents a pound, was $72,695,330. Its copper sales, based on the average export price of 13.342 cents per pound, returned about $38,942,683.

Because the nickel and copper in its ore body are intimately associated, the company must produce one in order to recover the other; therefore, its copper production depends on its output of nickel which is more than twice as valuable. International Nickel alone supplied 85 per cent of the total nickel used in 1937 and has a virtual monopoly on the metal's output. While the costs of production of copper by the International Nickel Company have not been disclosed and cannot be estimated, because copper is produced as a by-product, it is safe to assume that costs of that company are at least as low as those of any other large producer in the world.

The most reliable estimates indicate that the major low-cost producers of copper in Africa including the Katanga, Roan Antelope, Rhokana, and Mufulira properties; in South America including Chile Copper, Braden, Cerro de Pasco, and Andes; as well as the International Nickel Company of Canada, could deliver copper profitably in New York at less than 6 cents a pound.

Based on a recent survey of copper costs made by E. D. Gardner, C. H. Johnson, and B. S. Butler in U. S. Bureau of Mines Bulletin 405, the average cost of producing the metal in the United States during the years 1922-1932 exceeded 11 cents a pound from a standpoint of net earnings. Furthermore, more than half the United States production during those years was turned out at a cost of greater than 11 cents. But costs do not tell the whole story.

GOVERNMENT subsidies to foreign producers are a highly important factor and the provision of government aid as a national defense measure, as well as a means of reducing unemployment, is becoming more important and popular than it has been in the past. In Japan and Germany, the industry is directly subsidized as a measure of national defense, while in the Belgian Congo, the industry is stimulated as a nationalization project as well as a national defense measure. A



report by the United States Tariff Commission states:

"The Congo industry is controlled by the Belgian government and is operated as a part of a huge colonization enterprise having to do not only with the production of copper, but that of cobalt, radium, tin, precious metals, agricultural products, and the building of lines of communication, the cleaning and sanitation of the jungle, and the education and civilization of the natives."

Likewise, Rhodesia, a British colony in South Africa, is being nurtured into a state of civilization with copper providing the nucleus. In South American countries, also, this industry is being fostered in every possible manner, primarily as a means of providing employment.

The United States industry is asking no subsidy of the government, but it does need protection if it is to continue in a healthy state, providing employment for thousands of persons and prepared to meet the demands that might be placed on it in time of war. A great deal has been done in recent years in building our navy, enlarging our army, providing a stronger system of coast defense, and expanding our air force.

It is even more important that we have enough raw materials, and there are few that are more essential than copper. It is used not alone in producing ammunition, but also in the manufacture of warships, guns, and many types of machinery which are necessary to our national defense.

Foreign nations long ago accepted the fact that they must foster and stimulate their war-essential raw material industries, and this foreign subsidizing has played no small part in creating the need for the 4-cent excise tax on shipments of copper into this country.

During the World War, Germany learned her lesson for she was greatly hampered in her campaign by the lack of a sufficient amount of copper. Copper was so limited that gutters were even removed from buildings in a frantic attempt to meet war requirements. Should another conflict develop, Germany intends to be prepared. No such drastic action is necessary in this country.

However, without tariff protection, the domestic copper industry would soon be in a position where it would no longer be able to meet the needs of this country in case of a major conflict. Many domestic properties, being unable to compete, would be forced to shut down and cease operations, and once a mine stops operating, great expense is incurred and much time is consumed in reopening and resuming production. Furthermore, there is often a great loss of ore and consequent waste of natural resources due to caving of an idle property.

There is now a bill before Congress providing for the acquisition of stock-piles of strategic and critical raw materials to be used in case of a war emergency. The bill asserts that domestic resources are inadequate to "supply the industrial, military, and naval needs of the country."

There is no metal that is of more importance in case of war than copper and at the present time the country need go to no extra expense to build up its reserves to meet an emergency. The reserves in the ground may be recovered rapidly as long as the domestic copper industry is kept in a healthy condition and the mines are permitted to continue to operate.

WHILE THE excise tax is justified when considered solely from a national defense standpoint, it is even more important when considered from the employment aspect and the welfare of the copper producing states.

The production of copper is widely distributed throughout the nation; 21 states and Alaska are listed as copper producers by the United States Bureau of Mines. In 1938, Arizona led the nation and accounted for 37 per cent of the total output of 561,000 tons reported. Utah was second with 19.4 per cent, Montana was third with 13.7 per cent, and Nevada fourth with 8.7 per cent.

