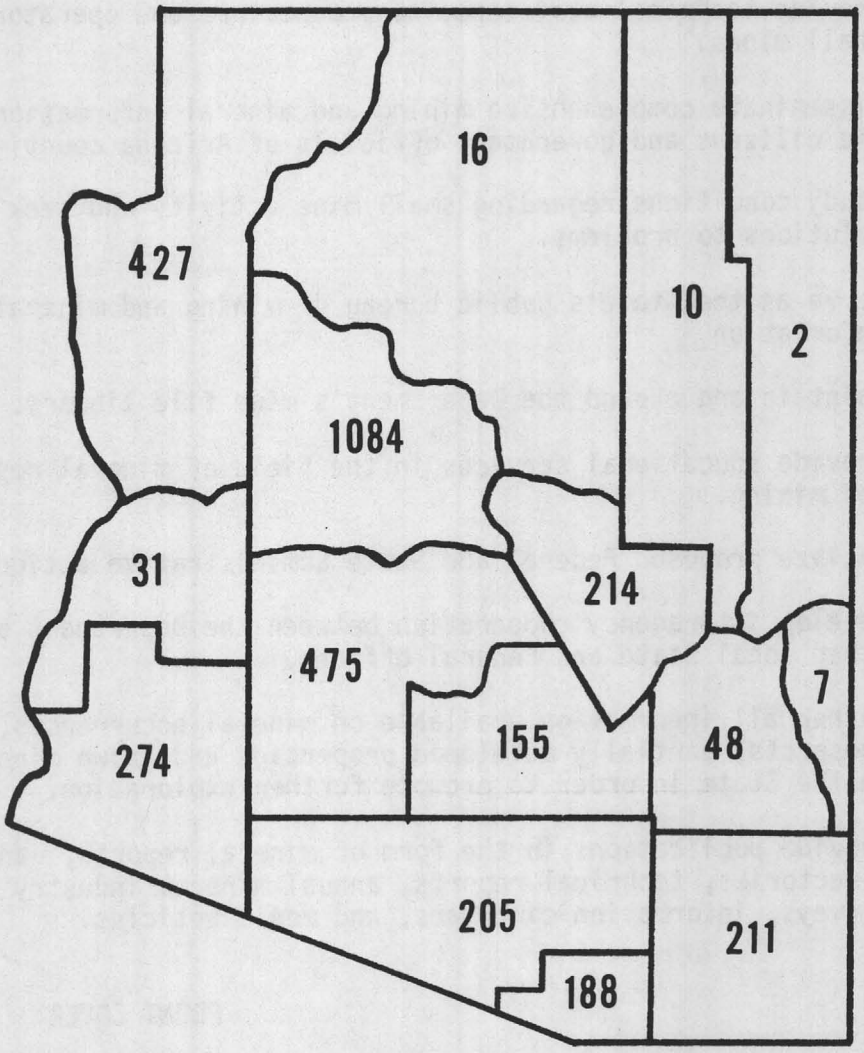
STATE OF ARIZONA

DEPARTMENT OF MINERAL RESOURCES

44TH ANNUAL REPORT

FOR

FISCAL YEAR 1982-1983



JOHN H. JETT
DIRECTOR

ARIZONA DEPARTMENT OF MINERAL RESOURCES

THE DEPARTMENT WAS CREATED TO AID IN THE PROMOTION, DEVELOPMENT AND CONSERVATION OF THE MINERAL RESOURCES OF THE STATE. PARTICULAR EMPHASIS IS PLACED ON PROVIDING PROSPECTORS AND SMALL MINERS WITH TECHNICAL ASSISTANCE AND ECONOMIC INFORMATION.

