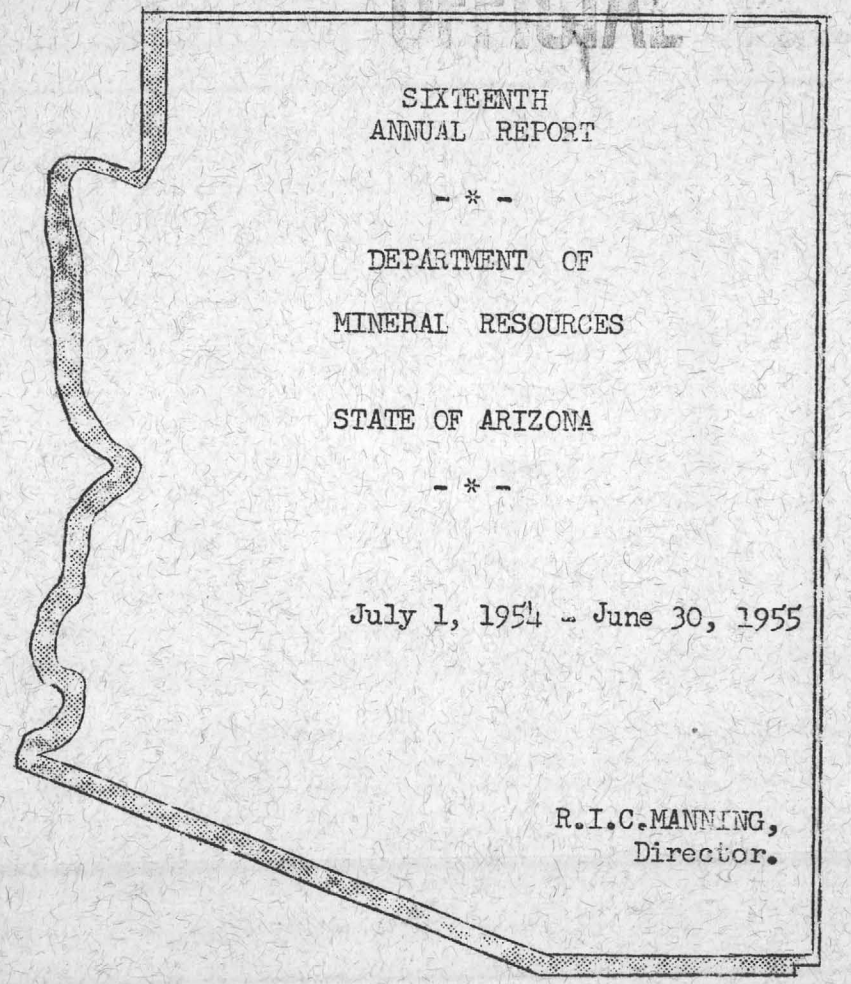

SIXTEENTH ANNUAL REPORT

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DEPARTMENT OF MINERAL RESOURCES

STATE OF ARIZONA

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July 1, 1954 - June 30, 1955

R.I.C.MANNING,
Director.

DEPARTMENT OF MINERAL RESOURCES

STATE OF ARIZONA

BOARD OF GOVERNORS:

Charles F. Willis, Phoenix - Chairman
(term expires January 31, 1956)

Edwin W. Mills, Salome - Vice-chairman
(term expires January 31, 1958)

H. F. Mills, Humboldt
(term expires January 31, 1959)

T. J. Long, Globe
(term expires January 31, 1957)

Stanley M. Secrist, Tucson
(term expires January 31, 1955)

PERSONNEL:

R.I.C.Manning - Director
W.C.Broadgate - Special Assistant
A.L.Flagg, Museum Curator
Mark Gemmill - Field Eng'r - Northern District
Axel L. Johnson - Field Eng'r - Southern Dist.
Bayard J. Squire - Field Eng'r - Central Dist.
Frank J. Tuck, Statistical Engineer
Mrs. Glenn W. Pare - Office Secretary
Mrs. George L. Dunagan - Stenographer