TABLE II

Approximate Segregation of Arizona's Copper Yield — 1874-1936

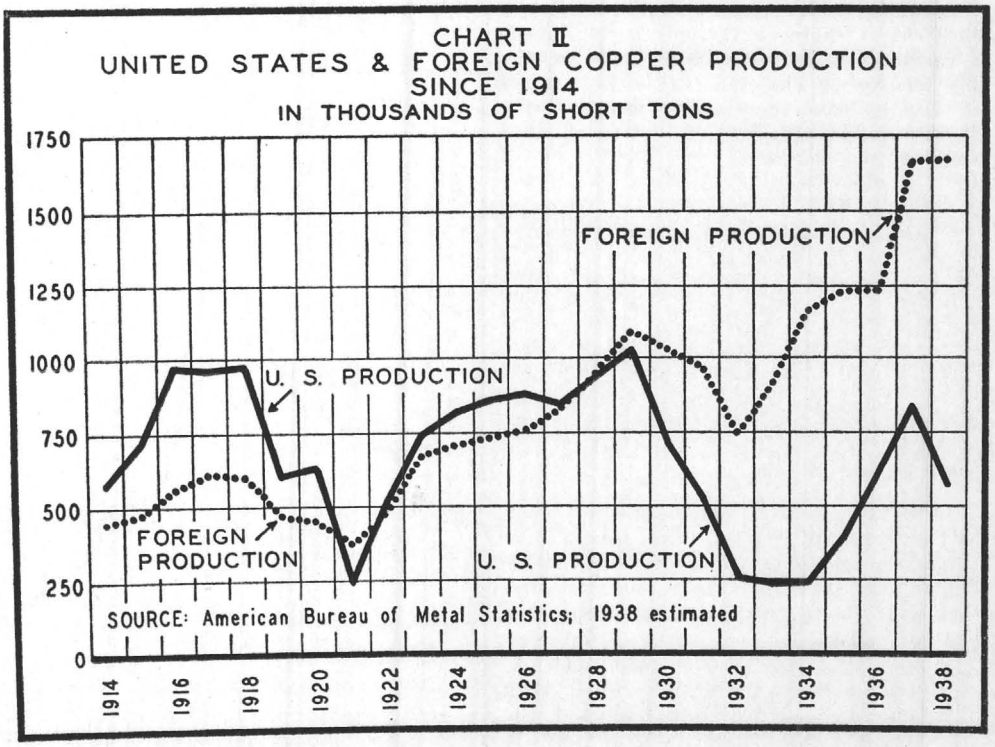
	Cents Per Pound	Per Cent	Total
Wages and salaries	5.0	30	$ 800,000,000
Supplies and equipment	3.6	21	560,000,000
Taxes (State and Federal)	1.5	9	240,000,000
Freight on Copper	0.9	6	150,000,000
Refining	1.0	6	165,000,000
Selling	0.2	1	33,000,000
Intangibles	1.4	8	220,000,000
Dividends	3.2	19	522,000,000
	16.7c	100%	$2,690,000,000

United States copper production last year had a value of about $109,856,000 and the effect of this on the welfare of the nation as a whole becomes apparent when the method in which this money was spent is considered.

A breakdown of Arizona's copper yield from 1874 to 1936, based on questionnaires and company reports, is listed in Table II. During those years, Arizona produced 16,150,000,000 pounds of copper with a value of $2,553,000,000; the value of other metals produced in association with copper raises this figure to $2,690,000,000.

Table II may be taken as a rough guide as to how the money received by the copper companies is spent, but it must be remembered that some of the items are no longer truly representative. For instance, taxes have increased sharply in recent years; we have only been paying federal income taxes since 1913.

The annual report of one of the largest copper producers in the nation for 1937 pointed out that direct taxes during the year totaled 92 cents a share on its outstanding capital stock and that they ab-



sorbed 27 per cent of its consolidated net income before taxes.

The effect of copper production on the producing states becomes evident when one studies the expenditures of copper companies. Wages and salaries account for the largest percentage of the total and supplies and equipment are second; the two accounting for better than 50 per cent.

However, one factor that is often overlooked is the indirect effect on other states and industries. Supplies and equipment come from all states in the nation, stockholders eligible to receive dividends reside in all the states, and, as a matter of fact, the salaries paid eventually find their way elsewhere throughout the country.

