

Mineral Resource

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Arizona Department of Mines & Mineral Resources  
1502 West Washington  
Phoenix, Arizona 85007

MINING

Active Mines Directory Released

Arizona is the Nation's leading producer of non-fuel minerals. The Directory of Active Mines in Arizona - 1994, released by the Department in February, reflects the strength and diversity of the Arizona mining industry. Fifty-six companies, operating 105 mines are listed in this year's directory. Eighty-seven sand and gravel operations are also included. The value of minerals produced in Arizona for 1993 was in excess of \$3.1 billion. The mining industry directly employs over 16,000 people in Arizona.

As it has since 1910, Arizona leads the Nation in copper production, contributing over 2.3 billion pounds of copper, or 65 per cent of the U.S. total. Arizona is first or among the leading states in the production of molybdenum, gold, silver, rhenium, and gemstones.

Industrial minerals mined in the State last year include salt, cinders, stone, silica flux, hydrofrac sand, tile and brick clay, bentonite, sand and gravel, pumice, zeolites, perlite, gypsum, pyrite, micaceous hematite, and calcium carbonate.

The directory lists company name, corporate address and key personnel, mine, mill, or smelter location, and a description of the operation.

Metal mines, non-metal mines (excluding sand and gravel), smelters, and company offices or plants are plotted on a 1:1,000,000 scale map that accompanies the publication. The directory is available from the Department office in Phoenix, 1502 West Washington, Phoenix, Arizona 85007 for \$4.00. If mailed the directory is \$5.50.

Richard Oldham Named to Board

Governor Fife Symington has appointed Richard Oldham to the Board of Governors of the Department. The appointment began February 1, 1994 and continues until January 31, 1999.

MINERAL PRODUCTION  
IN ARIZONA - 1992

COMMODITY	QUANTITY	VALUE
Clay(tons)	112,808	\$463,000
Copper (tons)	1,271,220	2,731,152,000
Gemstones		5,416,000
Gold (tr. ounces)	213,995	73,818,000
Sand & gravel (tons)	33,842,000	123,517,000
Silver (tr. ounces)	5,304,865	20,873,000
Stone-crushed (tons)	5,500,000	26,300,000
Pigments (tons)	85	62,000
Coal (tons)	12,500,000	275,000,000
Other		184,337,000

**TOTAL** **\$3,440,938,000**

Non-fuel figures from U.S. Bureau of Mines.  
\* Cement, clays (bentonite), gypsum, lime, molybdenum, perlite, pumice, pyrites, salt, sand & gravel (industrial), dimension stone, lead, tin.

Oldham is an Arizona native. He was born in Flagstaff, but was raised in Quartzsite where his family ran a bee business. After high school in Parker and Salome, Oldham attended the University of Arizona, majoring in Agricultural Engineering.

After Oldham moved back to Quartzsite, he built the Desert Gardens Mobil Home and R.V. Park and the Desert Gardens Mobil Home and R.V. Sales. Through the efforts of Oldham and others, Quartzsite became incorporated in 1988 and he became the town's first mayor. Oldham also serves on the Arizona Historical Society Board and the Arizona Employment and Training Council. On his appointment to the Board Oldham says, "I will enjoy carrying on the legacy of my father and grandfather in promoting mining in Arizona."

### Sanchez Project Obtains Permit!

AZCO Mining Inc. is scheduled to receive its final public hearing for an Aquifer Protection Permit for its Sanchez copper mine and leach project April 20 at 7:00 pm at the Safford library. Obtaining this permit has required nearly two years of effort. It appears that public input was one of the keys to ending the delays by the Arizona Department of Environmental Quality (ADEQ). Although the Environmental Impact Statement has been approved for the project an air quality permit must still be received from ADEQ before construction can begin.

When in production the Sanchez mine will produce 12 million tons of copper ore annually while providing over two hundred high-paying jobs. AZCO plans to develop an open pit mine/heap leach operation that will reduce costs by using conveyors to transport oxide copper ore to the heap leach pads. The pads will be built on a 300-foot-thick lacustrine clay formation. The pad will consist of a 6-inch clay layer overlain by a 40-mil liner and 12-inch crushed filter cushion. Leach liquors will be ponded and pumped through a solvent extraction electrowinning plant to produce marketable cathode copper.

### Industrial Minerals for Navajo County

Chief Engineer, Ken Phillips and Director, H. Mason Coggin met with representatives from Navajo County, regarding the potential for using several Arizona industrial materials to manufacture building materials. The process would use gypsum, diatomaceous earth, Portland cement, and industrial waste from processing recycled paper. Sources and availability were the main topics of discussion. The Department continues to assist in the development of this project.