FINANCIAL STATEMENT
July 1, 1954 - June 30, 1955

DEPARTMENT APPROPRIATION:		$ 66,569.00
EXPENDITURES:		
Personal Services	43,195.08	
Emp'r share OASI & Ret.	2,151.47	
Travel - State	6,861.66	
Out-of-state	175.51	
Current Expenditures:		
Utilities	807.14	
Tel & Tel	651.24	
Postage	295.43	
Printing	710.43	
Equip. Mtnce, etc	495.33	
Supplies-office, eng'r, etc	1,438.82	
Fixed charges	97.02	
Subs. & Org. Dues	36.00	
Capital Outlay	636.32	
		57,551.45
Balance returned to General Fund		9,017.55
Deposited in General Fund (from sale of Regulations booklets to out-of-state residents)		45.60

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MUSEUM ACCOUNT

DEPOSITS (balance forward and donations by mining companies		$ 10,605.21
EXPENDITURES:		
Personal Services	$ 8,611.50	
Supplies	285.28	
		8,896.78
Balance - carried forward		$ 1,708.43

FINANCES

Our financial statement shows that we are returning $9,017.55 to the General Fund; the amount consists of surplus in three factors - salaries, travel and current expenditures.

We reserved, both in salary and current expenditures, approximately $2,000 in each fund to be used in revising the booklet Regulations Governing Mineral Locations in Arizona and for other special projects that might be deemed advisable during the year. In the latter part of the year it became evident that the revision would be inadvisable due to the fact that both State and Federal regulations were being revamped and the pamphlet would be inaccurate shortly after it was printed.

We were fortunate in getting through the year without having to make any major repairs on our heating and cooling equipment.

Abnormally heavy demands on our services in the Phoenix office prevented very much travel by either the Director or the Field Engineer assigned to Phoenix.

To the Honorable Ernest W. McFarland
Governor of Arizona
Capitol Building
Phoenix, Arizona

Dear Governor McFarland:

The Annual Report of the Department of Mineral Resources covering the fiscal year 1954-55 is herewith submitted.

Respectfully,

R.I.C.MANNING,
Director.

some of the Museum facilities to all the schools close at hand and to schools generally over the State. The only disadvantage is that the children will not see the actual material in place and enjoy the over-all experience of a tour of the Museum.

In addition to more than 200 requests from schools for information concerning the mining industry in Arizona 270 mineral kits were sent out to students throughout the country. Theheaviest demand is during the third and fourth quarters.

Geologists, engineers and miners are making increased use of the type specimens, both minerals and rocks, the geological maps and similar material which supplements the facilities of the Department. The Museum is reaching a greater number of people, throughout the year, furnishing the casual visitor with information about the State's great mining industry and mineralogy in general, school children with similar information and those engaged in mining with assistance in specific problems.

The continued support and cooperation of the following companies has made it possible to continue the operation of the Museum for which we are grateful:

American Smelting and Refining Company
Inspiration Consolidated Copper Company
Kennecott Copper Corporation
Magma Copper Company
Miami Copper Company and
Phelps Dodge Corporation

MINERAL MUSEUM

Exclusive of the estimated 50,000 or more who visited the Museum during the 1954 State Fair, the total number of visitors for the past year was just over 16,000. The season of winter visitors to the Valley, which includes almost all of the second and third quarters is naturally the busiest season. In each of these quarters there were over five thousand visitors.

A new loan exhibit consisting of rough and finished opals was installed. The cameo exhibit was held over and the very popular two-case display of radioactive minerals is now in its third year. A case of all-Arizona radioactive minerals is being planned to be ready by Fair time.

More than sixty new specimens have been added to the permanent collection. A hand-made set of miners tools in miniature and a windlass to scale were donated by J. Frank Jones of Lowell, Arizona. In a case similar to the one which houses the 206-pound meteorite, acquired last year, a model arrastre in characteristic Mexican setting has been installed.

By the end of the first quarter of this year all the special cases designed for individual displays during the fair will be equipped with aluminum moulding to match those finished last year. The Reynolds Metal Company has furnished four hundred feet of extruded aluminum for this purpose. The company proposes to furnish shortly an especially assembled exhibit depicting the story of aluminum from mine to consumer. This will be a permanent exhibit.

