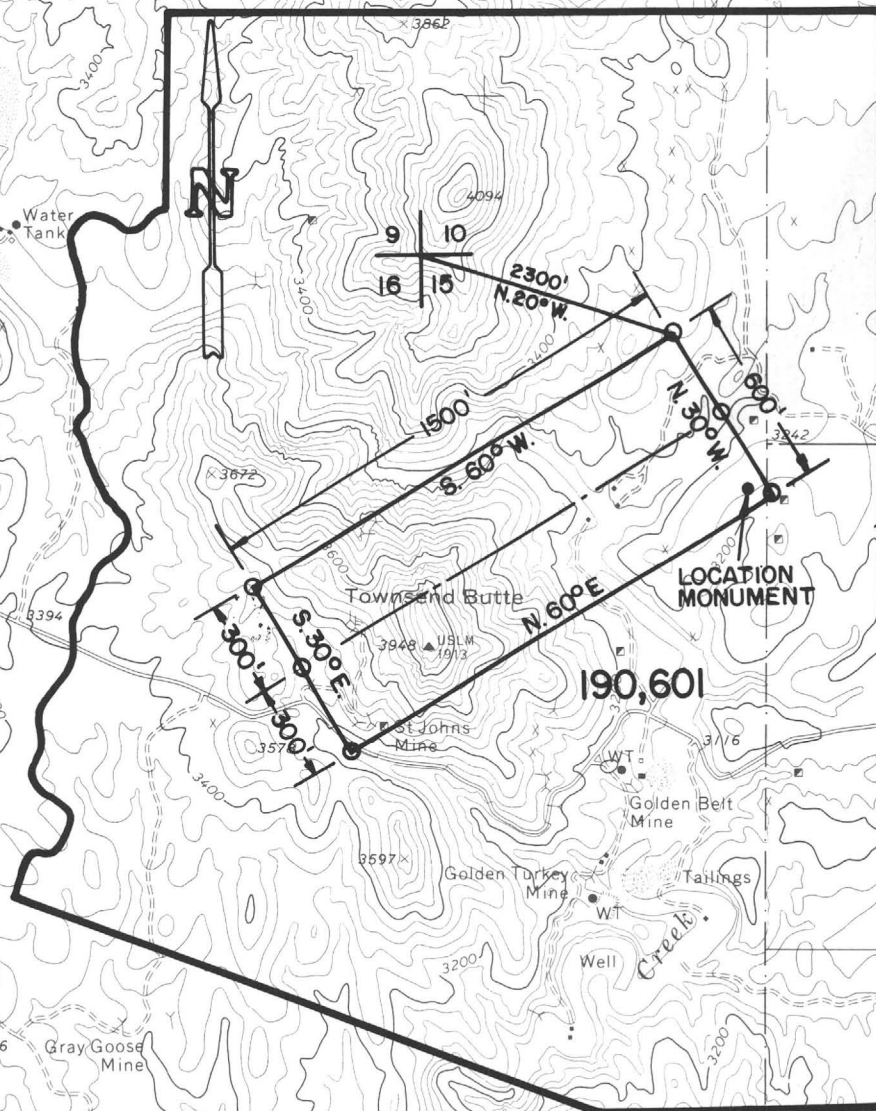


DEPARTMENT OF MINES AND MINERAL RESOURCES

State of Arizona

Phoenix, Arizona

John H. Jett
Director



46TH ANNUAL REPORT
FOR YEAR ENDING JUNE 30, 1985



STATE OF ARIZONA

DEPARTMENT OF MINES AND MINERAL RESOURCES

Mineral Building, Fairgrounds, Phoenix, Arizona 85007 • (602) 255-3791

The Honorable Bruce Babbitt
Governor of the State of Arizona
West Wing, Capitol Bldg.
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 Mines and Mineral Resources. The Arizona Mineral Museum is a function of the Department and its activities are included.

The report lists the duties of the Department as established under its new enabling legislation passed by the Thirty-sixth Legislature, Second Regular Session. The activities of the Department for Fiscal Year 1984-85 are summarized with each duty.