### Gold Panning Permits

The Bradshaw Ranger District, Prescott National Forest, is requesting recreational gold panners and sluicers to obtain permits. The permits are free and can be obtained from the district office at 2230 E. Highway 69, Prescott, Arizona 86301, or by mail. Doug Vandergon of the Bradshaw District office says the permits are one way to help the rangers deal with the huge volume of recreational gold panners and to distribute information on responsible prospecting. The permits allow the use of a pan, sluice, rockerbox, metal detector, and a pick and shovel. Dredging is not covered by the permit. A plan of

### Edna Vinck Retires from Board

Edna Vinck, a member of the Department's Board of Governors for over 13 years, has retired. Vinck, a 50-year resident of Globe, has served on the Board in all capacities, including a term as Chairman in 1984 and Vice-Chairman from 1987 to 1992. Vinck was instrumental in getting the Department moved from the old Mineral Building on the State Fairgrounds to the Polly Rosenbaum Building. She unselfishly gave of her time and energy. Whenever the Department was in need, she was there. All of us, the Board and the staff of the Department, wish to thank her and to let her know she will be missed.

operation and a small bond are required for operation of a dredge. Panners are asked to confine their activity to below the high-water mark within the stream channel. For more information contact the district office at 602-445-7253.

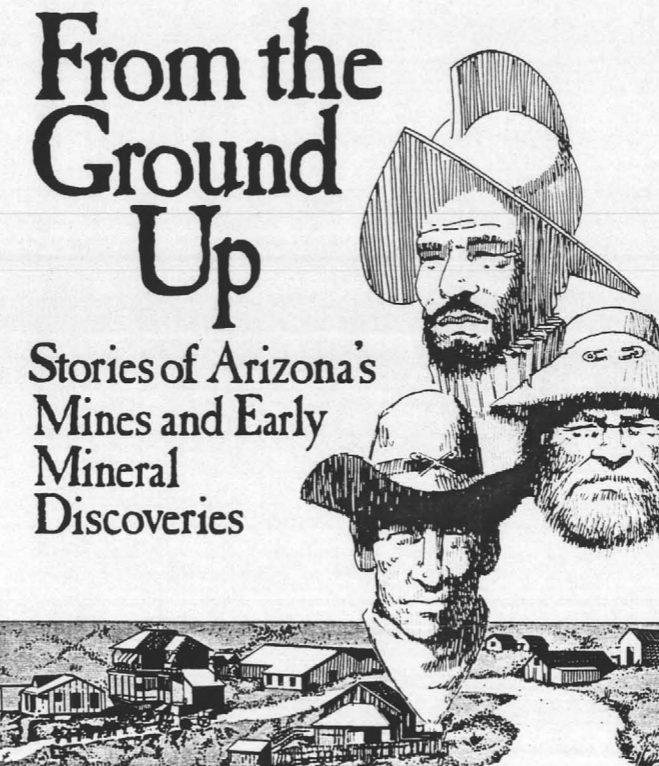
### Department Continues to Perform Valuable Function in Arizona

When Magma Copper opened the newest major copper mine in Arizona, the San Manuel open pit in 1976, the Department had 13 full time employees, a Tucson field office and sufficient travel budget to conduct field work and contact mine owners. Since then, coping with several austerity programs, the Department's Tucson office has been closed, the travel budget severely curtailed and full time employees cut to 7.

The prime legislated directive of the Department is to promote the development of the mineral resources of the state of Arizona. To accomplish this the agency maintains a reference library and a mineral property database and gathers the technical information needed to mine and process the State's mineral resources. Additionally, we publish information on Arizona's mines and mineral resources and conduct public meetings and seminars to assist and encourage development of the State's mineral resources. The enabling legislation also prescribes a mineral museum as a repository of the state's minerals for study and identification.

## FROM THE GROUND UP

by Governor Jack Williams



By  
GOVERNOR  
JACK WILLIAMS



"The Apaches had struck during the night and made off with the best horses in the entire ranching area around Silver City, New Mexico. Led by Captain Chase of the United States Army, a band of cavalymen took off in hot pursuit."

So begins the story of the discovery of the Morenci Mine, one of many colorful early Arizona mining camp tales presented in this book written by former Arizona Governor Jack Williams and originally published by Phelps Dodge. Included are tales of the Vulture Mine, Bisbee, the Harquahala, Crown King and many others.

The Department has updated the stories and, with a donation from Phelps Dodge, has reprinted the 37-page book. Copies are available from the Department for \$3.50 or by mail (order form below) for \$5.00.

