

NEW MEXICO SCHOOL OF MINES
STATE BUREAU OF MINES AND MINERAL RESOURCES
E. H. Wells, President and Director

Circular No. 3

FIRST, SECOND AND THIRD ANNUAL REPORTS OF THE DIRECTOR
and
PRELIMINARY REPORT FOR THE FOURTH YEAR

By
E. H. Wells

Socorro, N. M.
January 10, 1931

NEW MEXICO SCHOOL OF MINES
STATE BUREAU OF MINES AND MINERAL RESOURCES

E . H . W e l l s
President and Director

FIRST ANNUAL REPORT OF THE DIRECTOR

Sixteenth Fiscal Year, July 1, 1927 - June 30, 1928

Establishment and Objects of the State Bureau of Mines and
Mineral Resources

The New Mexico Bureau of Mines and Mineral Resources was established by the New Mexico legislature of 1927. It was made a department of the New Mexico School of Mines at Socorro, and hence its activities are supervised by the board of regents of that institution.

The Bureau of Mines and Mineral Resources was established for the primary purpose of assisting the development of the mineral resources of New Mexico. The work of the bureau consists mainly of (a) the preparation and publication of reports dealing with New Mexico geology and mineral resources, (b) the collection of a library and the compilation of a bibliography of the literature pertaining to New Mexico geology, mines and minerals, and (c) the compilation and publication of data pertaining to the mineral industry of the state.

Personnel

The staff of the Bureau during the sixteenth fiscal year was as follows:

E. H. Wells, director (part time)
W. D. Johnston, Jr., geologist (part time)
Geo. B. Somers, geologist (part time)
T. P. Wootton, librarian and statistician (part time) Harriett
Herkenhoff, stenographer (part time)

In addition to their Bureau duties, E. H. Wells served as president of the faculty of the School of Mines, W. D. Johnston, Jr. and Geo. B. Somers as assistant professors of geology and mineralogy on the faculty, T. P. Wootton as school librarian, and Harriett Herkenhoff as school stenographer.

Work of the Bureau during the Sixteenth Fiscal Year

The State Bureau of Mines began to function officially on July 1, 1927, the beginning of the sixteenth state fiscal year. In June, 1927 the director made reconnaissance examinations of a number of mineral deposits in Taos, Rio Arriba and Santa Fe counties for the purpose of adopting a program for field investigations during the year.

In December, 1927, the director went to Washington, D. C., to attend the annual convention of the American Mining Congress and to confer with officials of the U. S. Geological Survey and the U. S. Bureau of Mines regarding future Bureau work. Partly as a result of these conferences Dr. A. C. Spencer, geologist of the Federal Survey, was assigned to the Santa Rita district to complete the field work for a report on this district. The director spent about ten days in the field with Dr. Spencer in February and March, 1928 in a joint study of some of the geological problems of the Santa Rita district.

As a further result of the director's conferences with the officials of the U. S. Geological Survey in Washington, the State Bureau was given permission to use Dr. G. F. Loughlin's incomplete geologic map and field notes on the Magdalena district, Socorro County, for the preparation of a state report on the geology and ore deposits of the district. Dr. Loughlin spent parts of 1915 and 1916 in this district with the intention of preparing a report to be issued as a professional paper of the Federal Survey. Because of special assignments during the World War and his promotion to the position of geologist in charge, section of metalliferous deposits, of the Geological Survey shortly after, it had been impossible for Dr. Loughlin to complete the report.

On the return trip from Washington the director visited the Illinois Geological Survey, Urbana; the U. S. Bureau of Mines station at the University of Minnesota, Minneapolis; and the Missouri Bureau of Geology and Mines, Rolla. Much valuable information was obtained from these organizations.

The two chief field investigations of the State Bureau of Mines and Mineral Resources during the sixteenth fiscal year consisted of a study of the mica and lithium deposits of New Mexico by Prof. Geo. B. Somers and a study of the fluorspar deposits of the state by Prof. W. D. Johnston, Jr. Prof. Somers spent most of July and August in the field in Taos and Rio Arriba counties and visited all of the known mica and lithium deposits. The preparation of his report occupied a part of his time during the regular 1927-28 school session.

The investigation of the fluorspar deposits of New Mexico by Prof. Johnston occupied the months of July and August, and several additional field trips were made during the school year.

A part of Prof. Johnston's time during the school session was given to the writing of a report on the deposits.