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

Respectfully yours,

Donald W. Hart

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STAFF PERSONNEL

Phoenix Office - Mineral Building, Fairgrounds, 85007 255-3791

John H. Jett	Director
Ken A. Phillips.	Chief Engineer
Richard R. Beard	Mining Engineer
Nyal J. Niemuth	Mineral Resource Specialist
Arthur W. Bloyd	Museum Curator
Ann Turney	Administrative Assistant
Diane Bain	Secretary
Susie Kile	Secretary
Connie Morgan.	Maintenance

Tucson Office - 416 W. Congress, Room 161, 85701 628-5399

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

****Front Cover**

According to data obtained from the Bureau of Land Management there were 190,601 active mining claims in Arizona in 1984.

FORWARD

The Department of Mines and Mineral Resources was created to promote the development of the mineral resources of the state of Arizona through technical and educational processes.

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 the 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 a 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 of the department is supposed to include a report on the activities of the department and a copy of the quarterly reports of the Director to the Board of Governors. The quarterly reports are quite detailed and complete with statistical data. A compilation of these reports would be quite voluminous for an annual report. Therefore, the quarterly statistics have been combined to report an annual total. A copy of the Fourth Quarter Report for Fiscal Year 1984/85 is included to show details of a typical report. Copies of the remaining reports will be furnished to any that may request them. A complete financial statement is also attached.

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. It is a major activity of the Department to collect, develop, analyze, file and disseminate all information possible on each and every mineral occurrence.

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 "Prospectors or 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. These activities will hopefully lead to the discovery of prospects that can be sold for possible development in the future. Perhaps better yet, the 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.

DEPARTMENT ACTIVITIES

The following is copied from the "Final Report of the Committee of Reference" relating to the Sunset Review process for the department:

"Recommendation:

The Committee of Reference has heard lengthy testimony and received written response from the Department's constituency that confirms the (emphasis added by DMMR) DMR does in fact perform a valuable service and provides a mineral development program for the state. In direct response to the performance audit recommendations for Finding No. 1, the Department does:

- a. make mineral resource surveys that interest investors to develop the State's mineral resources;
- b. serve as a bureau of mining information;
- c. cooperate with the State Land Department to encourage mining on state land.

Other audit recommendations under Finding 1 are being addressed administratively. The Department has organized its activities into functional areas and has assigned specific responsibilities to employees. They have also provided their employees with written guidelines for established policies and procedures currently followed.

No legislative changes are necessary...."

Senate Bill 1048 was introduced, passed the Senate and House and was signed by the Governor. The Department has been officially extended for 10 years. This was a satisfactory ending to more than a year of study and work.

Four board of governors meetings were held during the fiscal year. Minutes of these meetings are available to the public at the Department's offices. Two new board members were appointed effective January 1985.

Subjects discussed by the Board of Governors included new budget appropriations, roof repairs contracts, deviation from Legislative intent on expenditure of funds for computer network and new telephone system, new building, operation of a sales booth for the museum, items to sell, museum admission fees, other state agencies involved in a proposed combining of agencies with the Department, committee assignments and reports, Department donations and legislative activities. A new computer network and telephone system were purchased. They were in operation by the end of the fiscal year.

Contributions to the department included the following:

A \$3000 grant was obtained from the U.S. Bureau of Mines to prepare a "Minerals Availability Map" of Arizona

Three donations of books, maps and trade publications were received from private consultants

An exploration company contributed its files on mineral properties in Arizona to the department

The mineral museum received donations with a value of \$15,377, which included 367 mineral specimens, gemstones, 2,184 lbs. of raw material, cash and equipment

As mentioned in the Forward of this publication, the Department's activities are summed up in Quarterly Reports of the Director to the Board of Governors. A reproduction of all the reports would make a large, cumbersome annual report, therefore, the statistics of the four reports have been combined and reported. The last quarter report for the Fiscal Year 1984/85 is included as an indication of department activities. Copies of the other three reports are available on request.

This is the first full year for the agency to function under its new enabling legislation. It seems proper and pertinent to list the duties of the agency with a short comment on how the department responded to these duties.

STATUTORY DUTIES

1. PROMOTE THE DEVELOPMENT OF THE MINERAL RESOURCES AND INDUSTRY OF THIS STATE BY PARTICIPATING IN CONFERENCES, SEMINARS, FORUMS, SPEAKING ENGAGEMENTS, PUBLIC NEWS MEDIA AND OTHER FUNCTIONS NECESSARY TO ACHIEVE ITS OBJECTIVES.

