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Annotated Geologic Bibliography for the Richfield 1° x 2° Quadrangle, Utah

by

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This report is preliminary and has not been edited or reviewed for conformity with U.S. Geological Survey standards.

ANNOTATED GEOLOGIC BIBLIOGRAPHY FOR THE

RICHFIELD 1° x 2° QUADRANGLE, UTAH

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U.S. Geological Survey, Denver, Colorado

Abou-Zied, S., 1973, Geology of the Milford Flat Quadrangle, Star district, Beaver County, Utah, in Hintze, L. F., and Whelan, J. A., eds., Geology of the Milford area 1973: Utah Geol. Assoc. Pub. 3, p. 43-48.

Describes the stratigraphy, structure, geologic history, hydrothermal alteration, and contact metamorphism of a portion of the Star Range, southwest of Milford, Utah.

Abou-Zied, S., and Whelan, J. A., 1973, Geology and mineralogy of the Milford Flat Quadrangle, Star district, Beaver County, Utah: Utah Geol. and Min. Survey, Spec. Studies 46, 23, p.

Describes the stratigraphy, structure, mineralization, and mining activity of a portion of the Star Range, southwest of Milford, Utah. Includes a black and white geologic map on topography base of the northwestern corner of the Milford Flat Quadrangle at 1:12,000 scale.

Amin, S. R., 1950, Heavy mineral study of the intrusive rocks of the Antelope Range, Piute County, Utah: Salt Lake City, Univ. of Utah, unpub. ms. thesis, 40 p.

Not annotated.

Anderson, J. J., 1965a, Geology of northern Markagunt Plateau, Utah: Austin, Univ. of Texas, unpub. Ph.D thesis, 194 p.

Describes the structure and stratigraphy of the northern Markagunt Plateau, Iron and Garfield Counties, Utah. Includes a planimetric, black and white geologic map of the northern Markagunt Plateau at 1:62,500 scale.

——— 1965b, Tertiary evolution of northern Markagunt Plateau, Utah [abs.]: Geol. Soc. America, Program Ann. Mtg., Kansas City, Mo., p. 5-6.

Discusses the Tertiary geologic evolution of a portion of the Markagunt Plateau, Iron and Garfield Counties, Utah. Events from Eocene lacustrine deposition to Holocene normal faulting are traced.

______1968, Oligocene and Miocene(?) volcanic arenite sedimentation, southern High Plateaus, Utah [abs.]: Geol. Soc. America, Rocky Mtn. Sec., Program Ann. Mtg., Bozeman, Montana, p. 24.

Discusses the depositional history and present exposures of a Tertiary volcanic arenite in and around the northern Markagunt Plateau, Iron, and Garfield Counties, Utah.

______1971, Geology of the southwestern High Plateaus of Utah--Bear Valley Formation, an Oligocene-Miocene volcanic arenite: Geol. Soc. America Bull., v. 82, p. 1179-1205.

Discusses the depositional history and present exposures of an Oligocene-Miocene volcanic arenite in the Markagunt Plateau, Black Mountains, and surrounding area, Beaver, Iron, and Garfield Counties, Utah. Includes planimetric, black and white outcrop map of the Bear Valley Formation at 1:125,000 scale.

Anderson, J. J., and Rowley, P. D., 1975, Cenozoic stratigraphy of southwestern High Plateaus of Utah, in Anderson, J. J., Rowley, P. D., Fleck, R. J., and Nairn, A. E. M., Cenozoic geology of southwestern High Plateaus of Utah: Geol. Soc. America Spec. Paper 160, p. 1-51.

Discusses the geochronology and stratigraphy of the igneous rock units of the Tushar Mountains and surrounding plateaus near Marysvale, Utah. A very important paper.

Anderson, R. E., Buckman, R. C., and Hamblin, Kenneth, 1978, Road log to the Quaternary tectonics of the Intermountain Seismic Belt between Provo and Cedar City, Utah: Geol. Soc. America Rocky Mtn. Sec. Ann. Mtg., Field Trip #8, 50 p.

Not annotated.

Armstrong, R. L., 1963, K-Ar ages of volcanics in southwestern Utah and adjacent Nevada, in Guidebook to the geology of southwestern Utah: Intermtn. Assoc. Petrol. Geologists, 12th Ann. Field Conf. Salt Lake City, Utah, p. 79-80.

Summarizes the K-Ar ages of some igneous rock units in western Utah and eastern Nevada. Dates are given for the Bullion Canyon and Mount Belknap Formations near Marysvale, Utah, and the Needles Range and Quichapa series of western Beaver and Iron Counties, Utah.

______1966, K-Ar dating using neutron activation for Ar analysis: granitic plutons of the eastern Great Basin, Nevada and Utah: Geochim. et Cosmochim. Acta, v. 30, p. 565-600.

