

Service/News

Starred items (*) available from New Mexico Bureau of Mines and Mineral Resources

New publications

NMBMMR

Memoir 37—*Collignonicerias woollgari woollgari* (Mantell) ammonite fauna from Upper Cretaceous of Western Interior, United States, by W. A. Cobban and S. C. Hook, 1979, 53 p., 12 pls., 12 figs. Discusses the middle Turonian ammonite range zone of *Collignonicerias woollgari woollgari* (Mantell) in the upper part of the Mancos Shale tongue and the lower part of the Tres Hermanos Sandstone Member of the Mancos Shale in New Mexico and the Western Interior. \$7.00*

Circular 168—Geology of Jornada del Muerto coal field, Socorro County, New Mexico, by D. E. Tabet, 1979, 19 p., 1 table, 2 figs., geologic map (scale 1:62,500), 2 appendices. Describes geology, coal beds, and drill-hole data. \$3.50*

Circular 169—Geology of Good Sight Mountains and Uvas Valley, southwest New Mexico, by R. E. Clemons, 1979, 32 p., 1 table, 23 figs., 2 appendices, geologic map (scale 1:48,000) and cross sections in pocket. Describes the 435-sq-mi area of the Good Sight Mountains and the Uvas Valley in Luna, Doña Ana, and Sierra Counties, New Mexico; the geologic map covers the western part of the Good Sight-Cedar Hills volcano-tectonic depression of Oligocene age. \$6.00*

Circular 170—Normapolles pollen from *Aquilapollenites* province, western United States, by R. H. Tschudy, 1980, 14 p., 1 table, 3 figs. Describes *Normapolles* pollen usually from northeastern United States present in *Aquilapollenites* province of western United States, showing that a few genera crossed the seaway barrier between the two provinces. Presents a record of known occurrences of *Normapolles* in the western province and shows stratigraphic distribution of these occurrences. \$2.50*

Circular 172—New Mexico's energy resources '79—annual report of Bureau of Geology, by Emery C. Arnold and others, 1979, 55 p., 45 tables, 14 figs., Annual summary of energy developments in New Mexico; discusses coal, oil, and gas reserves, possible geothermal applications, and production of coal, crude oil, natural gas, and uranium. \$3.00*

Geologic Map 49—Coal geology of Torreon Wash area, southwest San Juan Basin, New Mexico, by D. E. Tabet and S. J. Frost, 1979, 3 sheets, text, scale 1:24,000. Maps showing bedrock geology and coal beds of Mesaverde Group rocks in the southeastern San Juan Basin. Text describes stratigraphy, structure, and provides information about coal resources, coal analyses, and coal mines and prospects. \$6.00*

Annual Report—Annual Report for the fiscal year July 1, 1978, to June 30, 1979, by F. E. Kottowski and staff, 80 p. Summarizes Bureau activities and services for the fiscal year. Includes articles on coal data, Upper Cretaceous guide fossils, mineral production, paleontology and coal, energy resources, and scoria deposits. \$1.00*

Pricelist 14—Publications available from New Mexico Bureau of Mines and Mineral Resources, April 1980. FREE*

Pamphlet—Water-resource information available from New Mexico Bureau of Mines and Mineral Resources, by W. J. Stone, 1980, 8 p., 3 tables, 1 fig. FREE*

USGS

MISCELLANEOUS FIELD STUDIES MAPS

MF-1026—Preliminary geologic map of the Newcomb SE quadrangle, San Juan County, New Mexico, by R. B. O'Sullivan, G. R. Scott, and J. S. Heller, 1979, scale 1:24,000

MF-1075—Preliminary geologic map of the Bisti Trading Post quadrangle, San Juan County, New Mexico, by R. B. O'Sullivan, G. R. Scott, and J. S. Heller, 1979, scale 1:24,000