There were 34 technical programs provided to prospectors-small miners and others. They were presented in many communities throughout the state such as Arivaca, Tombstone,

Globe, Prescott, Congress and other areas. These were presented through mineral resource conferences and Arizona Prospector Small Mine Operator Associations. In addition, the museum presented 150 programs to 5,537 school children, adult groups, Boy Scouts, hospital groups and others.

2. CONDUCT STUDIES OF THE ECONOMIC PROBLEMS OF PROSPECTORS AND OPERATORS OF SMALL MINES FOR THE PURPOSE OF ASSISTING IN THEIR SOLUTION AND INVESTIGATE THEIR PROPERTIES TO ASSIST IN DEVELOPMENT.

The field engineers made field visits to 139 properties and attended 94 meetings discussing various mineral issues. There were 86 mine reports written on specific mineral properties and added to the files. Ninety-five field interviews were conducted by the staff with people who have mineral interests.

3. MAINTAIN:

(a) AN INFORMATION BANK AND LIBRARY OF MINERAL AND MINING INFORMATION INCLUDING BOOKS, PERIODICALS, FILMS, VIDEO TAPES AND INDIVIDUAL MINE FILES.

(b) UNDERGROUND MINE MAP REPOSITORY FILES, MINING DISTRICT DATA AND AN ARCHIVE OF MINE DATA.

(c) A MINERAL MUSEUM AS THE STATE DEPOSITORY FOR COLLECTING, CATALOGING AND DISPLAYING MINERAL SPECIMENS OF VARIOUS ORES, GEMSTONES, LAPIDARY MATERIAL AND OTHER VALUABLE MINERAL SPECIMENS.

There is no complete inventory on the Department's information bank and library. We are continually adding to the library by subscriptions, developing new data and by encouraging and soliciting those in the industry to donate their library and files to the department. The single largest contribution in recent time has been one donation of over 1,000 mine files and one library collection of over 600 books, maps, information circulars, periodicals and other publications. A large increase was the recent completion of almost a three-year Bureau of Mines contract. Data on over 10,000 mineral occurrences was developed and is being turned into mine files.

Mining maps are collected a few at a time. However, one large collection was over 700 maps. Maps have been put on microfiche through an U.S. Bureau of Mines grant.

Last year there were over 1,400 items checked out of the library. This included publications of the Arizona Bureau

of Geology and Mineral Technology, U.S. Bureau of Mines, U.S. Geological Survey, maps, technical books, trade journals and others. In addition, 2,231 individual mine files were researched.

The mineral museum has a continuing cataloging program. There are 11,782 mineral specimens cataloged. Displays are on loan to Northern Arizona University, State Capitol, and intermittently at libraries, schools, rock shows and others.

4. PROVIDE QUALITY MINING DATA, EVALUATION AND ASSISTANCE RELATING TO MINERAL DEVELOPMENT TO THE LEGISLATURE AND OTHER STATE AND COUNTY AGENCIES.

Assistance was provided more than 165 times to other governmental entities including many from out of state. See the quarterly report for typical agencies.

5. MAKE SURVEYS OF POTENTIAL ECONOMIC MINERAL RESOURCES AND CONDUCT FIELD AND OTHER INVESTIGATIONS WHICH MAY INTEREST CAPITAL IN THE DEVELOPMENT OF THE STATE'S MINERAL RESOURCES.

This is a continuing activity. However, lack of sufficient resources prevents many detailed studies or written publications. Recent studies were made on beryl, vermiculite, basalt and precious metals.

6. SERVE AS A CENTER OF MINING INFORMATION FOR THIS STATE IN MATTERS RELATING TO ITS MINERAL RESOURCES AND MONITOR CURRENT MINING AND EXPLORATION ACTIVITIES.

Over 11,000 telephone calls, over 2,800 office visitors, almost 6,000 schoolchildren, over 28,000 other museum visitors, over 2,600 mineral properties researched and/or discussed with the engineers, publication of a Directory of Active Mines, a Directory of Exploration Companies, Earth Science Clubs Directory and over 165 other governmental agencies contacting the department all attest to our responding to this duty.

8. PUBLISH AND DISSEMINATE INFORMATION AND DATA NECESSARY OR ADVISABLE TO ATTAIN ITS OBJECTIVES. THE DIRECTOR MAY ESTABLISH REASONABLE FEES FOR PUBLICATIONS.