THE GENERAL GOAL OF THE DEPARTMENT IS DEVELOPED BY WORKING WITH THE FOLLOWING OBJECTIVES:

- Provide technical assistance to prospectors and operators of small mines.
- Disseminate comprehensive mining and mineral information to the citizens and government officials of Arizona counties.
- Study conditions regarding small mine activity and seek solutions to problems.
- Serve as the State's public bureau of mining and mineral information
- Maintain and expand the Department's mine file library.
- Provide educational services in the field of mineral resources and mining.
- Analyze proposed Federal and State administrative actions.
- Develop interagency cooperation between the Department and other local State and Federal offices.
- Gather all information available on mineral occurrences, prospects, partially developed properties and known mines in the State in order to promote further exploration.
- Provide publications in the form of mineral reports, annual directories, technical reports, annual mineral industry surveys, information circulars, and media articles.

FRONT COVER

Numbers noted inside County boundaries indicate number of mineral properties researched in our files and/or discussed with technical staff.

STATE OF ARIZONA
DEPARTMENT OF MINERAL RESOURCES
MINERAL BUILDING, FAIRGROUNDS
PHOENIX, ARIZONA 85007

602/255-3791

The Honorable Bruce Babbitt
Governor of the State of Arizona
West Wing, Capitol Building
Phoenix, Arizona 85007

Dear Governor Babbitt:

In accordance with A.R.S. 27-106, we are pleased to submit the Annual Report of the Department of Mineral Resources. The report covers the Department's activities for 1982-1983 fiscal year. The Arizona Department of Mineral Resources Museum is a function of the department and its activities are included.

It is a fact society today demands ever increasing amounts of mineral raw materials to maintain industrial production and to improve its standard of living. Whether we like it or not, society as we know it has become mineral dependent. All of us directly share in the benefits of mineral production in almost every aspect of our lives.

The Department of Mineral Resource objectives are to gather, develop, interpret and disseminate mineral information and provide technical assistance to encourage interest and investment in Arizona's mineral resources. The mineral information applies to and is used by land use planners and resource management groups.

The department's activities are summarized in the Forty-fourth Annual Report of the department.

Respectfully yours,

Richard C. Cole

BOARD OF GOVERNORS
DEPARTMENT OF MINERAL RESOURCES

Richard C. Cole, Chairman
Brian Donnelly, Vice-Chairman
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Albert H. Mackenzie, Member
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STAFF PERSONNEL

Phoenix Office - Mineral Resource Building, Fairgrounds 255-3791

John H. Jett	Director
Ken A. Phillips	Mineral Resource Engineer
Richard R. Beard	Mining Engineer
Nyal J. Niemuth	Mineral Resource Specialist
Arthur W. Blóyd	Museum Curator
Ann Turney	Administrative Assistant
Aleta Phillips	Secretary/Bookkeeper
Janice Coggin	Secretary/Receptionist

Tucson Office - 416 W. Congress, Room 161 628-5399

Michael N. Greeley	Mining Engineer
Clifford J. Hicks	Geological Engineer
Frances Derrick	Secretary

FORWARD

The Department of Mineral Resources was created for the purpose of providing aid in the promotion and development of the mineral resources of the state of Arizona.

The Department is controlled by a Board of Governors consisting of five members from various parts of the state. These members are appointed for five year terms by the Governor of Arizona. The Board of Governors serves without compensation other than their actual expenses incurred when attending board meetings which are required by law to be held quarterly. The Board of Governors outlines the policies of the department and employs the director, who by law must be an Arizona registered mining engineer. To carry out the policies established, the director in turn employs such field and office personnel as is consistent with the appropriation and with the policies of the board.

The Annual Report is supposed to include copies of the Director's Quarterly Report to the Board of Governors. With the intent of saving on mailing and reproduction costs, the reports have been abstracted and condensed. Copies of the complete reports will be furnished to any that request them. A financial statement is included.

GENERAL

The promotion or development of any mineral deposit must start with its being "found" or located. Therefore, prospecting and/or exploration are the first steps on the way to starting a viable profitable mining operation. Each step taken in exploration, if not resulting in an immediate operation, leaves us better equipped with knowledge and skills to do better and more advanced work in exploration and evaluation in the future.

