1973-74

ANNUAL REPORT

CONTENTS:

William H. Dresher

WILLIAM H. DRESHER, Director
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SUMMARY OF ACTIVITIES DURING 1973-74

PUBLIC SERVICE...

Performed analyses on 580 sample lots comprising 2,037 samples of rock and minerals brought to the Bureau by members of the public.

Performed metallurgical process ameneability tests on 33 lots of ores for members of the public.

Provided consultative advice to 383 individuals who visited the offices of the Bureau seeking advice pertaining to geology, minerals and mining.

Distributed 138 mineral and rock kits free to public schools for educational purposes.

Distributed 4,840 technical bulletins; 1,148 maps, and 14,962 copies of the Bureau's quarterly publication, FIELDNOTES.

Participated as a member of the Governor's Advisory Commission on Arizona's Environment.

Provided lectures on geology, minerals and mining at:

- --numerous public schools
- --Grand Canyon College
- --the Audubon Society's Institute of Desert Ecology

Performed assessment work on diatomite mining property bequeathed to the University of Arizona, College of Medicine.

RESEARCH...

Completed survey and index of mining properties in Cochise County (reported as Bulletin 187).

Completed survey and index of mining properties in Pima County (reported as Bulletin 189, in press).

Initiated survey and index of mining properties in Santa Cruz County.

Completed geological analysis of strata-bound sulfide deposits (reported as Circular 16).

Completed field study of non-metallic minerals in the lower half of the Tucson-Phoenix corridor for the United States Geological Survey.

Conducted research into the possible use of City of Tucson municipal sewage water effluent in copper mining and milling operations under the sponsorship of the Office of Water Resources Research.

Conducted research into the engineering of hydrometallurgical processes for copper extraction as an alternative to smelting processes under the sponsorship of the United States Bureau of Mines.

Assisted the United States Bureau of Mines in the collection of mineral production statistics in the State of Arizona.

MAJOR STRENGTHS

The Arizona Bureau of Mines is the earth science and mineral resource experimental and informational agency of the State. Its major strength lies in its affiliation with The University of Arizona and the College of Mines. This affiliation affords the Bureau the freedom from the regulatory, promotional and policy-making responsibilities of most state agencies and the opportunity to be objective in it scientific and practical interpretation of natural phenomena. Further, the Bureau, being a public service agency, requires accessibility by the public. Its location on the University campus, in the heart of the major mineral-producing area of the State, is a decided asset to its mining and metallurgy services.

The staff of the Arizona Bureau of Mines is extremely well suited for the service role of the organization. Their patience and diligence in this respect has been outstanding. The expertise of the staff covers a variety of specialties and a broad background of knowledge concerning the State and its resources. These strengths complement the informational responsibilities of the Bureau and enable it to fulfill the major duty of a state geological survey -- "to provide answers to local problems in applied geology based on the intimate knowledge of the staff."[1]

1) Linn Hoover, Executive Director, American Geological Institute.

MAJOR LIMITATIONS

The major limitation of the Arizona Bureau of Mines is its small size compared to similar agencies in other states. The Bureau serves as the geological survey of the State and as such its operations and services should be comparable to those of other states. The State of Arizona has one of the largest geographical areas (approximately 115,000 square miles) of all of the states and the largest non-fuel mineral industry. In spite of this, in 1973 the Arizona Bureau of Mines had the ninth smallest budget of all the survey organizations in the United States and, consequently, had the ninth smallest professional staff. Arizona and Idaho are the last two states to have the responsibility for the organization to be shared by that of a college dean...a practice which has been common only to a few western states. The output of the Bureau in terms of information derived and disseminated about the natural environment of the State suffers as a consequence of its small size and its part-time director.

Primary to these problems is the fact that the State of Arizona has no agency identifiable to the public as a "geological survey" nor an individual identifiable to the public as the "state geologist". These are functions which exist in nearly every other state in the nation. The Bureau has been to outside view purely a "mines bureau" reflecting its 60 year old charter when in fact its "geological activities" significantly outnumber its "mining and metallurgical" activities. Part of the problem in Arizona has been the fragmentation of geological survey-type activities among several other groups on the campus and agencies in the State with little or no formal liaison or coordination of activities. The budgeting treatment of the Arizona Bureau of Mines as a research unit of the University is a detriment to its operations in times of budget restrictions to education. The Arizona Bureau of Mines is a statutory unit of State government and, therefore, is a research and information arm of State government. While funding is sought and obtained from non-state sources, it is entirely appropriate for the State to be the major contributor to the Bureau's budget.