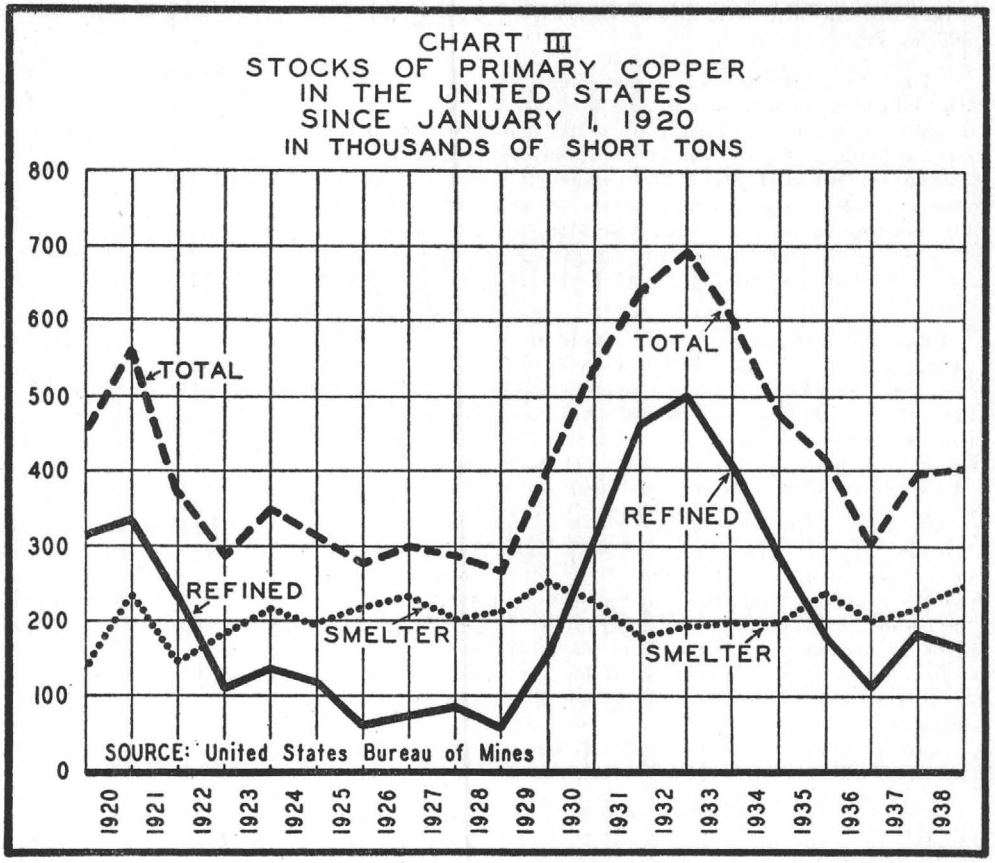
Miners probably spend 90 per cent of their wages for food, clothing, housing, amusement, and essentials of life, and the bulk of this finds its way to the eastern manufacturing centers, to the agricultural states, and to states producing lumber, coal, oil, and other necessities. Furthermore, this money, on its way to its final destination, results in the employment of many other individuals by supporting retail and wholesale concerns that distribute the products.

In assuming a large tax burden, the mines contribute heavily to federal, state, and local governments. In many cases these taxes furnish the means by which public schools are constructed and maintained; by which roads are built and civic improvements are made. Mining dividends contribute substantially to the national income and this money is either spent by stockholders for their immediate needs or invested in the development of other taxpaying concerns and industries.

While protection of the copper industry is of paramount importance to the producers, it is also very necessary from the standpoint of the consumers. Although they might derive a temporary benefit as a result of the removal of the excise tax, the closing of the domestic mines would eventually leave them at the mercy of the foreign producers, later to be faced with skyrocketing prices.

EXPERIENCE shows that the domestic producers have not taken advantage of the duty to boost their prices. This is clearly revealed in Chart I comparing the domestic and foreign prices of the metal. Despite the fact that the excise tax has been in effect continuously since 1932, theoretically permitting a 4-cent advance in the domestic quotation, it has been only on rare occasions (with the exception of the brief period when the NRA was in effect) that the two figures have been as much as 1 cent apart. Most of the time the foreign and domestic quotations have been within one-half cent of each other.

It has not been just generosity of the domestic producers that has kept the foreign and domestic prices close together. This country can produce more copper than it is able to consume and much of the scrap copper that finds its way back to the market is sold to foreign nations. If the foreign price sags, scrap dealers dispose of their supply in the domestic market, thereby depressing domestic prices, and if the foreign price advances, they export the metal.