To encourage the prospecting for mineral ore deposits, there must be a ready market and the right price for the end products. Ore can be elementarily defined as something that can be mined at a profit. If there is no profit the deposit is only a resource - something that has no present value but which may have some potential for the future.

Therefore, it becomes very necessary to obtain for permanent files, all data possible on these resources and have it available when the right time arrives in the future.

The possible development of mineral resources attracts many different types of people such as prospectors, explorationists, mine promoters, investors, end product users and others, all usually referred to as "Small Miners". This is usually an optimistic type of person and it is their eternal optimism and hope of making the "big strike" that keeps mineral prospecting and exploration quite active and at a high level. His activities will hopefully lead to the discovery of prospects that can be sold for possible development in the future. Perhaps better yet, his activities will lead to a precious metal deposit or a small vein with either a metallic or

nonmetallic mineral that can be economically mined by the small miner.

In calendar 1982 fifty-eight companies officially submitted notices of intent to start operations. Most of these activities were for gold and silver but marble, lead, zinc, gem azurite, silver, gypsum, copper, mineral specimens and fluorite were included. During the first six months of 1983 forty-two companies officially submitted notices of intent to start operations.

DEPARTMENT ACTIVITIES

Four Board of Governors meetings were held during the fiscal year. Minutes of the meetings are available to the public at the department's offices in Phoenix and Tucson. Budget restrictions, educational seminars, ownership of office building, possible new quarters for the department or remodeling of existing building, sales office in the museum and changes in the enabling legislation were some of the items discussed.

Services to the public had to be reduced due to budget restrictions and lack of funding for all personnel. Reduced field trips with prospectors, small miners and others with investment interest in Arizona minerals, delayed reprinting of publications pertinent to our activities such as Laws and Regulations Governing Mineral Rights in Arizona, no out-of-state travel to conferences or to solicit funds from the U. S. Bureau of Mines, dropping of subscriptions to trade journals, public pay reproduction machine installed, elimination of maintenance on building, requesting self-addressed, stamped envelopes for mailing of publications, and closing the museum on weekends and at night during the State Fair were actions taken to stay within budget limits.

The employees were quite concerned and felt an obligation to do some-

thing extra. A number of the employees voluntarily took "leave without pay" so the savings in personnel funds could be used for operating expenses. Their philosophy seemed to be "how can one work efficiently and productively without proper tools?" Over $6,000 was made available to the agency through this process.

Five new display cabinets were purchased by the employees and donated to the museum.

A decision was made to hold half-day seminars on a Saturday afternoon to teach basic prospecting courses. Two in Tucson and one in Globe were held. They were very successful but considerably more expensive than our usual conferences. Additional budget restraints may reduce this type of activity.

A remodeling of offices to provide more "reading room" space for office visitors was completed and some painting done. The work was all done by the employees at no cost to the department. It was done on weekends with donated labor.

The field engineers often traveled at their own expense in order to accomplish certain projects. Some traveling was done with the public at the public expense. This may save travel funds or permit travel and field work when it could not have been done otherwise. In some cases it is rather restrictive and not more productive.

A few highlights abstracted from the director's quarterly reports included the following activities:

Samples of an industrial mineral were taken and shipped to Ohio. They were then forwarded to Germany for testing. An engineer from Germany and representatives of the company in Ohio came to Arizona and spent several days in the field with a department engineer.

A field engineer took two attorneys for the State of Texas Securities Division, out to a mine promotion activity.

Sources of supply of magnetite were provided to prospectors that wanted

to submit bids on supplying Department of Energy with magnetite for use in Nevada.

The Finland Embassy, Bureau of Mines of France and Anglo American Corporation of South Africa were visitors to the department.

The engineers took samples of clay from various areas. They were sent to Illinois for analysis. This was at the request of an out-of-state company.

Assistance was provided to Pima County Recorders Office with their mine indexing system.

Phelps Dodge Corporation and Callahan Mining Company donated films to the department for use in their educational programs.