MF-1080—Preliminary geologic map of the Kirtland SW quadrangle, San Juan County, New Mexico, by R. B. O'Sullivan, G. R. Scott, and J. S. Heller, 1979, scale 1:24,000

MF-1093—Preliminary geologic map of the Hogback South quadrangle, San Juan County, New Mexico, by R. B. O'Sullivan, G. R. Scott, and J. S. Heller, 1979, scale 1:24,000

MF-1094—Preliminary geologic map of the Kin Klizhim Ruins quadrangle, San Juan and McKinley Counties, New Mexico, by R. B. O'Sullivan, G. R. Scott, and D. L. Weide, 1979, scale 1:24,000

MF-1104—Preliminary geologic map of Chaco Canyon 1° by ½° quadrangle, showing coal zones of Fruitland Formation, San Juan, Rio Arriba, and Sandoval Counties, New Mexico, by J. W. Mytton, 1979, scale 1:100,000

MF-1117—Geologic map of the Pueblo Bonito NW quadrangle, San Juan County, New Mexico, by G. B. Schneider, D. L. Weide, J. W. Mytton, and G. R. Scott, 1979, scale 1:24,000

MF-1118—Geologic map of the Kimbeto quadrangle, San Juan County, New Mexico, by G. B. Schneider, D. L. Weide, and G. R. Scott, 1979, scale 1:24,000

MF-1119—Geologic map of the Pueblo Bonito quadrangle, San Juan County, New Mexico, by D. L. Weide, G. B. Schneider, J. W. Mytton, and G. R. Scott, 1979, scale 1:24,000

MF-1120—Geologic map of the Sargent Ranch quadrangle, San Juan County, New Mexico, by D. L. Weide, G. B. Schneider, J. W. Mytton, and G. R. Scott, 1979, scale 1:24,000

MF-1137—Geologic map of the Saltys quadrangle, Grant County, New Mexico, by C. H. Thorman and H. Drewes, 1979, scale 1:24,000

GEOLOGIC QUADRANGLE MAPS

GQ-1523—Geologic map of the Mount Taylor quadrangle, Valencia County, New Mexico, by P. W. Lipman, J. S. Pallister, and K. A. Sargent, 1979, scale 1:24,000

Open-file reports

NMBMMR

109—Availability of geologic data for southwestern alluvial basins, regional aquifer study, New Mexico, by W. J. Stone, N. H. Mizell, and J. W. Hawley, 1979, 74 p., 3 figs., 3 appendices \$16.00*

112—Geology of the Corkscrew Canyon-Abbe Spring area, Socorro County, New Mexico, by D. L. Mayerson, 1979, 133 p., map \$26.60 plus map*

113—Geology of the eastern Magdalena Mountains, Water Canyon to Pound Ranch, Socorro County, New Mexico, by G. R. Osburn, 1979, 159 p., map \$31.80 plus map*

115—Summary of the geology of the Engle coal field, by D. E. Tabet, 1979, 9 p. \$1.80*

116—Preliminary report on the Little Granite mine, Black Range mining district, Sierra County, New Mexico, by R. W. Eveleth and W. T. Siemers, 11 p., 4 figs., 1 table \$2.20*

USGS

79-708—Preliminary complete Bouguer gravity anomaly map of the Silver City two-degree sheet, New Mexico and Arizona, by J. C. Wynn and D. A. Dansereau, 1979

79-839—The mineralogy and geochemistry of lithium in the Popotosa Formation, Socorro County, New Mexico, by E. F. Brenner-Tourtlet and M. N. Machette, 1979, 27 p.

79-1510—A preliminary report on the geology of the Dennison-Bunn uranium claim, Sandoval County, New Mexico, by J. L. Ridgley, 1979, 44 p.

79-1520—Examination and reevaluation of evidence for the Barrera fault, Guadalupe Mountains, New Mexico, by P. T. Hayes and G. O. Bachman, 1979, 11 p.

79-1527—Stereo combination of Landsat and aeromagnetic data, Claunch, New Mexico, by A. P. Colvocoresses, 3 p.