Mineral reports, directories, information circulars, special reports and other periodicals are being developed or reprinted for sale. The publication Laws and Regulations Governing Mineral Rights in Arizona is being revised by an attorney and will be for sale next year. There were 1,327 publications sold this past year.

8. COOPERATE WITH STATE LAND DEPARTMENT TO ENCOURAGE MINING ACTIVITY ON STATE LANDS.

The State Land Department often forwards letters to the ADMMR for answering. The inquiries usually relate to Arizona minerals and laws and regulations concerning same. State Land Department mineral personnel sometime research our files. The ADMMR obtained a microfilm copy of over 10,000 mineral occurrences for the State Land Department. This data will be put into their computer and used for land use and potential exchanges. The State Land Department does not make their mining laws and regulations readily available to the public. ADMMR publishes the rules and regulations and makes them available. The State Land Department sends their visitors to the Department to obtain copies. We exchange data with their mineral staff.

9. COOPERATE WITH THE CORPORATION COMMISSION IN ITS INVESTIGATIONS AND ADMINISTRATION OF LAWS RELATING TO THE SALE OF MINING PROPERTIES.

This is willingly done. This past year, in addition to the Arizona Corporation Commission, the Department assisted the Internal Revenue Service and several other out of state agencies involved in sales of mining securities.

10. COOPERATE WITH THE BUREAU OF GEOLOGY AND MINERAL TECHNOLOGY AND DELIVER TO THE BUREAU PROBLEMS WHICH THE FIELD WORK OF THE DEPARTMENT SHOWS TO BE WITHIN THE SCOPE OF THE ACTIVITIES OF THE BUREAU.

The Department works with the geology division, referring many people to them for geologic data and mineral analysis, distributes their publication list and promotes and sells their publications.

11. COOPERATE WITH FEDERAL AND OTHER AGENCIES IN MATTERS RELATED TO DEVELOPING MINERAL RESOURCES IN THIS STATE.

We have had several grants or contracts from the U.S. Bureau of Mines to do projects on resources. We provide data to the U.S. Forest Service and the Department of Interior, Bureau of Land Management to assist their evaluation of mineral potential on Federal lands. We have provided seminars and field trips to educate the Federal people on mineral activities. We work with the Arizona Department of Health Services, Water Department, and State Mine Inspector to help provide a good climate for development.

12. OPPOSE CONGRESSIONAL ACTS FAVORING RECIPROCAL OR DUTY FREE IMPORTS OF FOREIGN MINERALS.

We do not have sufficient resources to properly maintain this activity.

13. USE ITS AUTHORITY IN OTHER WAYS TO ASSIST IN MORE EXTENSIVE EXPLORATION AND DEVELOPMENT OF THE MINERAL RESOURCES OF THE STATE.

This permits the Board of Governors to develop new internal policies when the need arises. In this dramatically changing mineral world, new policies and activities are discussed and developed as needed. See "Future Activities" at the end of this report. A Department sales booth to recover publication funds and generate other funds to assist in recovering some department costs resulted from this activity.

STATISTICS

Statistics are a good record of the public demands on the Department's staff and the variety of services used. Activities representing these statistics are listed below. These statistics are taken from the Director's Quarterly Reports to the Board.

PUBLIC CONTACTS

Telephone contacts	11,288
Office visitors	<u>2,686</u>
	13,974

MUSEUM ATTENDANCE

	<u>No. of groups</u>	<u>Visitors</u>
School groups	150	5,521
Other groups	17	785
Curator	10	468
Public		<u>26,783</u>
TOTAL	<u>177</u>	33,557

MISCELLANEOUS STATISTICS

Educator's kits	98
Field trip information - collecting	357
Programs provided	34
Meetings attended	94
Mine visits	139
Mine reports written	86
Field interviews	95
Conferences & APSMOA.	19
New mine files developed	277
Publications printed	7
Publications sold	1,327
Library uses	1,402
Other government agencies assisted	165
Mineral identification.	808
Mine files used (mineral properties).	2,231
Mineral properties discussed with engineers	508

Mine or mineral occurrence files and activities are of great importance to the promotion of mineral resources. There were 2,303 files researched and 508 technical discussions of individual files with the engineers this past fiscal year. It is interesting to note how this activity is in many areas away from the heavily populated urban areas. The tens of millions of dollars being expended on this activity is of great help to outlying areas. This activity is listed by counties:

COUNTY	MINE FILES STUDIED	DISCUSSIONS WITH ENGINEERS	TOTAL ACTIVITY
Apache	2	2	4
Cochise	82	42	124
Coconino	10	5	15
Gila	192	19	211
Graham	27	8	35
Greenlee	13	10	23
La Paz	74	24	98
Maricopa	420	65	485
Mohave	181	60	241
Navajo	1	0	1
Pima	135	56	191
Pinal	161	33	194
Santa Cruz	75	41	116
Yavapai	778	119	897
Yuma	<u>152</u>	<u>24</u>	<u>176</u>
TOTALS	2,303	508	2,811

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.