Some spin-off, new manufacturing enterprises resulting from the tremendous activity in precious metal exploring and mining include custom designed impact mills (Casa Grande); electro-winning plants (Phoenix); large leach pad covers (Phoenix); and prepackaged cyanide leach system plants (Tombstone). These units have been shipped to foreign nations as well as a number of western states.

There were thirty-four permanent offices in Arizona of companies doing exploration work. Twenty-three were in Tucson, three in Phoenix, Two in Prescott and one each in Bagdad, Kingman, Yuma, Douglas and Bisbee. There is an estimated fifty additional company offices at any one time by out-of-state companies doing preliminary prospecting and exploration work for Arizona minerals.

MINERAL MUSEUM

The department maintains a mineral museum. Its role is to assist in the promotion and responsible development of the mineral resources of Arizona by establishing a suitable environment for the public to gain an understanding

of the state's geological and mineral resources. This is achieved by providing various education and information services including the maintenance of displays and geological or mineral specimen collections; the provision of written information; an educational service to schools, civic organizations and clubs; and the identification of mineral specimens. The museum functions as a depository for specimens of Arizona mineral heritage, many of which are becoming very rare and extremely valuable.

The mineral museum had an active year even though it started closing on week-ends and did not stay open for the evenings during the State Fair. Eighty-two (82) people donated the following to the department for the museum: 1100 mineral specimens (valued at $8,573.00); seven (7) display cases (replacement value at least $4,200); two (2) rock saws; two (2) grinders; $610.00 in cash and over 1,000 lbs. of minerals to be made into teacher's kits. This activity has been temporarily curtailed due to lack of funding for the museum assistants. Hopefully we will be able to resume with volunteers.

MEETINGS ATTENDED

Over eighty (80) meetings were attended by the director and/or technical staff. They were attended in order to receive and disseminate information critical and pertinent to the promotion of Arizona's mineral resources. Technical societies, environmental associations, prospector-small miner groups, Federal and State agencies, and administrative seminars were included.

PROGRAMS PRESENTED

Forty-nine (49) technical programs were provided to prospector-small miner groups, technical societies, schools, rockhound and lapidary groups and

other specialized groups with interest in Arizona minerals. One hundred fifty-eight (158) school groups involving Five thousand two-hundred eighty-four students were provided lectures and programs in the museum.

GOVERNMENT AGENCIES ASSISTED

Two of the goals of the department are to disseminate comprehensive mining and mineral information to government officials and to serve as the state's public bureau of mining and mineral information. Assistance was provided in response to 136 governmental entities from both in and out of Arizona.

Examples of agencies assisted include: County Sheriff; County Recorder; Mine Inspector; Office of Economic Planning and Development; Chamber of Commerce; Securities Division both in Arizona and other states; Office of Surface Mining; Public Library; U. S. Forest Service; Bureau of Land Management; Congressional offices; U. S. Bureau of Mines; Out-of-state geological surveys; State Land Department; New Mexico Bureau of Mines; Arizona Mexican Commission.

NEWS MEDIA

The department is a focal point for a source of news or answers to questions related to mining and minerals. In addition to the daily newspapers (some from out of state), local and national trade journals; radio and television stations; magazines; and United Press requested assistance during the year.

OUT-OF-STATE AND OUT-OF-COUNTRY

Two hundred forty-eight prospectors-small miners, explorationists, investors, salesman and others with interest in Arizona's minerals came from the Canadian provinces, Old Mexico, South Africa, Poland, England, Columbia, France, Italy, Germany, Finland and Japan. In addition the office visitors

came from fifteen states the first quarter, twenty-three states the second quarter, twenty-eight states the third quarter and twenty-six states the fourth quarter. This is a good indication of how widespread the interest is in Arizona's minerals and where the many millions of dollars being invested are coming from.