Operationally, the Bureau has several problems. Its staff is spread from the third floor of the northwest corner of the Geology Building to the basement of the southeast corner of the Mines and Metallurgy Building. Besides making communications difficult for the staff, this spread in location makes it a hardship for members of the public who utilize the Bureau's services. Under its enabling act, the Bureau has been required to distribute its information free to residents of the State of Arizona. While out-of-state recipients were charged an amount equivalent to the cost of printing, the funds so received were returned to the General Fund of the University. Budget restrictions have subsequently prevented the publication of Bureau work inasmuch as the funds for publications had to be solely derived through budget requests. This problem will be partially alleviated in future years by the passage of a bill by the State Legislature during the past year which permits the Bureau to charge for its publications and to establish a revolving fund for their perpetuation. Both residents and non-residents will be required to pay a nominal price for all professional publication of the Bureau after August 19, 1974.

FUTURE PLANS

The modern needs of society have drastically changed many of the activities of the state geological survey organizations in recent years. Landslides, floods and subsidence cracking in residential areas have highlighted this need. Further, environmental concerns as expressed in recent years. have highlighted the need for a better understanding of the geological setting on which our many uses of the surface of the land are based. The Arizona Bureau of Mines must strive to respond to these problems too. We plan, for example, to become intimately involved in collecting and disseminating information relating to the involvement of geology in land use planning. Geology must be the basis for such planning and, as the principal geological organization in State government, it is our responsibility to assist the other state agencies in this regard. We have, accordingly, alerted members of the natural resources committees of the State legislature, the several agency directors having resources responsibilities and the Environmental Planning Commission of our interest in cooperating with them.

We intend to propose an up-to-date format for the organization of operation of the Bureau to the State Legislature for consideration during the 1974-75 legislative sessions. Basically, the following points will be covered by the proposed new charter:

1. Recognition of the Bureau as the geological survey organization of the State by specifically charging it with this responsibility;

2. Establishment of the post of "state geologist" as an official position within State government;

3. Designating the State geologist as the administrative officer of the geological survey branch of the Bureau;

4. Establishment of an Advisory Board consisting of the President of the University, the principal officers of the natural resource-oriented state agencies, a representative of the minerals industry of the State, and a member-at-large representing the general public.

PRO FORMA
1973-74 EXPENDITURE BY CATEGORY

	Amount*	Percentage
TECHNICAL AND ENVIRONMENTAL SERVICES		
Mineral & Rock Identification	$17,296	7.3
Metallurgical Process Amenability	9,400	4.0
Consultation to Citizens & Other State Agencies	45,571	19.3
Sub Total	$72,267	30.6
MINERAL RESOURCE & GEOLOGICAL INFORMATION		
Mineral and Rock Collections	$ 1,416	0.6
Oil and Water Well Repository	1,601	0.7
Geologic Research	20,441	8.6
Metallurgical Research	33,613	14.2
Cochise County Mine Index Project (Bull. 187)	4,933	2.1
Pima County Mine Index Project (Bull. 189)	17,960	7.6
Santa Cruz Mine Index Project	2,098	0.9
Mineral Industries Data (Bull. 188)	319	0.1
Geology of Arizona Bibliography Project (Bull. 190)	4,607	1.9
Fieldnotes	19,969	8.4
Massive Sulfide Deposits (Circ. 16)	3,508	1.5
Reprinting out-of-print maps and bulletins	3,885	1.6
Attendance and Participation, Prof. Soc. Activities	6,225	2.6
Teaching, College of Mines	8,958	3.8
Sub Total	$129,533	54.6
ADMINISTRATION		
Operations Direction	$23,195	9.8
Clerical	8,409	3.5
Overhead Charges	3,659	1.5
Sub Total	$35,263	14.8
Total	$237,063	100.0
SOURCES OF INCOME		
Operating Budget	$202,423	
Service Charges	4,926	
Transferred	29,714	
TOTAL	$237,063	

*Exclusive of fringe benefits to employees and university overhead.