79-1579—Preliminary map showing distribution of potash resources, Carlsbad mining district, Eddy and Lea Counties, New Mexico, 1979, scale 1:62,500

79-1644—Aeromagnetic map of the Malpais area, New Mexico, 1 sheet

79-1682—Discussion, statistical analysis and listing of the spectrographic analyses of alluvial heavy-mineral concentrates, Mogollon mining district, Catron County, New Mexico, by K. C. Watts, J. R. Hassemmer, C. L. Farn, and D. F. Siems, 1979, 64 p.

NMIMT—Geophysics

The following geophysics open-file reports may be inspected at or obtained from the Geoscience Office (Room 63, Workman Center), New Mexico Institute of Mining and Technology, Socorro, NM 87801. Copies are 6 cents per page.

1—Gravity survey in southern end of Albuquerque-Belen Basin, Socorro County, New Mexico, by K. Wongiwat, 1970, 67 p.

2—A gravity survey in northern end of Socorro Basin, Rio Grande rift zone, New Mexico, by K. Oralratmanee, 1972, 71 p.

3—A crustal and P-wave velocity study of portions of southwest New Mexico and southeast Arizona, using open-pit mining explosions, by M. Dee, 1973, 26 p.

4—The use of microearthquakes in mapping the base of the low rigidity layer beneath Socorro, New Mexico, by T. M. Hassen-Bey, 1974, 27 p.

5—A study of Poisson's ratio and Vp/Vs ratio in the Rio Grande rift, by K. Sakdejayont, 1974, 30 p.

6—Seismic investigation of a magma layer in the crust beneath the Rio Grande rift near Socorro, New Mexico, by A. R. Sanford, R. P. Mott, Jr., E. J. Rinehart, and P. J. Shuleski, 1975, 17 p.

7a—The relationship of microearthquake activity to structural geology for the region around Socorro, New Mexico, by R. P. Mott, Jr., 1976, 67 p.

7b—The seismicity of New Mexico, 1962–1972, by A. R. Sanford, T. R. Topozada, R. M. Ward, and T. C. Wallace, 1976, 16 p.

8—Seismic fault motion and SV screening by shallow magma bodies in the vicinity of Socorro, New Mexico, by P. J. Shuleski, 1976, 97 p.

9—Microearthquake investigations of magma bodies in the vicinity of Socorro, New Mexico, by A. R. Sanford and others, 1976, 7 p.

10—The use of microearthquakes to map an extensive magma body in the Socorro, New Mexico, area, by E. J. Rinehart, 1976, 62 p.

11—A study of Poisson's ratio in the upper crust of the Socorro, New Mexico, area, by F. J. Caravella, 1976, 83 p.

12a—An analysis of earthquakes north of the Los Medanos site on July 26, 1972, and November 28, 1974, by F. J. Caravella and A. R. Sanford, 1977, 19 p.

12b—A study of time residuals in the Socorro area for Pn arrivals from mining explosions at Santa Rita, Tyrone, New Mexico, and Morenci, Arizona, by A. A. Yausef, 1977, 32 p.

13—Seismic studies of shallow magma bodies beneath the Rio Grande rift in the vicinity of Socorro, New Mexico, by P. J. Shuleski and others, 1977, 8 p.

14—The use of relative travel time residuals of P phases from teleseismic events to study the crust in the Socorro, New Mexico, area, by J. A. Fisher, 1977, 71 p.

15—Temperature gradient, heat-flow measurements in the vicinity of Socorro, New Mexico, 1965–1968, by A. R. Sanford, 1977, 19 p.

16—Comparison of microearthquake and COCORP studies of magma bodies beneath the Rio Grande rift in the vicinity of Socorro, New Mexico, by A. R. Sanford and J. Oliver, 1977, 9 p.

17—Geophysical evidence for a magma body in the crust in the vicinity of Socorro, New Mexico, by A. R. Sanford and others, 1977, 18 p.

