

OFFICIAL FILE

**TWELFTH
ANNUAL REPORT**

•
**DEPARTMENT OF
MINERAL RESOURCES**

**STATE OF ARIZONA
JULY 1, 1950 TO JUNE 30, 1951**

•
**CHAS. H. DUNNING
Director**

*"I admire the miner's wealth; it is clean.
There are neither blood nor tears on it.
Nobody has been pinched; nobody wronged."*

Henry Ward Beecher.

*Our high standard of living is based
on and in proportion to our consump-
tion of mineral products.*



About 1500



DEPARTMENT OF MINERAL RESOURCES STATE OF ARIZONA

Board of Governors:

- Charles F. Willis, Phoenix, Arizona, Chairman
(Term expires January 31, 1956)
- Edwin W. Mills, Salome, Arizona, Vice Chairman
(Term expires January 31, 1953)
- H. F. Mills, Humboldt, Arizona
(Term expires January 31, 1954)
- T. J. Long, Globe, Arizona
(Term expires January 31, 1952)
- Stanley M. Secrist, Tucson, Arizona
(Term expires January 31, 1955)

Personnel:

- Chas. H. Dunning, Phoenix, Arizona, Director
(resigned as of July 1, 1951)
- R. I. C. Manning, Phoenix, Arizona, Chief Engineer
(appointed Director as of July 1, 1951)
- W. C. Broadgate, Prescott, Arizona, Special Assistant
- J. E. Busch, Tempe, Arizona, Part-time Mining Regulations and
Land Specialist
- A. L. Flagg, Phoenix, Arizona, Field and Office Engineer
- Mrs. Glenn W. Pare, Phoenix, Arizona, Office Secretary

Offices: :

- Headquarters Office:
Mineral Building, Fairgrounds, Phoenix, Arizona - Telephone 4-7034

**EXCERPTS FROM THE LAW CREATING THE ARIZONA
DEPARTMENT OF MINERAL RESOURCES:**

"Aid in the promotion and development of the mineral resources of the state.

Conduct studies of the economic problems of prospectors and operators of small mines with a view to assisting in their solution.

Assist in discovering sources of supply for persons desiring to buy minerals.

List and describe available mining properties.

Make mineral resource surveys and conduct such other investigations as may interest capital in the development of the state's mineral resources.

Serve as a bureau of mining information in conjunction with the Arizona Bureau of Mines.

Publish and disseminate such information and data as may be necessary or advisable to attain its objectives.

Cooperate with the State Land Department to encourage mining activity on state lands.

Cooperate with the Corporation Commission in its investigations and administration of laws relating to the sale of mining securities.

Cooperate with the Arizona Bureau of Mines, and turn over to said Bureau such problems as the field work of the division may show to be within the scope of the activities of said Bureau.

Cooperate with federal and other agencies having for their purposes the development of mines and minerals.

Work against all congressional acts favoring reciprocal or duty free imports of foreign minerals.

Do such other things as may assist the more extensive exploration and development of the mineral resources of the state."

**FINANCIAL STATEMENT
DEPARTMENT OF MINERAL RESOURCES**

**STATEMENT OF EXPENSES
July 1, 1950 - June 30, 1951**

| | Appropriation for fiscal Year | Expenditures for fiscal year | Balance Returned to State |
|------------------------------------|-------------------------------------|---------------------------------|---------------------------------|
| PERSONAL SERVICES | \$21,175.00 | \$20,877.38 | \$297.62 |
| CURRENT EXPENDITURES—OTHER: | | | |
| Utilities | | 384.23 | |
| Telephone & Telegraph | | 269.56 | |
| Postage | | 424.72 | |
| Equipment repair & Maintenance | | 225.88 | |
| Office Supplies | | 430.78 | |
| Janitor Supplies | | 45.12 | |
| Engineers' Equipment | | 158.00 | |
| Printing & Cuts for Annual Report | | 296.49 | |
| Miscellaneous | | 142.27 | |
| | 2,450.00 | 2,377.05 | 72.95 |
| TRAVEL: | | | |
| State | 1,500.00 | 1,419.60 | 80.40 |
| Out-of-State | 150.00 | 150.00 | |
| SUBSCRIPTION & DUES | 10.00 | 10.00 | |
| CAPITAL OUTLAY-EQUIPMENT | 100.00 | 97.90 | 2.10 |
| TOTALS | \$25,385.00 | \$24,931.93 | \$453.07 |

CONSOLIDATED COPPER MINES

The Consolidated Copper Mines Co. who are large operators in Nevada have continued drilling exploration on a large group of claims north of Safford in Graham County, and on another property near Patagonia in Santa Cruz County. Results have not as yet been sufficiently complete to warrant an announcement.

BAGDAD

The Bagdad Copper Co. in western Yavapai County is now producing at the rate of 110,000 tons per month from open pit operations. Negotiations are now underway with the Defense Minerals Administration with view to doubling the capacity.