Describes the use of neutron activation in K-Ar dating. Ages on volcanic rocks in eastern Nevada and western Utah, including the Mineral Range intrusion near Milford, Utah, and the Needles Range Formation of western Beaver County, Utah, are given.

______1968a, The Cordilleran miogeosyncline in Nevada and Utah: Utah Geol. and Min. Survey Bull. 78, 58 p.

Describes the geologic history and sequence of rock units that formed in the Cordilleran miogeosyncline which existed from Cambrian to Triassic time in a large area of western Utah and eastern Nevada. The stratigraphy and origin of the Great Basin mountain ranges of Millard, Beaver, and Iron Counties are discussed with respect to this regional feature.

Gould, W. J., 1959, Geology of the northern Needle Range, Millard County, Utah: Brigham Young Univ. Res. Studies, Geology series, v. 6, no. 5, 47 p.

Describes the stratigraphy and structure of the northern Needle Range, southwestern corner of Millard County, Utah. Includes a planimetric, black and white geologic map of the northern Needle Range at 1:48,000 scale.

Green, Jack, and Kerr, P. F., 1951a, Memorandum on alteration features, Big Rock Candy Mountain: U.S. Atomic Energy Comm., Div. of Raw Materials. Little or no anomalous radioactivity in highly altered rock.

Not annotated.

______1951b, Preliminary memorandum, East Slope area, Marysvale, Utah: U.S. Atomic Energy Commission, RMO-832, Tech. Inf. Service, Oak Ridge, Tenn., p. 1-18.

The Bullion Canyon Volcanics intruded by quartz monzonite, were eroded and followed by the eruption of the Mount Belknap Volcanics. Hydrothermal alteration both preceded and followed eruption of Mount Belknap rocks. Alunite may have been restricted to earlier period of alteration, and uranium may have formed in both periods, though it may have favored later period.

______1951c, Preliminary memorandum on the Trinity Mines, Marysvale, Utah: U.S. Atomic Energy Comm., RMO-864, Tech. Inf. Service, Oak Ridge, Tenn., 12 p.

Discusses the abundance of radioactive gas in the Trinity Mines in the quartz-monzonite intrusive near Marysvale, Utah. The possibility of a nearby uranium deposit is considered through a petrographic interpretation of surrounding rock units.

______1952, Preliminary memorandum on the Big Rock Candy Mountain: U.S. Atomic Energy Comm. RMO-887, Tech. Inf. Service, Oak Ridge, Tenn., 38 p.

Not annotated.

______1953a, Geochemical aspects of alteration, Marysvale, Utah: U.S. Atomic Energy Comm. Ann. Rept. June 30, 1952-April 1, 1953, RME-3046, Tech. Inf. Service, Oak Ridge, Tenn., p. 73-99.

Discusses the nature of host rocks at Marysvale, Utah, and how their chemical nature has influenced the emplacement of uranium and the mechanism of alteration.

______1953b, Pseudomorphous illite after biotite [abs.]: Geol. Soc. America Bull., v. 64, no. 12, pt. 2, p. 1429.

Describes the hydrothermal alteration sequence of latite from the lower part of the Bullion Canyon Volcanics near Marysvale, Utah, that has produced illite pseudomorphs after biotite.

Gregory, H. E., 1944, Geologic observations in the upper Sevier River Valley, Utah: Amer. Jour. Sci., v. 242, no. 11, p. 577-606.

Discusses the stratigraphy and structure of the Sevier and Aquarius Plateaus and adjoining valleys of the South and East Forks of the Sevier River, southeast of Circleville, Utah. Specific reference is made to the volcanic rocks of the Marysvale area in connection with the discussion of the Wasatch Formation.

______1945, Post-Wasatch Tertiary formations in southwestern Utah: Jour. Geol., v. 53, p. 105-115.

The regional stratigraphy and correlation of the Brian Head, Paraunuweap, and Sevier River Formations of Tertiary age. These depositional units outcrop at a variety of sites in and around the Sevier and Markagunt Plateaus south of Marysvale, Utah.

Gromme, C. S., McKee, E. H., and Blake, M. C., Jr., 1972, Paleomagnetic correlations and potassium-argon dating of middle Tertiary ash-flow sheets in the eastern Great Basin, Nevada, and Utah: Geol. Soc. America Bull., v. 83, p. 1619-1638.

Directions of natural remanent magnetization are used to identify and correlate individual cooling units in the middle Tertiary ash-flow province in central and eastern Nevada and western Utah. The Needles Range Formation of Beaver and Iron Counties, Utah, was one of the ash-flow sheets included in the investigation.