In the fall of 1927, Mr. T. P. Wootton began the compilation of a bibliography of New Mexico geology. This bibliography was nearly ready to be put in manuscript form by the end of the fiscal year. Mr. Wootton prepared a revision of the New Mexico portions of Bulletin 507 of the U. S. Geological Survey, "The Mining Districts of the Western United States," and Bulletin 624, "Useful Minerals of the United States." The geological library was systematized by Mr. Wootton and many missing bulletins and periodicals were obtained.

Financial Statement, Sixteenth Fiscal Year Receipts

Appropriation	\$15,000.00
Interest	51.46
Miscellaneous	<u>20.63</u>
Total receipts	\$15,072.09

Disbursements

Salaries	\$ 4,206.37
Car purchase and maintenance	968.45
Car rent and mileage	208.96
Traveling expense	857.60
Furniture and fixtures	10.90
Publications	440.23
Library	100.00
Office expense	188.52
Field and laboratory equipment.	35.23
Assays and analyses	228.50
Miscellaneous	<u>60.82</u>
Total disbursements	\$ <u>7,305.58</u>
Balance June 30, 1928	\$ 7,766.51

NEW MEXICO SCHOOL OF MINES
STATE BUREAU OF MINES AND MINERAL RESOURCES

E . H . W e l l s
President and Director

SECOND ANNUAL REPORT OF THE DIRECTOR

Seventeenth Fiscal Year, July 1, 1928 - June 30, 1929

Personnel

The staff of the Bureau of Mines and Mineral Resources during the seventeenth fiscal year consisted of:

E. H. Wells, director (part time)
A. H. Koschmann, geologist (part time)
V. T. Stringfield, geologist (part time)
T. P. Wootton, librarian and statistician (part time)
Harriett Herkenhoff, stenographer (part time)
M. W. Black, topographer (part time)
G. H. Wells, rodman (part time)

The regular school positions of the members of the Bureau staff were as follows: E. H. Wells, president; A. H. Koschmann, professor of geology and mineralogy; V. T. Stringfield, assistant professor of geology and mineralogy; T. P. Wootton, librarian; and Harriett Herkenhoff, secretary to the president. Mr. M. W. Black and G. H. Wells, students of the School of Mines, were employed during the summer vacation of 1928.

Fire Losses

On July 5, 1928, the old Main Building of the School of Mines was destroyed by fire with the loss of practically all of its contents, including the library, records, and data of the Bureau of Mines which had been accumulated to date. The chief loss to the Bureau was the almost completed manuscript and also the notes, maps, etc. of the report by Prof. Gee. B. Somers on mica and lithium in New Mexico. Following the fire it was necessary to make a new beginning in the accumulation of books, reports, bibliography and statistical information. Luring the balance of the fiscal year the work of the Bureau was curtailed by the lack of office space and the extra demands made on the members of the staff by the construction of Brown Hall, the new main building,

and installing necessary apparatus and equipment. The Bureau was partially reimbursed for its fire losses from insurance payments on the contents of the old Main Building.

Work of the Bureau during the Seventeenth Fiscal Year

The chief undertaking of the Bureau of Mines and Mineral Resources during the seventeenth fiscal year was a continuation of the study of the geology and ore deposits of the Magdalena district which had been started by Dr. G. F. Loughlin, geologist of the U. S. Geological Survey, in 1915. Both Prof. Koschmann and Prof. Stringfield were assigned to this project, and the months of July and August, 1928 were spent in the district by these men. Most of the time was devoted to completing the geological map of the Magdalena special quadrangle prepared by Dr. Loughlin. Frequent short trips were made to the district during the 1928-29 school year. Dr. Loughlin made brief visits to the district in July and October, 1928 for the purpose of checking the geological mapping of Professors Koschmann and Stringfield. Some progress was made in the writing of the report on the district during the latter part of the year.

Early in the fiscal year it was decided to enlarge the area to be covered by the report on the Magdalena district. This required the addition of about six square miles to the north and west of the original Magdalena quadrangle. In this area both topographic and geologic mapping were required. The geologic mapping was assigned to Prof. Koschmann and the topographic mapping was handled by Mr. Black, working under Prof. Koschmann's direction. In the seventeenth fiscal year this work occupied the latter part of May and the month of June.

Following the fire at the old Main Building, work was resumed on the bibliography of New Mexico geology by Mr. T. P. Wootton. Progress was slow at first, however, due to the limited library facilities of that year. In the spring of 1929 Mr. Wootton spent several weeks in the libraries of the U. S. Geological Survey and of Congress at Washington, D. C., in checking and adding titles on New Mexico geology and in preparing a more complete index in this connection.