MINERAL COMMODITIES DISCUSSED

The department's engineers must have a very broad range of knowledge relating to minerals. Some of the various minerals they were required to discuss included cobalt, fluorite, gold, zeolites, silica, coal, silver, copper, vanadium, molybdenum, perlite, magnetite, tantalum, limestone, marble, tungsten, bentonite, gypsum, sulfur, flagstone, lead, zinc, mica, beryllium, gallium, zirconium, uranium, clay, tuff, barite, glaubers salt, foundry sand, gemstones, black sands, iron, hematite, rutile, vermiculite, ilmenite, mercury, rhyolite, scoria, platinum, kaolin and diatomaceous earth.

PROPERTIES DISCUSSED

The engineering technical staff discussed 902 mineral properties with visitors. Accumulative four quarter statistics indicate these visitors represented eleven foreign countries and 92 states other than Arizona. Some states and countries were repeated in separate quarters.

FIELD TRIP INFORMATION

Rockhounding and lapidary are a large industry in Arizona. Since it is a mineral industry, the mineral museum is used as a tool to promote the industry. A second tool is to provide maps and data on areas where

rock hunting is permissible and satisfactory specimens can be found. Many requests are received by mail and telephone. However, 632 visitors to the museum office were provided with this type of assistance.

SMALL MINE AND PROSPECT ACTIVITY

Prospectors, small miners, investors and others with mineral interest came to the department's offices to talk with the engineers and/or research the mine files. It is interesting to note that most of this activity centered in areas away from the heavily populated urban areas. This results in a large demand for the delivery of our services to people out in the field.

County	Mine Files Studied	Discussions with Engineers	Total Activity
Apache	1	1	2
Cochise	134	77	211
Coconino	9	7	16
Gila	155	59	214
Graham	36	12	48
Greenlee	3	4	7
La Paz	-	31	31
Maricopa	355	120	475
Mohave	346	81	427
Navajo	9	1	10
Pima	135	70	205
Pinal	114	41	155
Santa Cruz	91	97	188
Yavapai	862	222	1,084
Yuma	195	79	274
TOTAL	2,445	902	3,347

OTHER USES OF DEPARTMENT'S LIBRARY

The department maintains and is constantly adding to an excellent reference library oriented towards Arizona minerals. It is open to the public and used by all that are interested. Some of the material used included:

Publications of Arizona Bureau of Geology and Mineral Technology

United States Geological Survey Bulletins and Professional Papers

Miscellaneous geology reports, technical and reference books, trade journals (current and out of print) bibliographies, maps, historical data and other miscellaneous reference works for a total of 1,235.

GEOGRAPHICAL DISTRIBUTION OF MAIL LITERATURE REQUESTS

A review was made of requests for department literature during the second and third quarter of fiscal year 1982-1983. The review was made to determine how extensive an area the requests had come from. Arizona requests were ignored.

Requests for the list of Active Mines came from California (4), Colorado (5), Texas (3), Pennsylvania (2), Nevada (3), and one each from Kentucky, Illinois, Missouri, West Virginia, Nevada, Ohio and British Columbia.

Requests for the Copper Report came from New York (14), California (9), Illinois (5), Colorado (6), Pennsylvania (2) and one each from Connecticut, Michigan, Minnesota, Nevada, New Jersey, North Carolina, Oklahoma, Texas, Utah, Washington D. C., Virginia and Texas. Foreign requests came from England (3), Australia (2), Belgium, Chile, France, Germany, Lisboa, and New Guinea.

Requests for other publications came from California (16), New York (8), Colorado (7), Ohio (7), Nevada (6), Florida (3), Texas (3), Wyoming (3), Maryland (2), Minnesota (2), Utah (2), Washington (2), and one each from Louisiana, Hawaii, Illinois, Kentucky, Nebraska, New Jersey, New Mexico, Oklahoma, Pennsylvania, West Virginia, and Tennessee.

These are minimum numbers since no records were officially kept for this project.