18—Seismic investigations of a magma layer in the crust beneath the Rio Grande rift near Socorro, New Mexico, by A. R. Sanford, 1977, 21 p.

19—Evidence from microearthquake studies for small magma bodies in the upper crust of the Rio Grande rift near Socorro, New Mexico, by A. R. Sanford and others, 1977, 13 p.

20—Seismic studies of the Los Medanos area in southeastern New Mexico, by A. R. Sanford and others, 1978, 59 p.

21—Report on a gravity survey in the northern Jornada del Muerto, New Mexico, by J. W. Schlue, 1978, 19 p.

22—Spectral analysis of P-phases from mining explosions recorded in the Socorro, New Mexico, area, by P. C. Guyn, 1978, 88 p.

23—Three-dimensional crustal-velocity model beneath the Socorro, New Mexico, area from inversion of relative travel-time residuals, by S. Tang, 1978, 40 p.

24—Microearthquake frequency attenuation of S phases in the Rio Grande rift near Socorro, New Mexico, by J. A. Johnston, 1978, 85 p.

25—A study of Poisson's ratio in the upper crust in the Socorro, New Mexico, area (continuation of no. 11) by J. J. Fender, 1978, 78 p.

26—Earthquake activity in New Mexico (1849 through 1977), by A. R. Sanford, 1978, 25 p.

27—Use of linear inverse techniques to study Poisson's ratios in the upper crust in the Socorro, New Mexico, area, by M. S. Frishman, 1979, 134 p.

28—P-wave travel-time delays for teleseismic events recorded in the Socorro, New Mexico, area, by K. L. West, 1979, 121 p.

29—The determination of an upper crustal model for the Rio Grande rift near Socorro, New Mexico, employing S-wave reflections produced by local microearthquakes, by E. J. Rinehart, 1979, 138 p.

30—Earth tilts measured in Socorro Mountain, west of Socorro, New Mexico, 1968 to 1972, by A. R. Sanford, 1979, 8 p.

31—Seismic measurements of the Tertiary fill in the Rio Grande depression west of Socorro, New Mexico, by A. R. Sanford and J. W. Schlue, 1979, 10 p.

32—Seismicity in the area of the Waste Isolation Pilot Project (WIPP), by A. R. Sanford and others, 1980, 74 p.

33—Seismic exploration for shallow magma bodies in the vicinity of Socorro, New Mexico, by A. R. Sanford and J. W. Schlue, 1980, 19 p.

New projects

USGS

9530-02615—Columbine-Hondo Wilderness study areas, New Mexico, by J. C. Reed. A mineral resource evaluation of wilderness areas in the Sangre de Cristo Range, New Mexico, by geologic mapping and geochemical and geophysical surveys. Completion date 1982.

9530-02618—Polvadera and Caballo Wilderness study areas, by K. Manley. An evaluation of metallic and nonmetallic commodities, oil and gas, and geothermal resources by geologic mapping and geochemical and geophysical surveys. Completion date 1981.

9790-02647—Remote sensing studies at the San Juan Basin region, by D. H. Knepper, Jr. Application of remote sensing techniques to delineate regional structures, to determine controls for uranium mineralization, to map occurrences of limonite, and to investigate utility of Landsat image data for detecting variations in surface bedrock and soil characteristics. Completion date 1982.

9530-02659—Southern Raton Basin energy lands, by C. L. Pillmore. A study of the environmental, geologic and coal-resource aspects of the New Mexico portion of the Raton Basin in order to prepare an inventory of land resources. Will produce comprehensive $\frac{1}{2}^\circ \times 1^\circ$ coal folios that will depict bedrock geology, surficial geology, engineering geology, coal resources, vegetation, and transportation lines. Completion date 1987.