### ORDER FORM: From the Ground Up

Please enclose \$5.00 total (\$3.50, plus \$1.50 postage and handling) and mail to :  
Department of Mines & Mineral Resources, 1502 W. Washington, Phoenix, AZ 85007

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Please allow 2 weeks for delivery.

the mineral resources used in its manufacture. Samples of ore minerals and refined products also are included.

The car was originally scheduled for display in the museum for November 1993 through January 1994. We have been allowed to keep the car for an additional six months. The necessary funds to keep the exhibit were donated by Glenn Miller, Curator, Ann Turney, Administrative Assistant and Douglas Duffy, Tour Guide and lapidary shop supervisor. We are very grateful for their donations.

The car was transported to and displayed at the Maricopa County Fair from March 17 through March 27. Several staff members volunteered to serve as hosts at the exhibit during the County Fair.

**Volunteers**

Over 16,500 hours of volunteer time have been logged at the Department since moving to the new building. Calculated at \$10.00 per hour, this donated time is valued at over \$165,000.

Ray Kopman, one of the many Museum volunteers, has produced some interesting and attractive jewelry from chunks of recycled ghost town pottery. Some of Kopman's art has been donated to the museum store and is for sale.

**Department Hosts Legislature**

Several groups have used our new building for meetings and receptions attended by members of the Arizona legislature. Groups as diverse as the Arizona Arts Council and the Community College Association have arranged catered events, with attendance ranging from a few dozen to over two hundred. These groups have all responded well to meeting in the museum and are pleased with the ambiance provided by the displays. The Department hopes this exposure reminds the legislature of our role and the need to complete the renovation of the building.

**PUBLICATIONS**

OFR93-12 *Economic Geology of the Sierra Estrella, Maricopa and Pinal Counties, Arizona*, E.B. Melchiorre, 1993, 29 p. \$2.50

D41 *Arizona Mining Consultants*, N.J. Niemuth, 1993, 23 p. \$4.00

C47 *Annual Assessment Work Requirements Under Arizona Statue*, J.C. Lacy, 1993 3 p. 25 cents

D42 *Directory of Active Mines in Arizona - 1994*. 25 p. \$4.00

C51 *Pertinent Data for New or Prospective Mining Operations*, 1993, 5 p. 25 cents

SR19 *From the Ground Up*, by Jack Williams, 36 p. \$3.50

If ordering by mail, please add \$1.50 for postage.

**Mineral Photographs**

Through the Arizona Mineral and Mining Museum Foundation, Robert Jones is arranging for the Department to gain access to a collection of about 300 three by five inch color transparencies of minerals photographed by Jeffrey J. Kurtzman. Photographs from the collection have been published in *Arizona Highways* and *The Mineralogical Record*. The Department is considering publishing the photographs.

By legislative decree the Department is obligated to monitor mining activities and provide evaluation of mineral development within the state.

The Department actively represents the extractive industries and acts on their behalf in dealing with regulatory agencies. The Department has developed a proactive approach of providing input representing the mining industries' needs to the regulatory process of other governmental agencies. We welcome input to help direct our efforts. Promulgation of reasonable regulations is necessary to preserve a healthy industry and a healthy environment. Without mined products, society as we know it could not exist.

**Gold Mining In West Africa**

A slide presentation on alluvial placer gold exploration and mining operations in the west African nations of Guinea, Ghana and Sierra Leone has been shown recently to prospecting groups throughout out the valley and Wick-enburg. The program reviews exploration efforts during the period 1987 to 1992 in which our new director H.

Mason Coggin was involved. It reveals many of the problems encountered exploring and mining in Africa and other foreign countries.

**LEGAL IMPACT**

**Arizona Mine Land Reclamation**

Two bills concerning mine reclamation have been introduced by the Arizona legislature this spring. Bill SB 1153 is being sponsored by the mining industry and HB 2490 is supported by the environmental coalition. Arizona is the only state without local statutes specifying reclamation of mining lands. Your input is requested. To obtain copies of the bills call the Arizona Legislature Billroom at 542-4379.

**Federal Mining Law**

The American Mining Congress reports 42 U.S. Senators have signed a letter to the Chairman of the Senate Energy and Natural Resources Committee asking



The Boras headframe, a gift from the Phelps Dodge Corporation, will be dismantled to allow shipment from Bisbee to Phoenix. APS is generously providing transportation to the museum. It will be reerected west of the Museum along with the hoist and hoist house. The cages, turn sheets, and the controls will also be salvaged and moved to the museum.

the following issues be resolved in drafting legislation that revises the 1872 Mining Law:

1. Reform that amends existing law without unduly interrupting the existing body of judicial, administrative and regulatory precedents.
2. Corrections to patenting without jeopardizing the tenure establishment required for the financial commitments necessary to develop a claim.
3. A fair royalty that will encourage development, recognize the risks of exploration, and accommodate the cyclical nature of commodity economics.
4. Regulations that preserve valid existing rights and provide for a smooth transition.
5. Consideration for all miners including individuals and small operators.
6. Achievable permitting procedures with clearly defined criteria allowing a fast track permitting process.
7. Provisions that are specific to mining type and the many types of mining and mineral deposits.