PUBLIC CONTACTS

Telephone contacts	11,253
Office Visitors	3,964
TOTAL	15,217

MUSEUM ATTENDANCE

	No. of Groups	Visitors
School Groups	170	5,820
Other Groups	25	573
Curator	8	309
Public		22,539
Total	203	29,539

MISCELLANEOUS STATISTICS

Educators Kits	70
Programs Provided	49
Meetings Attended	80
Mine Visits	212
Mine Reports Written	94
Field Interviews	162
Conferences & APSMOA	31
New Mine Files Developed	123
Publications Printed	10
Pages Mimeographed	132,500
Publications Sold	627

FUTURE ACTIVITIES

Consistent with good forward planning processes, a long-term view must be maintained. Therefore, additional objectives have been established for future activities. However, they may be modified as industry needs, technology or regulations change. They have not been placed in a specific planning cycle at this time.

These future activities include:

1. Establish a mineral exploration program data depository and maintain a composite map of location and type of exploration activity.

2. Develop a mineral property sampling capability, including equipment to collect and analyze samples with emphasis on non-metallic minerals. Necessary equipment will include hand-sampling tools, a core drill, a bulk sample analytical and processing plant such as a small portable mill.

3. Establish an ore buying station so there will be a market for small lots of ore minerals.

4. Develop a regional mineral resources evaluation program to study groups of old properties for suitability for cooperative development (custom mill-type studies) or as a mineral exploration target.

5. Develop an active "abandoned mines" safety and environmental hazard program to:

   a. Locate and map abandoned shafts, adits, open pits and caved areas.

   b. Evaluate them for mineral potential or as anchor points for sophisticated mineral exploration programs.

   c. Propose solutions to the safety hazard presented by abandoned shafts, adits, open pits and caved areas.

   d. Assist in environment clean-up programs by filling excavations found to be of no value with waste and tailings.

6. Function as an administering agency for federal and state mineral lands reclamation plans.

7. Establish a touring mineral museum to provide statewide educational programs, lectures and displays.

8. Establish a position of Public Information Officer in the department's Phoenix office.

9. Prepare an inter-library cross-reference index of publications on Arizona's mineral resources and mines.

MINERAL MUSEUM

It became desirable to try to obtain data on where the visitors to the mineral museum resided. This would be separate from the prospecting and mining activity.

A guest sign-in book was set up. It is estimated that no more than 10% of the visitors signed the register. Signing was volunteer and no employee was anywhere near the book to suggest or request signing. Even when a visitor signed, there was no way to determine if he or she signed for one, two or many more. As an example, out of 43 Australia and New Zealand visitors on a tour only five signed the book. Other signatures noted tour groups. Others would way "group, family, bunch" or other such words.

The register was checked for 1982-83. Visitors came from all states (49) except Delaware. Seven provinces of Canada were represented. In addition, visitors registering came from eight European countries including England, West Germany, Switzerland, Holland, France, Netherlands, Belgium and Italy. South and Central American was represented by Argentina, Guatemala and Mexico. Hong Kong, China, Japan, Australia, New Zeland, Indonesia along with the Scandinavian countries Norway and Denmark were represented.

It is interesting to note the museum is being included on scheduled tours. Sequar tours from Monterey Park, California had a group from Japan in. The Australian tour was previously mentioned. It was a second trip. Many of the out-of-state visitors noted that they were on their way to the Tucson Gem and Mineral Show, a show that is internationally acknowledged and attended. Another group was from the Gemological Institute of Southern California.

All of this is accomplished with no advertising or brochure; just word of mouth and correspondence.

1982-1983 FINANCIAL REPORT

	Appropriation		Expenditures
Personal Services	$266,300		$255,544.99
Employee Related Expenditures	53,200		54,372.86
Travel - In state	8,600		7,555.92
Professional Services	-		5,029.53
Operating Expenditures	18,100		20,287.02
Communications		$2,514.58	
Insurance		2,078.40	
Lease/Rental - Other machine		2,995.51	
Printing & Photography		676.92	
Repair/Maintenance - Contract		874.33	
Repair/Maintenance - Noncontract		140.40	
Operating Supplies		1,114.91	
Repair/Maintenance Supplies		1,756.63	
Utilities		6,210.56	
Miscellaneous		1,924.78	
Funds Reverted to State			3,409.68
TOTALS	$346,200		$346,200.00