9540-02660—Recovery rates from prehistoric roads, by E. Newman. An evaluation of the responses of the Chaco Canyon desert environment to Anasazi road-building 900 years ago and to historic use by pioneers in the late 1800's and by modern Indians.

9420-02678—Coal geology of the Alamo Indian Reservation, New Mexico, by A. Olson. An evaluation of the geologic setting, thickness, extent, and quality of coal on the Alamo Indian Reservation and a preparation of coal-resource estimates.

9420-02679—Coal geology of the Zuni Indian Reservation, New Mexico, by W. J. Mapel. An evaluation of the geologic setting, distribution, thickness, and quality of coal deposits on the Zuni Indian Reservation and a preparation of coal-resource estimates.

9420-02680—Coal geology of the Jicarilla Indian Reservation, New Mexico, by W. J. Mapel. An evaluation of location, thickness, quality, and correlation of coal beds and a preparation of coal-resource estimates.

Announcements

Data request—Quaternary faults

A new U.S. Geological Survey project (9530-01559) to compile Quaternary faults within the Rio Grande rift (New Mexico and Trans-Pecos, Texas) was started by Michael N. Machette in October 1979. The main objective of the project is to better characterize the Quaternary tectonic regime of the rift. A major product will be a map (1:500,000 scale) showing faults that displace Holocene (less than 10,000 years), late (10,000–125,000 years), middle (125,000–500,000 years), and early (500,000–2 million years) Pleistocene deposits, their amounts of displacement, rate of movement, and documentation and nature of recurrent movement.

Anyone having either published or unpublished data concerning Quaternary faults (or related structures) are welcomed and encouraged to contribute to the map compilation. Full source recognition will be given for any contributed data. Especially pertinent are age or location of youngest faulted strata, oldest unfaulted strata, amount of displacement, and nature of the scarp. Final publication is planned for October 1981.

Send information to Michael N. Machette, U.S. Geological Survey, Box 25046, M.S. 913, Denver Federal Center, Denver, CO 80225.

National Coal Resources Data System in New Mexico

New Mexico Bureau of Mines and Mineral Resources is currently involved in the National Coal Resources Data System (NCRDS), a project funded by the U.S. Geological Survey, under the supervision of M. Devereau Carter, Reston, Virginia. The NCRDS, a computerized storage system for coal data by location, provides easy maintenance, manipulation, and retrieval. A detailed summary of the NCRDS has been published in the New Mexico Bureau of Mines and Mineral Resources Annual Report 1978–1979.

Information that will be entered into the NCRDS includes: drillers, geophysical, and/or lithologic logs; measured sections; and geochemical analyses. The project is to span five years and will be renewed annually. The San Juan Basin will be examined initially, and then other coal-bearing areas in New Mexico will be investigated.

Possible sources of information include federal and state agencies, private companies, and previously published data. For the protection of companies, confidential data can be included by using a priority system; all or part of the information can be withheld from public use, including the source, drill-hole location, and other material available. When available, release dates may also be included.

By concentrating a great amount of diverse information into a single data base, the system will provide a useful, easily accessible tool for coal exploration in New Mexico. Any help that might be provided will assist efforts in building the National Coal Resources Data System for New Mexico.—*B. J. Spence, NMBMMR*

Albuquerque Desk and Derrick Club

Monthly dinner meetings, with guest speakers, are held the first Tuesday of each month at 6:15 p.m. Call 296-5461 for reservations or information.

Albuquerque Geological Society

A. Park Shaw III has been elected president of the Albuquerque Geological Society for 1980. Other officers are Sandra C. Feldman, vice president; James F. Schwendeman, treasurer; and Stephen P. Huestis, secretary. Meetings are held at noon on the first and third Tuesdays of each month at the Four Seasons Motor Inn. Call 883-0220 for information.