In June, 1929, the State Bureau of Mines entered into an agreement with the State Tax Commission whereby the Bureau undertook to assemble data and information which would be of service to the State Tax Commission in appraising the mining properties of the state. All appraisals were to be made by the Commission. Professor A. S. Walter, head of the department of mining and metallurgy of the School of Mines faculty, was assigned to this work. He visited a number of mining properties during June, 1929. According to the agreement, all salaries and expenses in connection with this undertaking were paid by the State Tax Commission.

Publications

In this fiscal year Bulletin No. 4, entitled "Fluorspar in New Mexico," by W. D. Johnston, Jr. was published.

Financial Statement, Seventeenth Fiscal Year

Balance, July 1, 1928 \$ 7,766.51

Receipts

Appropriation	\$10,096.08	
Interest	126.89	
Sale of bulletins	30.10	
Sale of maps, etc	31.00	
Total receipts		<u>\$10,284.07</u>

Total to be accounted for \$18,050.58

Disbursements

Salaries	\$ 5,355.93	
Car purchase and maintenace.....	943.62	
Car rent and mileage	20.40	
Traveling expense.....	185.20	
Furniture and fixtures	84.00	
Publications	957.05	
Library	87.40	
Office expense	47.65	
Field equipment.....	313.91	
Assays and analyses.....	100.80	
Miscellaneous	<u>17.20</u>	
Total disbursements.....		<u>\$ 8,113.16</u>

Balance June 30, 1929 \$ 9,937.42

NEW MEXICO SCHOOL OF MINES
STATE BUREAU OF MINES AND MINERAL RESOURCES

E . H . W e l l s
President and Director

THIRD ANNUAL REPORT OF THE DIRECTOR

Eighteenth Fiscal Year, July 1, 1929 - June 30, 1930

Personnel

The personnel of the Bureau of Mines and Mineral Resources in the eighteenth fiscal year consisted of:

E. H. Wells, director (part time)
S. G. Lasky, geologist
A. H. Koschmann, geologist (part time)
V. T. Stringfield, geologist (part time)
T. P. Wootton, librarian and statistician (part time)
Harriett Herkenhoff, stenographer (part time)
M. W. Black, topographer (part of year)
G. H. Wells, rodman (part of year)
Wesley Davis, rodman (part time)

Of the above staff only S. G. Lasky was on a full-time basis. The regular school positions of the members of the Bureau staff were as follows: E. H. Wells, president; A. H. Koschmann, professor of geology and mineralogy; V. T. Stringfield, assistant professor of geology and mineralogy; T. P. Wootton, librarian; and Harriett Herkenhoff, secretary to the president. Mr. M. W. Black, G. H. Wells and Wesley Davis were employed as student assistants.

Work of the Bureau during the Eighteenth Fiscal Year

The study of the geology and ore deposits of the Magdalena district continued to be the major undertaking of the Bureau of Mines and Mineral Resources. Geologic and topographic mapping by Prof. A. H. Koschmann and Mr. M. W. Black occupied most of July and August, 1929, and considerable time was devoted to this work during the 1929-30 school year. Dr. G. F. Loughlin, geologist in charge, section of metalliferous deposits, of the U. S. Geological Survey, visited the district with Professors Koschmann and Stringfield in October for further consideration of some of the geological problems.

Early in the year it was decided to make the study of the Magdalena district a formal cooperative project between the U. S. Geological Survey and the State Bureau of Mines, beginning with the nineteenth fiscal year. Cooperative agreements of this nature provide that the work shall be done by the geologists and other employees of the U. S. Geological Survey and under the direct supervision of the Federal Survey, but the expense shall be shared equally by the two organizations. It was decided to issue the Magdalena report as a bulletin of the State Bureau of Mines, the cost of publication to be met by the Bureau.

In view of the cooperative nature of the project, Dr. G. F. Loughlin agreed to write several sections of the report. Mr. Lasky was sent to Washington in December, 1929, to work under Dr. Loughlin in the preparation of parts of the report. His time was devoted to the office and laboratory work and the preparation of a preliminary draft of the manuscript dealing with the economic geology of the district. Mr. Lasky remained on this assignment until the end of the fiscal year.