HILLSIDE MILL

The Hillside Mill near Bagdad is treating about 100 tons per day of complex base metal ores from the Old Dick, Copper King and other small producers in the district. A tungsten unit is being added to this mill and they will soon be prepared to handle small shipments of tungsten ore on a cash basis, or larger shipments on a toll basis.

A road is being built from the Black Pearl tungsten property in the Camp Wood district to give access to this mill. The Black Pearl was a very important producer of tungsten in World War I.

KENNECOTT AT RAY

At the Ray mine the work of converting a large part of the production from underground to open pit mining has progressed to the extent that current open pit production is approximately 8000 tons per day or somewhat over half of the total production. Over \$5,000,000 has recently been spent in expansion and conversion at Ray.

LIBRARY

During the year Mr. H. P. Ford of Enumclaw, Washington presented the Department with a set of the transactions of the American Institute of Mining Engineers beginning with Volume I (1871) on through Volume 153 (1943). This is a very valuable set of books and one of which the State should be proud, and for which it should be very thankful.

To the Honorable J. Howard Pyle
Governor of Arizona
Capitol Building, Phoenix, Arizona
Dear Governor Pyle:

In compliance with Chapter 27 Laws of 1939, creating the Department of Mineral Resources, the twelfth annual report of the activities of the Department, covering the fiscal year ending June 30, 1951, is hereby respectfully submitted.

The past year has witnessed continued high production of most minerals in Arizona, and Arizona has maintained its position as our greatest producing State of non-ferrous metallic minerals. The large operators have made high earnings and paid heavy taxes, but the small mines and prospects have not fared so well. For them the road has been unusually rough, and the number of small, active mines has fallen to about 100 from about 300 two or three years ago and over 1,000 before the war.

This decline is due to increased costs without comparable increases in metal prices, and the lack of incentive for speculative capital to find and develop new mines. These factors affect the small fellow more than the large because their ratio of man hour/tons is much larger, and they have no profits against which they can offset speculative exploration losses. Their position thus becomes one of paying a very high tax if their venture is successful, but standing their own loss if it is unsuccessful—a position not attractive to venture capital.

This trend makes our general mining situation and self sufficiency quite precarious, for all large mines were once small mines or prospects, and the present large ones will not last forever.

History has always shown that whenever there is sufficient incentive, the mining industry has been able to find and develop new ore bodies. The process entails a large percentage of failures. The reward must be commensurate with the risks. At present it is not. The worthy small mines could get plenty of venture capital if it were.

These problems are nation wide rather than local. We here in Arizona have but a small voice—and the mining element's voice is a small part of a small part.

Many members of our Congress have had some appreciation of the advisability of national mineral self sufficiency, and have advocated and obtained the passage of measures that would tend to reverse the trend mentioned above, and make us as a nation more self sufficient in mineral supplies.

Each time any such measures have been approved and passed by our Congress they have been quickly vetoed or misinterpreted by the Administration.

In World War I the mining industry was asked to "get out the metal and get it quick". They did. But such production often

entailed considerable capital expense. Many mines were barely in production when the war ended. So Congress passed a "War Minerals Relief Act". It took over 20 years to settle those cases.

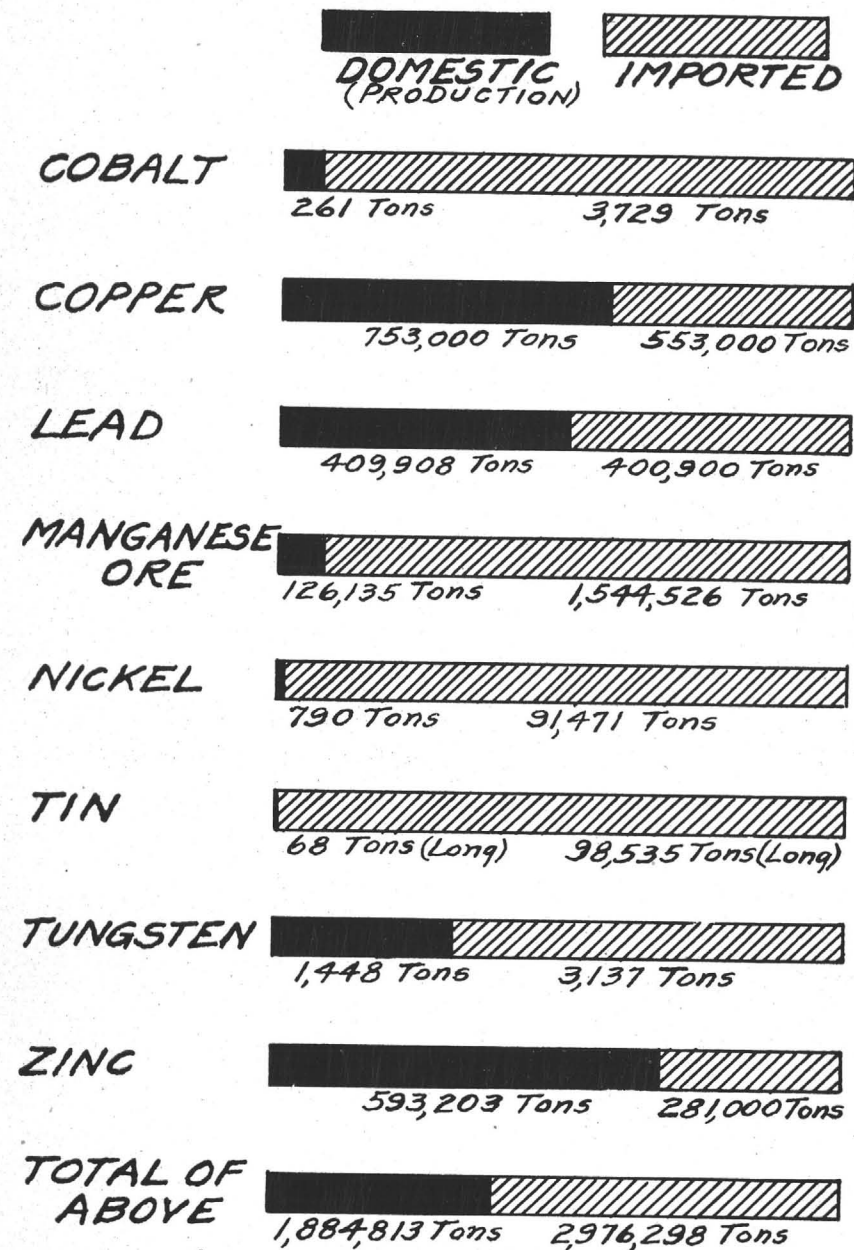
In World War II there was again the stress, and the cry. Miners were asked through press releases to dig the metal. The Metals Reserve Company was set up as a liaison bureau to expedite the metal from Mother Earth to the munitions plants. Press releases urged the miner to dig. Contracts, some of a quasi or pseudo nature were made or implied, and the miner felt secure that he would not this time be left holding the sack. When the war ended a bill was passed by Congress giving relief to those who lost when wartime prices and demands were removed. Promptly adjudications were forthcoming that eliminated most mining claims. Only one or two out of several hundred filed were ever paid.