The attendance of students from nearby elementary schools is still on a limited scale, the record for the year being only 358 students and 20 teachers. The lack transportation is the principal reason. Scouts and other non-school groups are brought by parents. A program to reach the schools by means of visual aids, slides and/or film strips is being worked out to be in use before the beginning of 1956. This will bring

OFFICES:

The headquarters office of the Department is located in the Mineral Building at the State Fairgrounds, McDowell Road and Nineteenth Avenue, Phoenix.

The field offices are located as follows:

Northern District:
Chamber of Commerce Building
150 South McCormick
Prescott, Arizona

Southern District:
Chamber of Commerce Building
80 South Stone Avenue
Tucson, Arizona

Central District:
Mineral Building, Fairgrounds,
McDowell Road & 19th Avenue
Phoenix, Arizona

The Prescott and Tucson Chambers of Commerce have graciously furnished space to the Department at no cost to the State and the many favors extended are gratefully acknowledged.

EXCERPTS FROM THE LAW CREATING THE ARIZONA DEPARTMENT OF MINERAL RESOURCES

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

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

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

List and describe available mining properties.

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

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

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

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

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

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

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

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

Do such other things as may assist the more extensive exploration and development of the Mineral Resources of the State."

Preliminary Estimates of Copper, Lead & Zinc Production in Arizona & U.S. - Year 1954 by months.

Mine Production of Copper, Lead, Zinc, Gold & Silver in Arizona 1860-1953, Incl. & 1954 Preliminary.

Non-metallic Mineral Production in Arizona in 1954 - Preliminary Annual Figures.

Preliminary Report of Production of Misc. Metals in Arizona in year 1954.

Mining Taxes in Arizona - Six-year Totals & Averages.

Graphs - Appendix to "Mining in Arizona" booklet.

A Study of Salient Statistics of U.S.Copper, Lead & Zinc Industries - Years 1953-54.

Small Mining Companies' Share in Arizona Mineral Production - Years 1952, 1953 and 1954.

Comparison of Increase in Cost of Living with Increase in Wages and Output of Arizona Copper Miners.

Arizona Land Survey.

Three Wage Charts.

Fringe Benefits Paid by Arizona Copper Mines.

Copper Production in Arizona and the U.S.

Salient U.S.Copper Statistics for 1st Quarter 1955 & Years 1953-54.

Salient U.S.Lead Statistics for 1st Quarter 1955 & Years 1953-54.

Salient U.S.Zinc Statistics for 1st Quarter 1955 & Years 1953-54.

Field Engineers traveled a total of 59,587 miles, attended 177 meetings, visited 303 mines, showed 31 educational movies and had 543 office calls.

Department personnel cooperated with representatives of other state departments, the Federal Agencies and industry toward the passage of legislation favorable to the mining industry.

Arizona's Congressmen, and in many instances, Congressmen from other states, were furnished with information on mining and its needs.

The statistical department issued the following reports which were sent to a mailing list of about 187 companies, governmental agencies, newspapers and individuals, and to the Capitol, University and Phoenix libraries:

Salient Features of the Lead Industry 1950-53.

Salient Features of the Zinc Industry 1950-53.

Average Weekly Earnings - U.S.Industry and Arizona Copper Mining

Summary of July 1954 Report byUS Dept. of Labor on Copper & Lead-Zinc Mining in U.S. and Arizona.

The Lead-Zinc Industry of the U S, Canada & Mexico

Production of Arizona Copper Mines - 1951,52, & 53.

Addenda to Stories of Major Arizona Porphyries

New Porphyry Developments - Silver Bell, Lavender Pit and San Manuel.

Summary of U.S.B.M. Report on Mineral Production in Arizona in 1953.

Based on preliminary estimates of 1954 output (according to the U.S.Bureau of Mines), Arizona ranked first in copper production in the United States (including Alaska), as it has done for the last forty-five years. It ranked fourth in silver, fifth in gold, eighth in lead, and tenth in zinc.