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 environmental cleanup 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.

FOURTH QUARTER REPORT

1984-85

FISCAL YEAR

Senate Bill 1172 was passed by the House, sent to the Governor and was signed. The Department has been extended for 10 more years.

A Board of Governors meeting was held on May 2 at the department's offices in Phoenix. The mineral museum store, potential purchase of a computer network and new telephone system, potential 1986 budget problems (later satisfactorily solved), and possible action of combining the department with several other state agencies were major topics of discussion.

Some of the activities and/or discussions conducted by the department's technical staff at the request of the public are as follows:

Availability and governmental procedures involving use of water for mining

Company going to process ore for tantalum, discussion of possibilities of, and procedures for recovering beryl, mica and feldspar as by products

Target areas for precious metal exploration

Arizona's mineral trespass law with member of Utah law firm

Mining activities relating to pegmatite deposits and location of pegmatites

Use of timber on mining claim and surface water rights

Metal trading company in New York for discussion on handling silver sales for mine in Mohave County

Processed samples from clay mine and forwarded to U.S. Bureau of Mines in Alabama for testing

Information and field test data provided to prospector that believed he has rubidium in his gold ore

Sent clay samples from another mine to Alabama for testing

by U.S. Bureau of Mines. Results indicate it was good material for tile. Prospector now has company in California interested in the clay

Ground verification of Silver Bell-Helvetia district for Earth Satellite Corporation of Maryland

Completed Copper Report; created monthly commodity price list for publishing; discussed leasing U.S. locatable minerals, severed mineral rights, regenerating activated carbon, marketing of G.E products in mineral industry and assisting prospectors using BLM microfiche are some of the activities

Discussed mineral acquisition on public lands with Utah law firm member

Discussed copper smelter stack effluent and sulfuric acid production with a public relations firm in Washington, D.C. representing United Steel Workers

Provided legal description for location and other data on 10 pegmatite deposits in Mohave County to prospector in Nevada

An engineer was quoted in an article in the WALL STREET JOURNAL relating to an article on a reported very large gold discovery in Western Arizona. This resulted in numerous calls from various states from stock brokers, potential investors and other mining companies

Discussed business development with large out of state contractor

Held long discussion with engineering and design company on potential in-situ leaching operations. They have portable plant and want areas to sell to their clients. Sufficient interest developed that a Canadian company holding an Arizona oxide copper deposit arranged for a property visit

Assisted law clerk on land status search

Assisted a developer from Washington with locations and ownership of some garnet claims. The garnets are needed for sand blasting. Slag is presently used but now prohibited by Federal regulations due to arsenic and heavy metal content

Researched fluorspar and industrial minerals to update department publications

Assisted Arizona copper company in locating and discussing various and numerous in-situ leaching possibilities. The

company told us that our office and assistance eliminated months of tedious research

Guano sales and bagging, mining claim trespass law, gold prospecting by bacteria determination in rocks, valuation of mineral rights and copper leaching were topics of discussion

Worked with representative of group from Los Angeles that wants to start up an old silver mine in a depressed area to create jobs

Worked with representative of a group of school teachers in New York that pooled their resources and wanted to buy a gold mine

Tested material as to its potential use for oil sweep and kitty litter. Material is from two different deposits

Assisted groups from Colorado with their publication on operating mines. The publication is too expensive for the department but we are usually provided a copy of the Arizona section

Had clay samples evaluated for a small miner by state mineralogist. It was a low swelling bentonite containing some chromium, chlorite and potassium. Has potential for facial clay

Discussed zeolite deposits for potential kitty litter use

Discussed copper mining techniques with a person in London. They later came to our office and researched the files on the major copper producers

Discussed various tailing ponds around the state with a refining company. They want tails to process with a newly developed process

Discussions were held with JLBC Director; Representative Steffey, Chairman of House Sub-committee - Appropriations; Senator Harelson, Chairman of Senate Sub-committee - Appropriations; and Manager of Data Center. The discussions involved obtaining permission to deviate from Legislative Intent with our appropriated funds. Permission was given by all parties so the computer network and telephone system were purchased.