Now comes emergency No. 3. Again we are short of essential metals but miners are more cautious of the "wolf-wolf" nature of the call. Stockpiles started after the war have not been as successful as they might have been in creating a supply of metal to cover emergency demands, and to remove surpluses in times of extra light demand so the miner can operate steadily and plan ahead. In fact, when there was a metal surplus as in the spring of 1949 stockpile buying was curtailed and many mines were forced to close. Not long thereafter there was a shortage and then stockpile buying was accelerated, seriously adding to the shortage and affecting our civilian economy.

When the Korean emergency started in June 1950 this Department realized that there were insufficient stockpiles, that foreign sources of supply might be restricted, and it would be necessary to get greater production from our domestic mines. It is most difficult, or at least takes a very long time, to increase production at the large mines. The quickest way to get more metal would be from small dormant, or marginal mines. The Department made a survey of such mines with the dual purpose of finding out what they could produce and what kind of a program they would need. The results of this survey were submitted to Washington but apparently received little attention.

The Defense Production Authority was set up in Washington and \$600,000,000 appropriated by Congress to stimulate production. The Defense Minerals Administration was set up as a sub-bureau to render assistance in various forms to increase mineral production. After many months delay a program was born which was entirely unworkable for the classes of mines mentioned above. After further delays the DMA was (supposedly) allocated a \$10,000,000 fund to use on a participating basis with mine owners for exploration for new orebodies.

WHY U.S. STOCKPILES SCARCE MATERIALS



Source of Information: U.S. Bureau of Mines.

MISCELLANEOUS MINING NEWS

PHELPS DODGE

The Phelps Dodge management reports that:

"A new smelter was completed and placed in operation at Ajo in July, 1950. It is smelting all of the concentrate from the open-pit ore of the New Cornelia Branch of Phelps Dodge Corporation, thereby eliminating the long rail haul to Douglas. The smelter comprises one reverberatory furnace, two converters, and equipment for the casting of copper anodes, which are then shipped to the El Paso refinery of Phelps Dodge Refining Corporation for refining.

"The Clarkdale smelter of the United Verde Branch was closed in June, 1950. The mine and mill continue to operate on a declining scale.

"At its Copper Queen Branch the Corporation is doing preliminary work and making engineering studies to determine the possible economy of mining low-grade ore by open-pit methods."

IRON KING

The Iron King Mine of the Shattuck Denn Mining Co. at Humboldt is mining and milling at the rate of 200,000 tons of lead-zinc, gold silver ore per year, and has become the largest producer of zinc in the state.

They have taken an option on the Kay Mine in southern Yavapai County and unwatering has been completed (1200 level). The workings are being cleaned up preparatory to sampling.

MT. UNION

The re-organized Silver King Divide Mining Co. (Nevada) has completed an adit tunnel to tap the old workings of the Mt. Union mine, 15 miles south of Prescott, on the 500 level. This cross cut adit is over 1100 feet long and will serve as a means to drain and explore the old mine, and as a facility for its operation. The Mt. Union was last operated about 1906.