Cooperative work under the agreement made with the State Tax Commission the preceding year was continued. Professor A. S. Walter spent the months of July and August, 1929, in inspecting various mining districts and properties and obtaining data regarding them for tax appraisal purposes. During part of this period he was assisted by Professor J. A. Weir of the School of Mines faculty. Prof. Walters final report was submitted to the Commission in January, 1930. All of the expenses of this work were met by the Commission.

During July and August, Professor V. T. Stringfield accompanied Prof. Walter on his inspection trips. He obtained data regarding the geology, ore deposits, etc. of the properties which would be serviceable to the Bureau in its future work and collected typical geological and ore samples from many of the properties. Part of Prof. Stringfield's time during the balance of the fiscal year was devoted to the report on the Magdalena district.

A study of the ore deposits of Socorro County, exclusive of the Magdalena district, was begun by Mr. S. G. Lasky in July, 1928 and this study was continued until he left for Washington to assist Dr. Loughlin. Mr. Lasky visited most of the mining districts of the county and made considerable progress on the report for a bulletin on this subject.

Arrangements were made early in the fiscal year with Mr. C. H. Fowler, special lecturer on mining law at the School of Mines and Socorro attorney, to prepare a report on the mining and mineral laws of New Mexico. Part of the manuscript for the bulletin was written during the year.

The manuscript of the bulletin containing a bibliography of New Mexico geology, etc. was completed by Mr. T. P. Wootton just before the end of the fiscal year. Mr. Wootton devoted considerable time during the year in assisting the director in replying to inquiries regarding the geology, ore deposits and mineral industry of the state.

In February, 1930, an economic collection of state minerals and ores was prepared and sent to the State Highway Department, Santa Fe, for inclusion in a state exhibit of the department. This collection was augmented from time to time by additional specimens.

Financial Statement, Eighteenth Fiscal Year

Balance, July 1, 1929 \$ 9,937.42

Receipts

Appropriation	\$15,000.00	
Interest	186.13	
Sale of bulletins, etc.....	34.55	
Miscellaneous.....	9.21	
Fire insurance payment	2,487.11	
Cooperative agreement, State Tax Commission--use of car	448.80	
Cooperative agreement, State Tax Commission--salaries	149.00	
Total receipts		<u>\$18,314.80</u>

Total to be accounted for \$28,252.22

Disbursements

Salaries	\$ 9,796.26	
Car purchase and maintenance	637.28	
Traveling expense.....	583.13	
Furniture and fixtures	39.45	
Publications	7.48	
Library	42.51	
Office expense	126.53	
Field and laboratory equipment	180.02	
Assays and analyses.....	429.35	
Total disbursements		<u>\$11,842.01</u>

Balance June 30, 1930 \$16,410.21

NEW MEXICO SCHOOL OF MINES
STATE BUREAU OF MINES AND MINERAL RESOURCES

E . H . W e l l s
President and Director

PRELIMINARY REPORT OF THE DIRECTOR FOR THE FOURTH YEAR

Nineteenth Fiscal Year, July 1, 1930 - June 30, 1931

Personnel

The staff of the Bureau for the nineteenth fiscal year includes:

E. H. Wells, director (part time)
S. G. Lasky, geologist (part of year)
A. H. Koschmann, geologist (part of year)
D. E. Winchester, geologist (part of year)
T. P. Wootton, librarian and statistician (part time)
Harriett Herkenhoff, stenographer (part time)
W. C. McLaughlin, topographer (part of year)
Walter Herkenhoff, rodman (part of year)

Work of the Bureau from July 1, 1930 to December 31, 1930
and Proposed Work for the Balance of the Fiscal Year

Work on the report on the Magdalena district was continued by Professor A. H. Koschmann during the first four months of the fiscal year under a cooperative agreement between the State Bureau of Mines and the U. S. Geological Survey. Dr. Loughlin, geologist in charge, section of metalliferous deposits, of the U. S. Geological Survey made a last visit to the district with Prof. Koschmann in August, 1930, at which time the work of the geologists of the State Bureau was finally approved. The portion of the report remaining to be prepared will be written by Dr. Loughlin. This report undoubtedly will compare very favorably with the best of the professional papers issued by the Geological Survey. It will probably be published by the end of the fiscal year.

