#### SUMMARY OF PROJECTS – 1966

The following is a list of projects currently in progress concerning the geology of Utah. A number in the right column indicates field investigation at or near the location shown on the map (front cover). Numbers have been omitted for whole county studies, for projects which cannot be located exactly in this manner, and for projects in which no field work is in process. Organizations are listed in alphabetical order. An “M” or “P” (following the title of project) indicates respectively a manuscript (or map) in preparation or review; or a report approved for publication. A more complete listing, including reports published, is on open-file in the office of the Director, 103 Geological Survey Building, University of Utah, Salt Lake City, Utah 84112.

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<td>Mus. of No. Arizona—W. Breed</td>
<td>Periglacial features on Navajo Min.</td>
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<td>U.G.M.S. (Utah Geol. Survey)—R. E. Cohenour</td>
<td>Study of Great Salt Lake: shore-line engineering studies (effect of currents, storm waves, &amp; heavy brine on structures); engineering characteristics of bottom sediments. (Drilling of 100-foot cores under Pratt, no. 16, below.)</td>
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<td>Petrology of alkaline mafic rocks in NE Utah; petrology of basalts in St. George region, Washington Co.</td>
<td>2</td>
<td>U.G.M.S.—</td>
<td>A gravity survey in parts of Garfield &amp; Kane Counties, including gravity profiles across Parowan fault.</td>
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<td>Brigham Young Univ.—J. R. Bushman (Lohengrel: Ph.D.)</td>
<td>Zonation of Kaiparowits &amp; Wahweap using spores and pollen.</td>
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<td>U.G.M.S.—R. C. Fox</td>
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<td>Brigham Young Univ.—W. K. Humblin</td>
<td>Detailed geol. mapping of areas in Washington &amp; Carbon Counties.</td>
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<td>U.G.M.S.—H. Doelling</td>
<td>Saline playas; collection of brine-saturated sediments in Sevier Lake &amp; Wendover area by drilling of 100-foot cores.</td>
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This issue of the Quarterly Review is devoted primarily to a compilation of the 1965 publications which deal with Utah’s mineral industry and geology. Unpublished graduate theses have been included in this list, which was prepared by the University of Utah Engineering Library staff, under the direction of Miss Edith Rich.

BIBLIOGRAPHY

Albright, James L.

Anderson, John Jerome
Geology of the northern Markagunt Plateau, Utah: Thesis, Ph.D., Univ. of Texas.

Arnow, Theodore
Ground water in the Jordan Valley, Salt Lake County, Utah: Utah State Engineer’s Office, Water Circ. no. 1, 11 p., 1965.

Averitt, Paul

Baars, D. L.

Baker, A. A.

Bauman, Richard D.

Baumann, Martin A.

Bentall, Ray
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Covington, Robert E.

Crittenden, M. D., Jr. See also Roberts, R. J.; Baker, A. A.

Davidson, Donald M., Jr.  
(and Kerr, Paul F.) Uranium deposits at Kane Creek, Utah (abs.): Mining Eng., v. 17, no. 8, p. 50, Aug. 1965.

Dickson, Don R. See also Peck, E. L.  

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Gates, Joseph S.  

Gilluly, James  

Goode, Harry D.  
Sources of water to supply coal-fired electric plants in Kane County, Utah: in Utah Geol. Soc. Guidebook to the Geology of Utah, no. 19, p. 143-150, 1965.

Goodwin, James C. See Sanborn, A. F.


Griffitts, Wallace R.  

Grose, L. T.  


Hahl, D. C.  

Hamblin, W. K.  

Hamilton, Warren  

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Horns, W. V.

Jackson, Wayne H.

Jacobs, Marion B.
(and Kerr, Paul F.) Hydrothermal alteration along the Lisbon Valley fault zone, San Juan County, Utah: Geol. Soc. America Bull., v. 78, no. 4, p. 423-440, April 1965.

Kaufman, Aaron

Kasyer, Robert B. See Heylumn, E. B. -1

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Palmer, Allison R.  

Parr, Clayton Joseph  


Peck, Eugene L.  
(and Dickson, Don R.) Evaporation studies - Great Salt Lake, Pt. I - Evaporation and ground water, Great Salt Lake: Utah Geol. and Mineralog. Survey Water - Resources Bull. 6, p. 4-13, Jan. 1965.

Peterson, Fred  

Peterson, James A.  

Petkov, Benjamin  

Picard, M. Dana  

Pinney, R. I.  

Randall, Arthur G.  

Richmond, Gerald M.  

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Scott, G. L.

Sharp, B. J.
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Shaw, Daniel R.

Shepard, William M.
Geochemical studies in the Tintic district, Utah (abs.): Mining Eng., v. 17, no. 8, p. 50, Aug. 1965.

Sikich, Steve W.


Sohl, Norman F.

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Stokes, Wm. Lee.

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Waring, Gerald A.

Wasserburg, G. J.

Whelan, James A.
Hydrothermal alteration and mineralization, Staats Mine and Blawn Mountain areas, central Wah Wah Range, Beaver County, Utah: Utah Geol. and Mineralog. Survey Special Studies 12, 31 p., 1965.

Wilcox, Ray E.