SAN MANUEL

Shaft sinking has been completed at the San Manuel Mine of the Magma Copper Co. The number 2 shaft was completed at a depth of 1944 feet and 700 feet of drifts have been run on the 1285 foot level. Excessive water, which at times slowed the development seems to be well under control. It is generally considered that the mine will be in production in 1953.



A large manganese outcrop in northern Yuma County



The Hillside Mill on Boulder Creek

A year has now passed since the Korean incident and we have been advised at this writing (July 1st) that only a very few loans have been granted for any exploration, development or financing of mining projects. Two small ones are in Arizona. There are 16 Government bureaus that must pass on any assistance application.

In the meantime metal supplies become shorter and shorter and civilian use is drastically curtailed and under allocation from other bureaus. Production, instead of increasing is actually declining in many cases. The shortage is so great in copper, for instance, that a subsidy of 3¢ per pound over the American price is being paid to Chile. We supply foreign countries with dollars under Emergency Relief Program and they, in turn, outbid us (over the set American Price) for metal produced elsewhere, such as in South America.

The American Mining Congress in its Declaration of Policy adopted at Salt Lake City last August, clearly states the situation as follows:

"Tariff reductions, high costs, heavy taxes and unstable metal prices have discouraged mine development during recent years

We recommend the establishment of a sound national mineral policy that will furnish an incentive for prospecting, exploration and the development of essential minerals. We recommend in the interest of national security that the Government afford to domestic mines at least the same consideration and assistance it gives to foreign properties We urge tax revision that will make venture capital available to the speculative endeavor of prospecting and the development of new mines.

Adequate revenues must be raised by taxation to meet the needs of the present emergency. In imposing new and increased taxes the Government should be scrupulous to see that these are not so severe that they destroy the system of private enterprise which we are striving to preserve. Tax laws and their administration must be fair and equitable, and particularly in time of emergency must not penalize resourcefulness, efficiency and economy in achieving maximum production at minimum costs The extreme difficulties of determining what may be considered excess profits in mining must be fully recognized. Because of the speculative nature of mining, invested capital in many mining enterprises does not provide an adequate basis for determining either normal or excess profits."

Special tax recommendations made by the American Mining Congress are as follows:

1. Development costs after discovery should be recognized as operating expenses.

MICA

A real mica industry is developing in Arizona which should continue to grow with the market that can be reached from here, including all of the west coast and parts of the mid-continent area.

Five mica grinding plants are in operation in Arizona and are located respectively at Aguila; Quartzsite; Buckeye; east of Morristown; and near Crown King.

PERLITE

Although there has been no change in the perlite industry in Arizona during the past year, elsewhere there have been notable increases in production due to an increase in a variety of uses. This is traceable directly to continued research which has developed certain new applications outside the field of building material. Among the new applications the more important are (1) in oil well cementing to conserve cement; (2) in oil well slurry to prevent lost circulation; (3) oil well acidizing; (4) construction of temperature and shock resisting structures such as bomb shelters; (5) loose fill insulation for rockets, airplane firewalls, liquid oxygen containers, packaging delicate instruments, etc.; (6) filtration; and (7) fireproofing.

A highly resilient concrete, capable of absorbing tremendous shock without any shattering has been developed. Having a 35 pound per cubic foot dry weight and a 28 day compression strength up to 600 pounds per square inch this mixture has a "K" factor of 0.85 and a "U" factor of 0.70 in a twelve inch wall.

These advances may well lead to a resumption of demand for Arizona perlite.

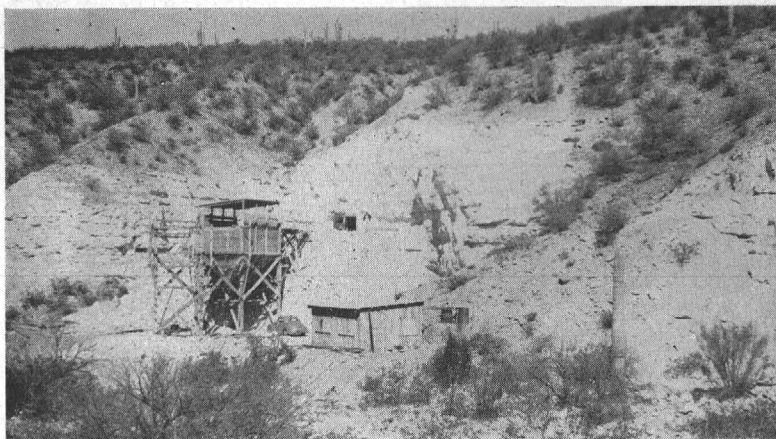
PYROPHYLLITE

Pyrophyllite is a variety of clay and is in current demand for many purposes such as fillers; and in ceramics. A project is being developed covering production from a large tonnage near Quartzsite. Tonnages that can be milled will be determined by freight rates in to California and Arizona consumer areas.

Another variety of pyrophyllite is used in art work, sculpture, etc.

RARE METALS

Minerals containing cerium, thorium and other rare elements are often brought to the office. The occurrence of these elements is of importance to the defense effort and by request from the Atomic Energy Commission available information is passed on to them for listing and further investigation.