FIELD ACTIVITIES

There were 42 field visits made to mineral properties. Detailed reports were completed and added to the department files. Fourteen other field visits were made to other mineral

oriented companies or agencies. Considerable data was obtained and added to the existing files where pertinent.

SPECIAL MUSEUM ACTIVITIES

In addition to programs provided away from the museum, programs and "treasure hunts" were provided to 39 groups representing 1,346 school children.

Numerous volunteers painted, cataloged minerals, cut and polished specimens for display, designed new displays and crushed screened material and made 36 educator's kits. An exhibit was provided for Pima County fair.

Two collections of minerals were donated on consignment, to be sold. The museum will pay for the minerals as they are sold, at one-third the marked sales price of each of the individual minerals. Retail value of the minerals is approximately \$50,000.

The mineral store officially opened with an open house on a Saturday. It is well stocked with minerals, mineral related books and other items. A display was provided to Moon Mountain High School.

A new microscope was purchased. The old unit will go to Tucson for their mineral identification use.

Donations to the museum for the people of Arizona was as follows: 518 lbs. of minerals valued at \$604, twenty (20) museum specimens valued at \$331, a box of tumbled stones valued at \$98, one display case valued at \$50 and a display case containing 91 minerals valued at \$400 for a total value of \$5,086.

GOVERNMENTAL AGENCIES ASSISTED

It has been customary to list other governmental agencies that request assistance from the department. Perhaps it may be desirable to occasionally list some of the various types of assistance requested. It follows:

1. Written response to Bureau of Land Management EIS on Yuma District Management plan.
2. Bureau of Land Management - Denver office - research mineral potential for Woolsey Peak, Baboquivari and Table Top Mountain.
3. Submitted written response on proposed BLM and Forest Service Land exchange.

4. U. S. Bureau of Mines in Denver - relating to reported large gold discovery in Arizona resulting in applications for Industrial Development Bonds.
5. Bureau of Geology and Mineral Technology - discussion of gold and silver leaching operations in Arizona.
6. U. S. Forest Service - research files and other department data for mineral information in section of Southern Arizona.
7. U. S. Department of Agriculture - general information about mining companies in United States.
8. University of Arizona Business Research office - for department publications.
9. Arizona Commission of Agriculture - possibilities of occurrences of trace selenium in section of pediments in Santa Catalina Mountains.
10. University of Arizona Journalism Department - data on mine files.
11. Securities Division of Corporation Commission - data on mines and mills in Gila County being used in stock promotion. Dealer in Wisconsin.
12. Bureau of Water Quality Control - data on Senator mine relating to permit applications.
13. Coconino County Planning Department - needed data on mineral potential and mining activity in the county.
14. Political figure wanting total copper production from 1854 to 1984 (36,811,703 tons). Add 789,000 tons produced in 1984. Reserves are estimated at 23,065,492 tons of copper in 4,613,089,425 tons of ore.
15. Maricopa Planning Department - wanted data and comments concerning special use permits for sand mine.
16. State Mine Inspector's office - requested department input and presence at meeting with MSHA - Washington, D.C.
17. Bureau of Land Management - needed mineral data on mining properties in Waterman Mountains for endangered plant study.

18. Police from Park City, Utah needed data on mine locations where suspects may be hiding.

19. Department of Economic Security - Mesa office - determining value of mining claims owned by applicant for financial aid.

20. U. S. Bureau of Mines - Denver - several calls for data on specific companies and mines.

21. Department of Health Services - needed data on Federal agency involved in reclamation of strip mines.

22. Internal Revenue Service - St. Louis, Missouri, - provided testimony at trial in St. Louis on mining claim tax write-offs.

23. State Mine Inspector's office and Department of Public Safety - needed location of old mine.

There were 36 total contacts with other agencies.

NEWS MEDIA ASSISTED

Included were Phoenix Gazette, Goldsmith Magazine, Pay Dirt Magazine, Tucson Daily Citizen (5), Western Prospector & Miner (3), and Wall Street Journal.