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<td>J. E. Case</td>
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<td>G. B. Gott</td>
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<td>W. R. Griffiths</td>
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Publications of the Utah Geological Survey

Bulletin 77, Geology of the Deep Creek Mountains, Tooele and Juab Counties, Utah, by KENNETH P. BICK, 120 p. ($2.00).
Circular 47, Gold placers in Utah, a compilation, 29 p. (25¢ postpaid).
Earth Science Education Series 1, Field guide to the geology of the Uinta Mountains, by B.E. and R. R. UNTERMANN, 12 p. ($0.50).
Special Studies 14, Geothermal power potential in Utah, by EDGAR B. HEYLUN, 28 p. ($1.25).
Special Studies 15, Review of the coal deposits of eastern Sevier County, Utah, by R. E. MAUKER, ($1.00). IN PRESS: Special Studies 17, Igneous complex at Wah Wah Pass, Beaver County, Utah, by M. P. ERIKSON ($1.50).

BRAZIL — Summer 1966

Dr. James A. Whelan (Assoc. Prof. Mineralogy, Univ. of Utah) and Dr. KENNETH C. BULLOCK (Prof. Geology, Brigham Young Univ.) were among 20 applicants chosen to participate in the Sixth International Field Institute for American college and university geology teachers, June 18 - Aug. 1, which is financed by the American Geological Institute.

The teachers will visit well-studied areas in environments ranging from tropical rainforest and savannah, representative of large parts of the earth’s surface, through tropical and semitropical regions of moderate rainfall and mountainous topography. Many geologic processes differ from those to which American geologists are accustomed. Rocks of many types including some most unusual ones will be observed, and teaching and research collections may be made. The Amapa Region, Univ. of Bahia, Rio de Janeiro, Minas Gerais mica belt, Quadrilátero Ferrifero of Minas Gerais (one of the classic Precambrian areas of the world), Pocos de Caldas, Sao Paulo, Sao Paulo litoral, Jacupiranga, Itatiaia, and Univ. of Rio Grande do Sul are among the points of interest.

Personnel

We are pleased to welcome Mrs. Clara H. Warr as new bookkeeper to the Utah Geological Survey. Kay Hughes, bookkeeper with the Survey for the past two years, has moved with her husband and daughter to Seattle, Washington, where Mr. Hughes has taken a position with Boeing Company.

U. S. Geological Survey Open-File

Aeromagnetic map of Hayden Peak and vicinity, Uinta Mountains, Utah, by J. L. Meuschke and J. R. Kirby, scale 1:125,000, 4 x 2½'. The map is available at 8102 Federal Office Building, Salt Lake City, and in the Office of the State Geologist, 103 Geol. Survey Bldg., Univ. of Utah, Salt Lake City. Reproduction can be made at private expense from copy at the State Geologist’s Office.

News From Mineral Industries

Dow Chemical Co. has an option agreement for purchase of byproduct magnesium chloride to be produced in a joint venture of Lithium Corp. of America and Salzdetfurth of West Germany. The joint project is to produce potash, magnesium salts and sodium sulfate from waters of Great Salt Lake. Dow is considering the advisability of building a magnesium chloride processing plant near Ogden, Utah and of producing magnesium metal in the Great Salt Lake area. Dow has options or leases on about 60,000 acres of lands near the Lake. Lithium Corp. and Salzdetfurth have similar holds on about 55,000 acres.

Leases on 7500 acres of coal land in the Kanab coal field, Kane County, Utah have been acquired by Utah Construction & Mining Co. The leases were sold by W. J. Smirl and C. W. Swapp for a reported $165,000 plus royalty.

The Utah Shale Land Corp. has obtained sodium exploration permits on 4800 acres in Rio Blanco County, Colo. from the Bureau of Land Management. Utah Shale Land Corp. owns 19,200 acres of oil shale property in the Uinta Basin, Utah.


Micro Copper Corp., Moab, Utah, long engaged in uranium mining, has been developing its new patented copper extraction process for more than 8 years. According to Richard Mohler, President, "... We are able to produce fine powder of high purity at relatively low cost from small deposits of low-grade copper oxide ores." It is planned to raise production from 1,000 lb. to 12,000 lb. per day. The copper powder is reported to be 99.5% pure, or better, using a leach-precipitation process.

Appointment of Director of University of Utah Seismograph Stations

The University of Utah Board of Regents has confirmed the appointment of Dr. Kenneth L. Cook as Director of the University of Utah Seismograph Stations at Dugway, Salt Lake City, and Price, Utah.

The Dugway station, one of the 125 standardized world-wide seismograph stations, was placed in operation in May 1962. The Salt Lake City station has been on the campus of the University of Utah since about 1915. The Price station, at the College of Eastern Utah, was placed in operation during April 1962. By means of a cooperative arrangement with Professor J. Stewart Williams, in charge of the Utah State University seismograph station at Logan, records from this station are made available for analysis. The Dugway and Salt Lake City stations are operated in conjunction with the U. S. Coast and Geodetic Survey.

Dr. Cook reports that during the first three years of operation of the new network (1962 through 1964), there were recorded an average of about 60 earthquakes per year in Utah which were of sufficient magnitude for epicenter determinations to be made. An earthquake epicenter map of the state of Utah is now in preparation for publication under supervision of Dr. Cook.

Building for College of Mines and Mineral Industries

The University of Utah received $1,050,000 from the U. S. Department of Health, Education, and Welfare to add to the fund for the construction of the new building for the College of Mines and Mineral Industries. This sum plus the $2,350,000 allocated by the State gives a total of $3,400,000.

(Con't. from column 2) and refining process. Commercial quantities of copper oxide can be produced at one step of the refining process.