**Diatomaceous Earth Deposit
Pinal County**



**Flat Asbestos Vein. Sierra Ancha Mts.
Gila County**

2. Losses from unprofitable ventures should be allowed to corporations, partnerships or individuals as ordinary deductions against current income.
3. Income should not be taxed without full allowance for losses of loss years.
4. Adequate allowances for percentage depletion should be made.
5. Allowance for depletion should be made to the stockholder as well as to the corporations.
6. Tax exemption should be granted to a mine for a period of at least three years after beginning of profitable operations. A similar provision in Canadian law has provided a powerful stimulus to development of new mines in Canada.

The primary function of the Arizona Department of Mineral Resources should be to increase the economy of Arizona through its intrinsic mineral resources. It has been shown above that most of the ills of the industry and restraints against increasing our mineral economy, stem from Washington angles.

For these reasons it seems most advisable for the Department to continue to maintain a representative in Washington who will be continually alert in regard to the goings-on there from a small miner's point of view. Constructive legislation such as the stockpiling idea (which this Department initiated) can be brought to the attention of Congressmen and administrative officials. At the same time the fallacies of other proposed legislation which would be detrimental to the industry (such as some proposed land law changes) can be pointed out by one who is familiar with the problems of the small mines, and continually in touch with the field.

The Arizona Department of Mineral Resources fills a niche not touched by other State or Government agencies, and should be of immense value to the State. Sufficient field force should be maintained to answer fairly promptly any calls from a small miner or prospector to look over his workings and render primary engineering advice; help him find a market for his product if it is other than the basic metals; call it to the attention of those having venture capital if it is something that would interest such persons; attend the local meetings of the Arizona Small Mine Operators Association which should be a clearing house for information, both economic and technical, of value to the small operator; make a report, with samples and assays if necessary, for our permanent files.

Let us not underestimate the value of such reports and files. The mineral industry is in a continual state of flux. Yesterday's waste rock becomes tomorrow's sought ore. But unworked mines become flooded or cave in.

It should be the ambition of the Department to obtain, when physical conditions permit, an authentic and permanent record of underground conditions and mineralization in every mine or prospect in the State.

Just recently our office has been visited by engineers representing other agencies or large companies or new capital who desired to look over our files in hopes of finding something of special interest to them. It was discouraging to them and to us that so much of our information was hearsay or unauthentic. It should be remembered that one dormant mine or prospect placed in competent hands and developed into a good mine, fully justifies, from the State's point of view, the maintenance of an adequate field force for a year.

A corollary of such field work should be the publication of a monthly list of active mines. While such service may be of greatest value to supply houses and business concerns, they are taxpayers and it helps keep business in Arizona.

The office should be a clearing house for the field and it is a matter of fact that the number of callers, phone calls, and daily mail require the full time of at least two engineers and a secretary. The Department has become and should continue to be a bureau of information on mining matters.

There is a very wide variety to these calls and requests for information, and I am forcibly impressed with the need for such service and its overall value to the State. The majority of the calls are concerned with the following:

"What is this rock or mineral? What can I do with it? What are my mining rights at location so-and-so? Will you test this ore on your Geiger Counter? What Governmental regulations affect my proposed operation and what assistance programs are open to me? What do you know about such-and-such a mine?"

Sometimes the questions become highly technical, such as: "What is the melting point and specific heat of zinc?" or, "What is the relative capacity of a mill when grinding wet or dry?", or "Is iridium an element?"

We make only visual examination of rocks and minerals and where further or more exact determination is required we refer to the Arizona Bureau of Mines at Tucson. But we do make a point of the economics of the situation. We do not set ourselves up as a technical bureau but where we know the answers, we are glad to accommodate, and such service is appreciated. In statistical work we are often called on to compile special statistics for some special purpose such as the Copper Tariff Board, but the basic mining statistics are well taken care of by the Arizona Bureau of Mines.

CEMENT

The plant of the Arizona Portland Cement Co. at Rillito, west of Tucson, is being doubled in capacity to 4,000 barrels per day. This is one of the finest and most up to date cement plants in existence, and it is especially noticeable that there is practically no dust or other obnoxious material escaping—a great improvement over some of the older plants.

FLAGSTONE

The use of Arizona flagstone in decorative stone work has passed the hobby stage and entered the era of permanent demand. Production is heavy and increasing, and employment in the industry surprisingly large.

FLUORSPAR

Fluorspar has been in increasing strategic demand and the government has placed it in the 50% bracket for exploration aid. Production from Arizona has not been heavy during the past year but should increase with the stimulated prices and steady demand.

Present market prices are about \$50.00 per ton for the acid grade (97%) and \$43.00 for metallurgical grade (70%). The Government has fluorspar on its stockpiling list.

LITHIUM

Lepidolite, the lithium bearing mica, spodumene and amblygonite, are the principal sources of lithium which is used in special glasses and in electronic applications. Special war applications such as the use of lithium salts in high altitude respirators and for the removal of carbon dioxide in submerged submarines, have accelerated demand during the defense program.