Additional tentative plans for cooperative work in New Mexico between the U. S. Geological Survey and the State Bureau of Mines and Mineral Resources were adopted, following a visit to southwestern New Mexico by Dr. Loughlin and the director in August, 1930. This cooperative work will consist of a study of the geol-

ogy and ore deposits of part of the Central district, Grant County, and the Lordsburg district, Hidalgo County. A special topographic map of each of these districts will be made by the Geological Survey early in 1931. The geological field work will be performed by Mr. S. G. Lasky and assistants. Mr. Lasky will join the staff of the Federal Survey following the completion of his contract with the Bureau, which will be about April 1, 1931. The field work and preparation of reports on the districts will probably require eighteen months or more. The cost of both the topographic mapping and geological study will be divided equally between the Survey and the Bureau.

In July, 1930, the preparation of a bulletin on the metal resources of New Mexico and their economic features was begun by Mr. S. G. Lasky and Mr. T. P. Wootton. This bulletin will deal only briefly with the geology of the metalliferous ore deposits of the state, and this part of the report will consist largely of summaries of existing authentic reports. Special attention will be devoted to the economic features of New Mexico metals including history, production, and marketing. Several districts, regarding which little reliable information has appeared in previous reports, were visited by Mr. Lasky, including the Ground Hog mine. A special report on this property was issued as Circular No. 2 of the Bureau. The state report required most of the time of Mr. Lasky and Mr. Wootton during the first half of the fiscal year. The manuscript will be completed very shortly.

The study of the ore deposits of Socorro County was continued by Mr. Lasky as a minor assignment during the first half of the year. The report was practically completed, with the exception of the Socorro Mountain district.

In November, 1930, Mr. D. E. Winchester, consulting petroleum geologist of Denver, Colorado and formerly geologist of the U. S. Geological Survey, was employed by the Bureau to prepare a report on the oil and gas resources and possibilities of New Mexico. This undertaking will require Mr. Winchester to spend several months in field investigations, and the total time required in the preparation of the report will be six to seven months. The report will be issued as a bulletin of the Bureau, probably in the fall of 1931.

Mr. Winchester's time was first given to a study of oil and gas in Lea County, having in mind the issuance of a special report on this subject early in 1931.

The manuscript of Mr. C. H. Fowler's report on the mining and mineral laws of New Mexico was completed in October, 1930.

The publication program for the current fiscal year includes the issuance from time to time of circulars by the Bureau. These circulars will consist of mimeographed reports too short to justify printing as bulletins and subjects of timely interest. They will supplement the regular bulletins of the Bureau.

Publications

Publications issued during the first half of the nineteenth fiscal year included Bulletin No. 5, "Geologic Literature of New Mexico" by T. P. Wootton, Bulletin No. 6, "Mining and Mineral Laws of New Mexico" by C. Fowler, Circular No. 1, "An Outline of the Mineral Resources of New Mexico" by E. H. Wells, and Circular No. 2, "The Geology and Ore Deposits of the Ground Hog Mine, Central District, Grant County, New Mexico" by S. G. Lasky.

Publications which will probably be issued during the balance of the year include Bulletin No. 7, "The Metal Resources of New Mexico and their Economic Features" by S. G. Lasky and T. P. Wootton, Bulletin No. 8, "The Ore Deposits of Socorro County" by S. G. Lasky, Bulletin No. 9, "The Geology and Ore Deposits of the Magdalena District, Socorro County, New Mexico" by G. F. Loughlin, A. H. Koschmann, S. G. Lasky, and V. T. Stringfield, Circular No. 3, "First, Second and Third Annual Reports of the Director and Preliminary Report for the Fourth Year" by E. H. Wells, and Circular No. 4, "The Oil and Gas Resources and Possibilities of Central and Southern Lea County, New Mexico" by D. E. Winchester.

Tentative Financial Statement, Nineteenth Fiscal Year

Balance, July 1, 1930 \$16,410.21

Estimated Receipts

Appropriation	\$15,000.00
Interest	150.00
Sale of bulletins, reports, etc.	150.00
Miscellaneous	<u>100.00</u>
Total receipts	<u>\$15,400.00</u>
Total to be accounted for	\$31,810.21

Estimated Disbursements

Salaries	\$ 9,240.00
Traveling expense	1,400.00
Car purchase and maintenance.....	1,150.00
Car rent and mileage.....	100.00
Office expense.....	450.00
Publications	7,395.00
Library.....	200.00
Assays and analyse.....	250.00
Furniture and fixtures	1,000.00
Field equipment	200.00
Miscellaneous	400.00
Cooperative work with U. S. Geological Survey.....	<u>4,325.00</u>
Total disbursements.....	<u>\$26,110.00</u>

Estimated balance, June 30, 1931..... \$ 5,700.21