MINERAL COMMODITIES DISCUSSED

Included were the precious and base metals, marble, magnesite, brucite, lithium, alunite, pegmatites, clays, rubidium, selenium, beryl, garnet, pumice, limestone, sewer sludge and guano.

MEETINGS ATTENDED

The following meetings were attended: 21st Forum on Industrial Minerals (all engineers attended), meeting included field trip to zeolite deposits; AIME monthly meetings - Phoenix and Tucson sections; ASU Geology Colloquium, AIME Spring Conferences on metallurgy, geology and mining (all engineers); hearings on BLM/FS land exchange; State Mine Inspector's meeting with MSHA representative from Washington, D. C.; Arizona Geological Society field trips; Wilderness hearings on Arizona Strip and Paria Canyon area.

PROGRAMS PRESENTED

Programs were presented to the following: Gold Diggers Club in Tucson on Arizona geology and geologic maps; Congress APSMOA on elements of mine fraud; East Valley APSMOA on cyaniding precious metal ores; Roadrunner Prospecting Club - interpretation of geologic maps; Cottonwood-Mingus Mountain Rock Club in Cottonwood; Lakeview Lapidary Club in Sun City.

OUT OF STATE REQUESTS

Not including letters, the department responded to 80 requests for assistance that came from people in 20 states other than Arizona. Leading states were Colorado (23), California (12), Nevada (9), New Mexico (6), Washington, D. C. (5), Washington (4), and New York (4).

OUT OF COUNTRY

Out of country requests came from Canada (5) and England (3).

SMALL MINE AND PROSPECT ACTIVITY

NJB Mining Company started production at Long Shot.
Alice Mining Co. sank a well in order to start placer mine.
Dragoon Marble Quarries started production at Liger quarries.
Zulu property reportedly for sale. Owner stated over \$2,000,000 expended, have been exploring and developing.
No. 1 shaft of Oro Blanco being cleaned out and re-timbered.
Overlook Mining Co. started placer operations in Yavapai County.
Lease on Vulture Mine extended.
NJB mining interested in placer in Cochise County.
Fischer-Watt acquired Border mine.
Sierrita Mining and Ranching planning to drill Glove.
Global Energy drilled approximately 70 holes at Oro Grande.
Battle Ax Mining Company producing at Pima County mine, shipping to separate leach facility.
Desert Queen sold. New owner drilled and developed reserves.
Stan West Inc. interested in Arizona's industrial minerals.
Deepening of Gladstone-McCabe shaft started.
Leach tests conducted at Reymert millsite.
80 acre placer claim going into production in Maricopa County.
Carefree Mining Corporation opening Phoenix mine.
King Solomon mine sold.
T & H Construction Co. leased Sundance.
Socorro Mine being worked by prospector.
Harquahala mine under negotiations.
North Star tails and nearby placer material will be cyanide leached.

Dixie Queen being evaluated.
 J & C Claims drilled and sampled.
 Arizona Tufflite staking claims.
 J & A Company producing lightweight aggregate.
 DMEA drilling north of Mayer for client.
 Edith shaft will be explored.
 Davage Oil and Gas looking for placer properties to test.
 Cherry Creek Gold Corporation operating placer on Big Bug.
 Harrison Mining Company operating mill at Cerbat Canyon. Ore is coming from the mines in Mohave County.
 Equitable Corporation is planning to drive a 400 ft. decline.
 Ten tph placer operation starting up on lower Hassayampa.
 Placer operation proposed on S. Margarita group.
 Fame claim shipping silver flux ore.
 Virginia Mining Co. joint venture placer operation, Yavapai County.
 Western State Minerals working out start-up problems at mine in Mohave County.
 Frisco Land and Mining Co. will joint venture mine in Mohave County.
 Drilling program being planned for Storey mine.
 Alanco surface drilled, sampled and mapped mine in Cochise County.
 Texas Gulf, U. S. Borax, Freeport Minerals are all exploring for precious metals in Yavapai County.
 KOCID is looking for suppliers of copper precipitate.
 Paisano Hydromet Corporation operating custom leach plant.