Lithium minerals are being shipped from Arizona, mostly from Maricopa and Yavapai Counties, and additional tonnages are now being developed. Geologists representing processors and consumers have been investigating the possibilities of obtaining additional supplies from Arizona.

High freight rates are a deterrent to the production of lithium in Arizona as the markets are in the east. The first carload shipped carried a freight rate of \$60.00 per ton. The rate was subsequently reduced to \$48.80, which is still too high to inspire development. Some work is now being done on the extraction of Lithia (lithium monoxide) from the crude ore at the source. This would be a great saving in freight as lithium ores only contain a small percentage of lithia.

ARIZONA NON-METALLICS

ASBESTOS

The increased demand for asbestos created by the rearmament program has caused a mild boom in the mining of the fibre.

Globe is the center of activity and three new mills are operating there, furnishing a market for both large and small producers. In addition, several properties have their own mills at or near the mines.

Current prices for fibre are reported to be: \$1200 to \$1500 per ton for No. 1; \$800 to \$900 for No. 2; \$300 to \$450 for No. 3.

Arizona asbestos is very high quality, being practically the only iron free asbestos obtainable. But it is very expensive to mine, most of it being in rather small flat veins in remote areas in rough country, where transportation is a problem.

It thus comes about that when high quality is in demand, and prices are proportionate, Arizona producers do quite well; but when price is the consideration regardless of quality the Arizona miner finds himself unable to compete.

Recently the Government has placed spinning grade asbestos in the 90% bracket. That is, on an approved exploration project the government will loan 90% of the exploration cost provided the operator puts up the other 10%.

BARITE

Production of ground barite for oil well drilling mud, by the Arizona Barite Company at Mesa continued steadily throughout the year.

BERYLLIUM

A limited output of beryl has been maintained from sources in southern Yavapai County.

The principal demand for beryllium is for nuclear energy work and the Atomic Energy Commission is the largest consumer. Its importance is indicated by the market price of \$28 per short ton unit (20 lbs.). It has other widespread applications however, such as in superior grades of electrical apparatus where its use is limited only by the availability of the supply. Like asbestos it is in the 90% bracket in the Government's exploration aid program.

Beryl is difficult to identify and can easily be mistaken for common quartz. The identification is further complicated by the fact that there is no easily applied reliable test.

Beryl deposits are being investigated for ores that might be amenable to concentration, rather than being hand sorted as has been done in the past. Beryl usually occurs in pegmatite dykes, which are abundant in Arizona. The discovery of new sources of beryl in Arizona are quite probable and could be of great value.

Another service especially appreciated is the practical and material help on the increasingly complex subject of land titles as they affect mining locations.

The importance of this phase of the Department's activities is apparent when it is remembered that about 74% of the State's land area is under Governmental withdrawals of one form or another, and that more than 10,000,000 acres are owned by the State. Some of the State lands are of surface ownership only, the minerals being reserved to the federal government. Conversely, on certain areas that have been reconveyed by the State back to the Government, under the "State Exchanges" the minerals have been reserved by the State. Added to these confusing conditions are the difficulties encountered in many instances where the prospector finds himself in grazing districts, wild life areas, etc.

Clearly, title help should be part of the technical help the Department gives the industry, and we have been most fortunate in having available the services of a man with a lifetime experience along these lines.

I mention these matters to show that the Department fills an important niche but does not duplicate the work of any other Department or Agency.

Possibly the greatest function or service of the Department should be in the broad field of public relations. After all, most of the difficulties that the industry encounters originate from the fact that the public has little understanding of the problems of the industry or its importance to our State's economy or our National economy and security. Many large producers have been very lax in the past in public relations matters. And possibly there is no greater way in which this Department can be of value to the State than by bringing an understanding and appreciation of the value of mining to those who ordinarily consider it as a necessary evil.

Respectfully submitted,

(signed) CHAS. H. DUNNING,
Director



Operations at Chase Creek, Greenlee County about 1900

have long been inclined to dump mercury on the American market at any price until they succeed in forcing the closure of all domestic mines. Then the price will go up. We seem to be in this stage of the cycle now. The price is good (about \$212 per flask) and plans are being made to reopen the mercury mines in the vicinity of Sunflower.

MOLYBDENUM has been in better demand and is being produced as a by-product by several Arizona copper mines.

URANIUM. Interest in uranium has been greatly stimulated by the national emergency and by the announcement of new bonus schedules by the Atomic Energy Commission, which practically double the old price.

An exceptionally large and rich deposit was discovered in the Lukachukai Mountains on the Navajo Indian Reservation in northeastern Arizona, and some very important deposits at nearby Grants, New Mexico. Production at the older mines has been maintained, and the Hack's Canyon property near Fredonia is preparing to ship to the government buying depot at Marysville, Utah.

Mr. Jesse C. Johnson, Director of the Raw Materials Division of the Atomic Energy Commission sums up the situation as follows:

"During the year the continued search for uranium within the borders of Arizona has turned up one deposit of major importance as well as other uranium occurrences which may prove to be of value to the national defense effort.