Arizona production and value of the five principal metals in 1954, were as follows: (Preliminary figures)

378,500	tons copper	@ 29.7¢lb	$ 224,829,000
8,900	tons lead	@ 13.6¢ lb	2,420,800
21,750	tons zinc	@ 11.1¢ lb	4,828,500
113,500	oz. gold	@ $35.00 oz	3,972,500
4,335,000	oz. silver	@ 90.5¢ oz	3,923,394
			$ 239,974,194

This compares with the following actual figures for 1953:

393,525	tons copper	@ 28.7¢ lb	$ 225,883,350
9,428	tons lead	@ 13.1¢ lb	2,470,136
27,530	tons zinc	@ 11.5¢ lb	6,331,900
112,824	oz. gold	@ $35.00 oz	3,948,840
4,351,429	oz. silver	@ 90.5¢ oz	3,938,263
			$ 242,572,489

ARIZONA'S METAL

Source: U. S.

	GOLD oz.	SILVER oz.	COPPER lbs
1945	77,223	3,558,216	574,406,000
1946	79,024	3,268,765	578,446,000
1947	95,860	4,569,084	732,436,000
1948	109,487	4,837,740	750,242,000
1949	108,993	4,790,736	718,020,000
1950	118,313	5,325,441	806,602,000
1951	116,093	5,120,985	831,740,000
1952	112,355	4,701,330	791,438,000
1953	112,824	4,351,429	787,050,000
1954*	113,500	4,335,000	757,000,000

* Preliminary

RELATIVE 1954

Preliminary

	United States	Arizona	Arizona %
Gold (oz)	1,831,741	113,500	6.20
Silver (oz)	36,582,288	4,335,000	11.85
Copper (tons)	836,251	378,500	45.26
Lead (tons)	317,352	8,900	2.80
Zinc (tons)	464,539	21,750	4.68

	PRODUCTION	VALUE
Clays (tons)	200,000	$ 725,000
Gypsum (tons	15,000	48,750
Lime (tons)	90,000	1,155,600
Pumice & Pumicite (tons)	120,000	412,800
Sand and Gravel (tons)	3,450,000	2,690,000
Silica (tons)	260,000	327,600
Stone (tons)	182,000	355,000
Coal (tons)	5,000	33,000
Mica (scrap - tons)	2,000	114,250
Fluorspar (concentrates-tons)	2,000	116,500
Perlite (tons)	2,000	13,000
Undistributed	1/	6,528,656

1/ Minerals such as Beryllium, Mercury, Manganese, Vanadium, Asbestos, Barite, Brucite, Cement, Feldspar, are included by the Government in one valuation. Uranium is not reported at all.

Congress passed and the President signed HR 5891 (Public Law 167 - 84th Congress, Chapter 375,-1st Session). In accordance with this act only such portions of the surface of mining claims located after July 23, 1955, as are necessary for efficient mining operations may be used before patenting. Title to timber and other vegetation is not acquired by the locator but such timber as is needed for mining purposes may be used by the claim operator and in the event the timber is disposed of by the United States subsequent to the location of the claim, he shall be entitled free of charge to be supplied with like timber from the nearest timber available.

After a patent is obtained the claim owner has the same rights as formerly. The law also removes from location common varieties of sand, stone, gravel, pumice, pumicite or cinders.

Prior existing legal claims are not affected.

Although there are a few custom mills for the treatment of tungsten ores, small operators are still beset with the problem of finding a concentrator situated close enough so that the freight rates will not wipe out the small margin of profit. Nevertheless, the equivalent of 117 tons of 60% WO_3 was produced in Arizona in 1954, as compared with 134 tons in 1953. There were 18 active tungsten producers as of July 1, 1955, as compared with 20 on July 1, 1954. Cochise, Mohave, Pima, Yavapai and Yuma Counties are the principal producers of tungsten.

The principal uranium producing area of the state continues to be the Northeast portion, principally on the Navajo Reservation, but the mineral has been discovered in every county of the State and undoubtedly some profitable operations will result. Presently the most promising occurrences are situated in the Sierra Ancha district of Gila County and sufficient ore has been blocked out to warrant the buying station which has been constructed at Cutter, situated on both the Southern Pacific Railroad and U.S.Highway 80, about 7 miles east of Globe. This station has a capacity of 250 tons in eight hours and is expected to commence operations July 5, 1955.

Uranium mining and prospecting coupled with a healthful condition in other segments of the mining industry has resulted in a boom seldom equaled in the State's mining history. There is no doubt but that uranium mining constitutes a substantial portion of mining's contribution to the economy of Arizona.