### ***Steamboats Impact State Aggregate Industry***

The Arizona Navigable Streambed Adjudication Committee continued its appraisal of Arizona's navigable streambeds. Property that is determined to have been navigable at the time of Statehood in 1912 will revert to the State of Arizona automatically, without due process or condemnation proceedings. Thus, in addition to the burden of a complex permitting process, aggregate producers may have to lease or buy back their property from the state.

### ***Army Corps of Engineers 404 Permits***

A new report on wetlands permitting by the law firm of Beveridge and Diamond P.C. reveals the problems of getting a permit under the "404 permit" requirements.

Representative James Hayes (D-LA) has introduced legislation that would put a limit on the amount of time that the COE would have to act on a permit. This bill has gained the support of the American Mining Congress.

### ***Clean Water and Endangered Species Acts***

Representative Bill Tauzin (D-LA) has introduced H.R. 3875 which would define the basic rights of property owners with respect to environmental actions under two other acts; Clean Water and Endangered Species. If this bill passes, it will require notice and written consent

for entry onto private property by government officials and will allow the property owner to review and challenge the information gained from access and compensation for taking of the private property.

### ***Arizona Department of Environmental Quality (ADEQ) BADCT***

Final drafts of the proposed revisions to ADEQ's BADCT (Best Available Demonstrated Control Technology) are being studied and will be sent to the review committee for final disposition. Mason Coggin has been involved in the revision procedure and has worked hard to streamline the APP (Aquifer Protection Permit) process.

### ***Mine Permitting Problems***

Mining companies that are starting new projects in Mexico, South America, Africa, and even Eastern Europe are claiming that the environmental requirements in those areas are not any easier to meet than those in the U.S. The major difference is that the agencies in these countries have the authority to negotiate directly with the company to reach a favorable level of mitigation, usually within 30 days. Both sides know, from the beginning, what will be required and how it should be presented. Once agreement is reached the permit is signed and the program moves forward. Most of the permitting requirements in the U.S. require years or even decades and there is no assurance that any program will be acceptable.

## **MUSEUM NOTES**

### ***Pippen Art Museum Features Mining***

An open house was held in January at the Pippen Art Museum in Prescott. The event featured a special exhibit, on display through March 15, of art, sculptures, and photographs of mining in Arizona. Approximately 250 people enjoyed the talents of artists and sculptures including George Ann Tognoni, Frank Pippen, and others. The Arizona Mining and Mineral Museum contributed 9 enlarged, framed photographs along with several mineral specimens.



*PHOTO ARCHIVE. Additions are being solicited for the Department's collection of Arizona mining photographs. Volunteers to sort, catalog, and store the voluminous collection would also be welcome. The above photograph shows miners at the Silver King Mine, Pinal County, circa 1900.*

### ***Martin Koning Collection***

The museum is interested in arranging for the acquisition and preservation of selected materials from the Martin Koning collection of Arizona gemstones. We believe the acquisition will preserve his unique lapidary art and showcase gem minerals from exhausted Arizona locations.

### ***Fence for Outdoor Exhibit***

Through gifts to the museum and funds provided by the State of Arizona, the Department was able to fully fund a fence around the outdoor exhibits area. The fence will be wrought iron with masonry pillars and will have three gates to facilitate access for the handicapped and for equipment. Bids were accepted and the fence should be erected soon.

### ***Museum Visitation***

Museum visitation for calendar year 1993 totaled 33,032 compared to 30,112 for calendar year 1992. The

number of students visiting rose from 7,933 in 1992 to 11,297 in 1993. These numbers show a considerable increase since the museum moved to the new building. Excluding visitors during the State Fair, the museum has had a growth rate in visitation exceeding 10% per year since 1988 and the number of students visiting the museum has doubled. Total cash contributions to the Department since moving into the new building have been \$93,000 dollars. An additional \$70,227 dollars are needed to complete the outdoor exhibit program scheduled for calendar year 1994. A fund-raising campaign is now underway to achieve that goal.

### ***Mineral Car***

The "car made of minerals" exhibit has returned to the museum after being displayed at the Tucson Gem and Mineral Show.

The exhibit shows the use and necessity of minerals in the manufacture of a modern automobile. It features a full-size Chevrolet Lumina Minivan with cut outs to show