Noteworthy is the discovery of ore by a Navajo Indian in the Lukachukai Mountains on the Navajo Indian Reservation in the northeastern part of the State. The Atomic Energy Commission has announced that consideration is being given to construction of an ore processing plant near Shiprock, New Mexico. This plant will draw a substantial portion of its ore feed from the Lukachukai area.

Elsewhere in Arizona prospectors have also been active, reporting uranium occurrences in many parts of Arizona. During the past six months geologists of the U. S. Geological Survey have examined forty different uranium prospects in Arizona on behalf of the Atomic Energy Commission. Of these, the most promising prospects are located in the northern part of the State. Future exploration and development will determine whether these prospects will become producers. Among the factors which are believed to have stimulated exploration, development, and mining of uranium ores, both in Arizona and elsewhere, was the announcement by the Atomic Energy Commission of an increase in uranium ore prices, and provision for payment of bonus for new production and for production from certain existing mines."

ARIZONA'S METALLIC MINERAL PRODUCTION

The tabulation on page 11 shows Arizona's production of the five principal metals for the past ten years, together with the total United States production for the last year and Arizona's relation thereto.

The slight decline in lead and zinc production and increase in copper is due largely to the switch from lead-zinc to copper mining at the Copper Queen Mine at Bisbee.

COPPER, LEAD and ZINC have been in critical short supply since the rearmament emergency came about and Arizona's larger mines have been pushing production all possible. Because of our generally expanding national economy it would seem that the demand for these metals should continue strong even after any emergency has passed. The production of these three metals alone in Arizona in 1950 had a dollar value of over \$190,000,000—an asset to the State that all Arizonans should recognize as of utmost importance.

MANGANESE came into short supply with the cutting off of supplies from Russia and the step up in domestic steel production. The United States Bureau of Mines has completed its development program at the Artillery Peak deposit in southern Mohave County and have stockpiled sufficient ore to make daily shipments of 50 tons to the test plant at Boulder City, Nevada for some time to come. When this test work is completed no doubt a large beneficiation plant will be built near the mine. There are other large and promising deposits in Northern Yuma County and southern Mohave County and Arizona may well become one of the greatest manganese producing states when beneficiation plans are worked out and facilities available. Currently the Government is offering firm contracts to manganese producers and there have been sporadic shipments of high grade ore from many parts of the State.

TUNGSTEN has also been in short supply as previously our greatest supplier was North Korea. Recently the Government has instituted a guaranteed price of \$63.00 per unit (20 lbs.) for tungsten concentrates. This guarantee will remain in force until 3,000,000 units have been purchased or until July 1, 1956, whichever is sooner. This price is something over twice the normal price (or about in line with present operating costs) and is causing a great deal of interest in the search for and development of tungsten ore. Two mills, the Hillside Mine in western Yavapai County, and the Picacho Mill near Sells, are adding tungsten units. Here again Arizona has large possibilities and with the assured price should develop considerable production.

MERCURY is another metal that occurs in Arizona but is low grade and cannot be worked economically except when foreign sources of supply are not available. European cartels

ARIZONA'S METALLIC PRODUCTION (figures from U.S. Bureau of Mines)

| | GOLD oz. | SILVER oz. | COPPER lbs. | LEAD lbs. | ZINC lbs. |
|-------|-------------|---------------|----------------|--------------|--------------|
| 1941 | 315,392 | 7,498,260 | 652,634,000 | 31,276,000 | 32,986,000 |
| 1942 | 253,651 | 7,064,467 | 786,774,000 | 29,544,000 | 37,044,000 |
| 1943 | 171,810 | 5,713,889 | 806,362,000 | 27,454,000 | 39,354,000 |
| 1944 | 112,162 | 4,394,039 | 716,606,000 | 33,414,000 | 58,154,000 |
| 1945 | 77,223 | 3,558,216 | 574,406,000 | 45,734,000 | 80,452,000 |
| 1946 | 79,024 | 3,268,765 | 578,446,000 | 47,860,000 | 87,330,000 |
| 1947 | 95,860 | 4,569,084 | 732,436,000 | 57,132,000 | 109,288,000 |
| 1948 | 109,487 | 4,837,740 | 750,242,000 | 57,798,000 | 108,956,000 |
| 1949 | 108,993 | 4,790,736 | 718,020,000 | 67,136,000 | 141,316,000 |
| 1950* | 114,000 | 5,314,615 | 802,018,000 | 52,160,000 | 121,300,000 |

* Preliminary figures

RELATIVE 1950 PRODUCTION

| | United States | Arizona | Arizona % | Arizona's Place | Leading State | Production |
|---------------|---------------|-----------|-----------|-----------------|---------------|------------|
| Gold (oz.) | 2,329,613 | 114,000 | 4.89 | 6 | South Dakota | 580,436 |
| Silver (oz.) | 42,419,129 | 5,314,615 | 12.53 | 4 | Idaho | 5,990,000 |
| Copper (tons) | 907,000 | 401,009 | 44.10 | 1 | | |
| Lead (tons) | 429,875 | 26,080 | 6.06 | 3 | Idaho | 102,500 |
| Zinc (tons) | 618,207 | 60,650 | 9.81 | 2 | Idaho | 87,850 |

MINING IN THE HEADLINES

Uranium Providers Offered More Cash

Engle Charges Seeker Of U.S. Aid For Arizona Mine Fights Subsidies

Metal Tariffs Reduced by Torquay Trade Agreements

Metals Get Tighter and Tighter

But it's the shortage of minor metals that's causing the worst bottleneck. Some of the major metals—like manganese—are being shipped in faster than industry can use them.