The U. S. Bureau of Mines reported the following other metals and non-metallics production in Arizona in 1954:

PRODUCTION

Bureau of Mines

LEAD lbs	ZINC lbs.	TOTAL VALUE
45,734,000	80,452,000	95,963,006
47,860,000	87,330,000	114,986,254
57,132,000	109,288,000	182,752,537
59,798,000	108,956,000	196,207,948
67,136,000	141,316,000	177,894,134
52,766,000	120,960,000	201,033,694
34,786,000	105,998,000	235,289,045
33,040,000	94,286,000	220,686,278
18,856,000	55,060,000	242,572,489
17,800,000	43,500,000	239,974,194

PRODUCTION

Figures

Arizona's Place	Leading State	Production
5	So. Dakota	535,135
4	Idaho	15,813,440
1	Arizona	378,500
8	Missouri	123,040
10	Montana	61,142

As of July 1, 1955 there were 132 mines operating in the State, of which 105 were classed as metal mines and 27 non-metallic. Of the 27 non-metallic mines, 8 were asbestos. Of the 105 metallic mines 43 were copper producers, 17 were manganese, 18 tungsten and 25 lead or zinc producers. Many of these metal mines produced more than one of these metals.

The Arizona Employment Security Commission reported for 1954 that there were employed in Mining and Quarrying a total of 14,207 men with a total payroll of $72,132,728, and an average annual wage of $5,077. Smelting employment brings the grand total payroll to $80,491,628, with an average of 15,907 employees earning an average of $5,060 per year. Fringe benefits amounted to an estimated $887.50 per employee, making a grand total of $94,609,091 paid to 15,907 employees.

Three new large copper properties came into production in 1954. The Silver Bell Mine of the American Smelting and Refining Co. placed its open-pit mine and mill in operation in March 1954, with an annual capacity of 18,000 tons of copper.

The Lavender Pit Mine of the Phelps Dodge Corporation was formally dedicated on August 7, 1954 with an annual capacity of 38,000 tons.

The Copper Cities Mine of Copper Cities Mining Co.,(a Miami Copper Co. subsidiary) began production in August 1954, and attained an annual capacity of 22,500 tons of copper by the end of the year, just a year after the Castle Dome mine was shut down.

After a year of a stable copper price of 30 cents, the price rose to 33 cents in February, and at the end of March, producers were asking 36 cents. A short copper supply has been responsible for the increase in price.

The story of lead and zinc in 1954 continued to be bad. Production continued to drop, due principally to low

prices and high operating costs. Lead annual production rate in the first half of 1955 has been lower than for the year 1954, while zinc production has slightly increased. The prices of lead and zinc started out the year 1954 at 13.5¢ and 10.0¢ respectively. Lead got down to 12.5¢ in March and zinc to 9¼¢. When the Government established a new stockpiling policy in April, the demand for both metals increased, and lead reached a 15¢ price, while zinc later rose to 11½¢. The price of zinc touched 12½¢ in April of this year, but lead has remained at 15¢. These prices are still too low to permit the reopening of Arizona lead and zinc mines.

In 1954, Arizona mines produced more manganese ore than in any year in the State's history. All of the output was shipped to the Government's stockpile depots at Wenden, Arizona and Deming, New Mexico. The principal producing counties were Mohave, Yuma, Santa Cruz, Gila and Pinal.

The Wenden depot was scheduled to shut down in December 1954 on receipt of six million long ton units of contained manganese. However, the depot was permitted to receive six million units of recoverable manganese and its life was therefore extended to May 10, 1955, when the depot was closed. Unless Congress increases the quota, the depot will be closed permanently, and shipments will have to be made to Deming, New Mexico until that station has received six million units. Many Arizona mines are unable to ship their manganese ore that far, and they have found it necessary to shut down. There were only 17 active manganese mines in operation on July 1, 1955, as compared with 59 on July 1, 1954.

The GSA asbestos purchasing depot at Globe continued to receive No. 1, No. 2, and No. 3 grades of crude asbestos, the quantity not published by the Government. As of July 1, 1955 there were 8 asbestos properties active, as compared with 11 on July 1, 1954. Gila County was the principal producer.