OUT OF STATE COMPANIES ACTIVE IN ARIZONA MINERALS

Nicor Minerals - New Mexico - own Silver Tip, will be drilled by Superior Oil.
 California miner filed drilling plan for Bruno group. Geophysical and sampling work previously done.
 Santa Fe Mining - New Mexico - studying Arizona's industrial minerals.
 New York group optioned Crown Prince claims and started sampling program.
 Tenneco Minerals - Colorado - interested in Arizona's sand and gravel.
 Colorado consultant interested in gypsum evaporite deposits in northern Arizona.
 Redco Corporation - Nevada requested data on starting new operation.
 Corango Resources - Michigan - own Grand Reef fluorspar.
 San Diego prospector leased W-1 thru W-11 claims.
 Fansteel Metallurgical Corporation - Illinois - interested in pegmatites in Arizona. Set up office in Wickenburg and is looking for tantalum resources.
 Dominion Resources - New Jersey - joint venture on mine, Mohave County, for exploration work.

Long Lac - Nevada - drilling claims in Yavapai County.
 New Mexico developer trying to lease Mohave County claims.
 Blue Silver Mining Company - Utah - mining in Mohave County,
 needs access to custom mill.

OUT OF COUNTRY

Highland Crowe Resources - Canada - has defined drill targets.
 Reddy Resources - Canada - drilled U.S. Mine, 1984.
 Tech Corporation - Canada - interested in potential copper mine.
 Canadian company subleased Sundance.
 Hector Resources - Canada - optioned and sampled Flag Mine.
 Terramar Resources - Canada - will drill prospect in Yavapai
 County.
 Canadian group negotiating for claims in Greenlee County.
 Canadian company interested in cyaniding Critic dump.

COUNTY PROSPECT ACTIVITY

Prospectors, small miners, companies and others interested in
 Arizona minerals came to the department to research our mine
 files and/or have technical discussions with the staff. Mine
 prospects investigated or discussed are shown by county on the
 following list:

<u>County</u>	<u>Mine Files</u>	<u>Researched</u>	<u>Engineers</u>	<u>Discussions</u>	<u>Total</u>
Apache		0		0	0
Cochise		21		16	37
Coconino		1		2	3
Gila		107		6	113
Graham		4		2	6
Greenlee		2		2	4
La Paz		31		3	34
Maricopa		99		16	115
Mohave		62		8	70
Navajo		1		0	1
Pima		39		18	57
Pinal		39		8	47
Santa Cruz		9		7	16
Yavapai		177		19	196
Yuma		45		8	53
Totals		637		115	852

MINERAL IDENTIFICATION

Includes visual, chemical, spectroscope, scintillometer and fluorescent.

PUBLIC CONTACTS

	<u>Telephone Contacts</u>	<u>Office Visitors</u>	<u>Total Contacts</u>
Tucson Engineers	527	130	657
Tucson Support Staff	298	37	335
Phoenix Engineers	798	203	1001
Museum	197	72	269
Director	124	29	153
Phoenix Support Staff	800	101	901
Totals	2,744	572	3,316

MUSEUM ATTENDANCE

	<u>Number of Events</u>	<u>Number of People</u>
School Groups - Programs	39	1346
Curator Programs	3	175
Club Meetings	5	250
General Public Visitation	-	1855
Totals	47	3626

MISCELLANEOUS

Educators Kits	8
Field Trip Information	88
Programs Provided.	7
Meetings Attended.	28
Mine Visits.	42
Mines, Prospects or Claim Discussed in Office	115
Mine Reports Written	11
Field Interviews	14
Mineral Resource Conferences - APSMOA	2
Mine Files Used by Public	637
Publications Sold	294
New Mine Files Made	96
Publications Printed	2

Uses of Department Library

Publications of Arizona Bureau of Geology & Mineral Tech.	37
USGS Bulletins and Professional Papers	31
U.S. Bureau of Mines Publications	37
Maps	65
Technical & Reference books, trade journals (current and out of print) and bibliographies	172
Others	40
Totals	382

MILS Use by County

Apache	0	Mohave	31
Coconino	2	Navajo	0
Cochise	10	Pima	1
Gila	0	Pinal	12
Graham	0	Santa Cruz	10
Greenlee	0	Yavapai	31
La Paz	23	Yuma	<u>13</u>
Maricopa	19		
		Tota .	152

Publications Printed

The Primary Copper Industry of Ariz. in 1983	73 pages	75 copies
Directory of Earth Science Clubs 1985	22 pages	20 copies
Press Release - Copper Report	2 pages	22 copies
Press Release - Museum Store	1 page	40 copies
Press Release Continental Materials File Donation	2 pages	58 copies
Press Release - Congress APSMOA Meeting	1 page	11 copies