You can take the Washington brand of relaxation, or you can leave it alone. But worse material shortages you've

under allocation. To supply some of the special needs, new plant capacity will have to be built.

CHILEAN COPPER NOW GETS HIGHER PRICE

3c Boost in Effect May 8, State Dep't Says; OPS to Decide Who Pays Increase

U.S. Minerals Expert Foreign Mine Lobbyist

By DREW PEARSON'S STAFF
WASHINGTON, March 20.—The

Expansion loans for minerals are snagged. The Interior Dept. has 450 applications, but hasn't made a single advance as yet.

Purchase contracts—commitments to buy new or marginal production—also are lagging.

Is Mining Expendable?

MOMENTOUS events—mostly bad ones for domestic metal mining—are taking place. Foremost among the steps that would prepare metal mining for the

Foreign Mineral Producers Told How to Get U.S. Aid

State Metal Output Leads Nation

WASHINGTON, Feb. 3 (AP)—Silver, remained the largest pro- Lead—26,080 short tons worth

Copper Agreement Baffles Producers

NEW YORK, May 8 (AP)—Spokesmen for major copper producers withheld comment today on the United States-Chilean agreement providing for a 3 cents a

DMA Revises Regulation To Aid Small Operator

Washington — The Defense Minerals Administration acted yesterday to make it easier for the small operator to apply for an identification or serial number for his mine, smelter or plant for

Safety Awards Given Two Gila Copper Mines

Miners See Hope In Department Of Mineral Resources Plan To Increase State Metal Production

With the present national emergency again catching the United States short of metals, the Arizona Department of Mineral Resources has taken the initiative in trying to bring about a sensible and efficient plan to increase Arizona's metal production as quickly as possible.

Fourth Of All Copper Taken For Warstuff

WASHINGTON, May 19 (UP)—The government Saturday ordered

Munitions Board Seeks to Aid Small Business Firms

Foreign Gold Rush Raiding Treasury

By STEFFAN ANDREWS
The United States now is losing as much gold

Copper Use in 1950 Set New Peacetime High of 1,440,895 Tons

Mine Production of Copper Highest Since June, 1944

Washington—Mine output of recoverable copper rose 14 per cent in March over shorter February and was the highest monthly production since June, 1944, according to the Bureau

Copper Supply Outlook Is Called 'Rather Desperate'

"The copper supply situation is rather desperate," Chester D. Tripp, president, Consolidated Coppermines Corp., told the annual meeting yesterday. "Chile wants more for its

New Mine Development Is Planned For Bisbee

Atom Ore Found In Williams Area

PRESCOTT (AP) — Uranium found on the property belonging to a Prescott resident has been identified as the highest grade of this valuable ore yet found in this country.

Mrs. Madeleine Jacobs of the Burnt Ranch near Prescott said the uranium bearing ore found on the property she owns near Williams has caused excitement in local mining circles. Following identification by a government official the sample were forwarded to Denver, Colo., for further tests.

Bagdad Copper Planning To Double Production

PRESCOTT (AP) — The Bagdad Copper Corp. is considering a 100

TUCSON TO GET MINERAL OFFICE

Search for Strategic Ore Bodies to Be Directed By Staff at U

Say DiSalle Asks Subsidies for Chilean Copper Rise

Washington—Price Stabilizer Michael V. DiSalle is reported to have recommended a subsidy program to absorb the three-cent a

House Group Approves Bill To Suspend Copper Duty

Magma's "Drift" Tunnel Nears Completion; 200 Feet Left

URGES STEPS TO LIFT CHILE COPPER OUTPUT

C. Donald Dallas, Revere Chairman, Offers 7-Point Program for Mutual Aid

DMA Plans Serial Numbers For Metal Mines, Smelters

Washington — As a means of ex-

State Uranium Ores Termed Among Richest

Uranium ore mined in the Lukachukai Mountains of Northeastern Arizona is among the nation's richest, experts said Thursday.

Silver Lack Grows Acute

Lead, Zinc, Aluminum and Pig Iron Among Products Affected Starting June 6

Washington — Subsidy

Tight Lead Supply May Become Critical Due to Price Squeeze

Lone Star Mine Bought By Illinois Concern

The Lone Star mine in the Whetstone mountains approximately 15 miles southwest of here was sold to the Rich Creek Fluor-ine Co. of Illinois. The mine is ably" be handled by the mine's present four employees, he said. It is possible "when underground extension work begins