Nonfuel mineral production in New Mexico

—U. S. Bureau of Mines, Denver, CO
prepared February 19, 1980

The estimated value of New Mexico's produced nonfuel minerals, exclusive of uranium, was \$690 million in 1979. This figure is about 45 percent higher than the value assigned to the same minerals in 1978. With addition of uranium value, the 1979 total is expected to rise above \$1 billion. Copper and potash, the leading mineral products, provided about 82 percent of the mineral value. Substantial increases in price of both commodities in 1979 supported a surge in the production of copper and the value of produced copper and potash to about \$339 million and \$227 million respectively. Molybdenum, sand and gravel, cement, and perlite had individual values in the range of \$10-50 million. Values of gypsum, gold, lime, pumice, crushed stone, and salt were in the range of \$1-10 million. The remaining minerals each had value of less than \$250,000.

Among the minerals that were valued at more than \$1 million in 1979, copper, potash, molybdenum, gold, lime, and pumice increased in both amount mined and value above levels attained in 1978. Sand and gravel and perlite increased in value but had reduced output. Both value and output of cement, crushed stone, and gypsum decreased. Among the minerals that were valued at less than \$1 million in 1979, value and quantity of vanadium, dimension stone, and carbon dioxide increased in respect to those in 1978. Values of mica, high-purity helium, peat, and fire clay increased, but the amount produced was either stable, not available, or reduced. Both value and quantity of zinc, clays, and lead decreased. Statistics for other commodities were not available.

The state had more than 225 operations for

NONFUEL MINERAL PRODUCTION IN NEW MEXICO, prepared by U.S. Bureau of Mines, February, 1980

Mineral ¹	1978		1979 preliminary		
	Quantity	Value (thousands \$)	Quantity	Value (thousands \$)	
Clays ²	thousand short tons . . .	65	108	53	93
Copper ³	short tons	140,906	187,405	184,306	339,240
Gem stones		NA	180	NA	180
Gold ³	troy ounces	9,879	1,912	14,150	4,245
Gypsum	thousand short tons . . .	263	2,649	247	1,739
Manganiferous ore (5-35 percent Mn)	short tons	36,443	W	W	W
Mica (scrap)	thousand short tons . . .	16	W	16	W
Peat	do	2	60	2	67
Perlite	do	576	12,510	572	14,072
Potash	do	2,142	183,554	2,231	226,900
Pumice	do	631	2,706	691	3,042
Salt	do	320	1,617	W	W
Sand and gravel	do	8,239	17,850	8,000	18,000
Stone:					
Crushed	do	2,438	6,156	2,241	6,055
Dimension	do	18	115	20	152
Uranium (recoverable content of U ₃ O ₈)	thousand pounds	15,628	328,182	NA	NA
Combined value of carbon dioxide, cement (masonry and portland), fire clay, helium (high-purity) iron ore; lead, lime, molybdenum, silver, tin (1978), vanadium, zinc, and values of items indicated by symbol W		XX	59,671	XX	76,374
Total		XX	804,675	XX	690,159

NA—Not available

W —Withheld to avoid disclosing company proprietary data; value included in "Combined value" figure.

XX—Not applicable.

¹Production as measured by mine shipments, sales, or marketable production (including consumption by producers)

²Excludes fire clay; value included in "Combined value" figure

³Recoverable content of ores

mining, milling, preparing, and smelting nonfuel minerals. They were distributed in the following manner: metal production—about 16; uranium mining—more than 40; recovery and preparation of sand and gravel, stone, clays, cement, lime, and gypsum—about 135. About 25 to 30 activities were related to production of potash, salt, perlite, and pumice. Mineral-related manufacturing in New Mex-

ico included the preparation of potash chemicals, manufacture of structural materials and items from clay, gypsum, stone, sand and gravel, lime, and cement, and preparation of abrasives, fillers, and insulation materials. Primary metals were smelted, recycled, drawn into wire and tubing, and cast in iron, aluminum, brass, bronze, and copper foundries.

New Mexico
GEOLOGY

• Science and Service

New Mexico Bureau of Mines & Mineral Resources, Socorro, NM 87801

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