The role of secondary copper in the industry is often unjustifiably minimized. Copper that has once been used can be reworked and for most purposes is as satisfactory as the virgin metal. According to the United States Bureau of Mines, domestic production of copper from old scrap in 1937 totaled 408,900 tons which compares with a primary refined output of 822,253 tons in the same year.

If the United States copper companies maintain their prices substantially above the world figures, they must wait until all the scrap metal that is available is sold before they can dispose of any of their supply. While statistics on secondary copper production are subject to error the best ones available are listed in Table III which clearly shows the steady growth that has taken place since 1917.

The effect of substitution as a price factor is also important. There are certain metals which can be used in place of copper in different fields and are substituted as the price goes higher. For example, the use of copper screen drops sharply as the price rises and the users turn to galvanized screen which is cheaper, although it does not have the wearing qualities.

Another example is the use of copper in pipes which varies inversely with the price. Even in the electrical field a substitute has been found in the aluminum transmission wires which have been used on a few projects.

Due to the substitution of other metals as the copper price rises, consumption is cut and the decreased use tends to pull

TABLE III

Comparison of Primary Copper Production with Copper Produced from Old Scrap 1917 to 1936 in Short Tons

Year	Primary Prod. Refined	Prod. from Old Scrap
1917	936,773	155,342
1918	941,437	176,670
1919	716,743	152,600
1920	591,212	168,960
1921	304,707	131,000
1922	452,335	202,800
1923	732,082	270,900
1924	837,107	266,200
1925	841,448	291,010
1926	865,649	337,300
1927	859,476	339,400
1928	895,899	365,500
1929	991,366	404,350
1930	695,612	342,200
1931	537,303	261,300
1932	222,539	180,900
1933	240,669	260,300
1934	233,029	310,900
1935	338,321	361,700
1936	645,462	382,700
1937	822,253	408,900

Source: United States Bureau of Mines.

the price down. The influence of other metals which compete with copper, and of secondary copper which competes with the primary product, has a decided effect on the price of copper and tends to keep it from advancing too high. In those brief periods when speculation is the dominant factor in copper markets the influence of economic laws, which constantly work toward a balance, is temporarily thwarted.

In view of these factors, consumers need not fear an unjustifiably high copper price as a result of the action of the United States producers. The rapid increase in price, which occurred early in 1937, was due to foreign speculation, not to the action of domestic producers who resisted the advance.

BECAUSE the U. S. price has been about a cent higher than the foreign figure during the past three months, the excise tax has been criticized in some quarters. From a cost basis, the producers are certainly justified in asking the present quotation. The figures given in United States Bureau of Mines Bulletin No. 405, previously mentioned, substantiate this statement.

Furthermore, the sales record shows that they have disposed of little copper during the period which substantiates the contention that the two prices cannot remain far apart indefinitely. Sales of copper during the three months of November, December, and January came to less than sales in one normal month and amounted to only 41,428 tons. The history of the excise tax shows that very limited amounts of copper are sold in the United States when the quotation here is substantially in excess of the foreign figure.

Another contention of the opponents of the excise tax is that it tends to restrict foreign trade. This may be very true, but any stimulation of trade that might occur as a result of the elimination of this duty would be at the expense of United States labor. It is hard to justify any policy of trade expansion which must be accomplished at the expense of domestic industry—especially when it is necessary that we preserve our copper industry in a state of preparedness to meet national defense requirements that may suddenly be thrust upon it.

The statement that the tax promotes waste of an irreplaceable resource has been made, but anyone familiar with the industry realizes how ridiculous such an assertion is. It actually does just the opposite for terrific waste would ensue if the mines were shut down. Caving and deterioration in idle mines would cause a tremendous loss in the form of reserves that could never be mined, and development and exploration work will be abandoned if foreign competition makes it impossible to mine copper profitably in this country.

Opponents of the excise tax have also said that the tax injures the domestic refining business and restricts the export business of copper fabricators. It is difficult to see how any damage can be done to either since in both cases copper can be imported in bond, tax free, refined and fabricated, and exported.

Even free trade advocates do not deny the justification of tariff protection great enough to equalize domestic and foreign costs of production. This is all that U. S. mines want. The excise tax must be continued at the present level of 4 cents a pound if it is to be accomplished.

With metal prices showing a weakening tendency and with United States industry unable to absorb the production of our mines, there could be no time at which the mines could be injured more by the lowering of the duty than at present. Domestic consumption of primary copper last year amounted to only 481,229 tons—less than half our productive capacity.