Gruner, J. W., Fetzer, W. G., and Rapaport, Irving, 1951, The uranium deposits near Marysvale, Piute County, Utah: Econ. Geology, vol. 46, p. 243-251.

The mineralization is of late Tertiary age and is associated with the quartz monzonite intrusive. The ore zones consist of quartz-fluorite-calcite-pyrite veins and veinlets commonly of similar strike and dip. Weathering extends to at least 1200 feet and has resulted in secondary schroekingerite, autunite, torbernite (and their meta- modifications), and a uranophane-like mineral. Pitchblende is reported.

Hahl, D. C., and Cabell, R. E., 1965, Quality of surface water in the Sevier Lake Basin, Utah: U.S. Geol. Survey, Utah Basic-Data Release no. 10, 24 p.

Data on the chemical, fluvial-sediment, bacteriologic, biochemical, trace-element, and radiological characteristics of the surface waters of the Sevier River, its tributaries, and the Beaver River, Utah.

Hamblin, W. K., and Best, M. G., 1975, The geologic boundary between the Colorado Plateau and the Basin and Range Province: Geol. Soc. America Abs. with Programs, v. 7, no. 7, p. 1097.

Discusses the boundary between the Basin and Range and the Colorado Plateau Provinces in Utah and Arizona. The boundary is marked by high angle faults and late Cenozoic volcanism in Utah.

Hamilton, P. K., and Kerr, P. F., 1954a, Uranophane and uranotile, Marysvale, Utah: U.S. Atomic Energy Comm., Ann. Rept. for June 30, 1953, to April 1, 1954, RME-3096, pt. 1, Tech. Inf. Service, Oak Ridge, Tenn., p. 38-48.

Uranophane is identified as the principal secondary mineral in the upper adit level of the Freedom No. 2 Mine. It is associated with lesser amounts of its dimorph, uranotile.

______1954b, Phosphuranylite at Marysvale, Utah: U.S. Atomic Energy Comm., Ann. Rept., June 30, 1953, to April 1, 1954, RME-3096, pt. 1, Tech. Inf. Service, Oak Ridge, Tenn., p. 49-51.

By the use of X-ray diffraction, phosphoruranylite-$Ca_3(UO_2)_5(PO_4)_4(OH)_4 \cdot 10H_2O$ was shown to be associated with alunite at the J and L alunite mine near Marysvale. It is one of the few places in the Marysvale district where supergene uranium mineralization is associated with earlier hydrothermal alteration which resulted in alunite.

Hansel, W. D., and Nash, W. P., 1977, Petrology of Tertiary and Quaternary volcanic rocks, Washington County, southwestern Utah: Geol. Soc. America Bull., v. 88, p. 1831-1842.

Not annotated.

Harris, H. D., 1958, A Late Mesozoic positive area in western Utah: Amer. Assoc. Petrol. Geologists, 8th Ann. Mtg., Rocky Mtn. Sec., Casper, Wyo., p. 89-102.

Describes the stratigraphic and structural development of western Utah during Late Mesozoic and Cenozoic times.

Haugh, Galen, 1978, A preliminary geologic map of the Wildcat Creek area, eastern Beaver County, Utah: Utah Geology, v. 5, p. 33-36.

Not annotated.

Havens, R., and Agey, W. W., 1949, Concentration of manganese ores from Piute and Kane Counties, southern Utah: U.S. Bur. Mines, Rept. Invest. 4551, 9 p.

Report of the analysis and concentration of manganese ore from the Blackbird group of mining claims in Piute County, 11 miles southeast of Marysvale, Utah. The deposit was described as an intrusive sheet or sill of altered brecciated rhyolite cemented by manganese oxide minerals.

Heylmun, E. B., 1966, Geothermal power potential in Utah: Utah Geol. and Min. Survey Spec. Studies 14, 28 p.

A review of all known potential geothermal resources in Utah, including the Roosevelt, Thermo, Minersville, Joseph, Monroe, and Hatton thermal springs in the Milford-Richfield area. Geochemical, heat source, and temperature data are provided.

Hickcox, C. W., 1971, The geology of a portion of the Pavant Range allochthon, Millard County, Utah: Houston, Rice Univ., unpub. Ph.D. thesis, 67 p.

Not annotated.

Hightower, C. H., Jr., 1959, Middle Cambrian stratigraphy of the Wah Wah Range, Beaver County, Utah: Dallas, Southern Methodist Univ., unpub. M.S. thesis.

Not annotated.

Hild, J. H., 1946, Exploration of alunite deposits, Piute County, Utah: U.S. Bur. Mines Rept. Invest. 3972, 74 p.

A report on the alunite occurrences within a ten mile radius of Marysvale, Utah. Each replacement and vein deposit was examined using diamond drilling, trenching, test pits, and sampling procedures.

Hill, J. M., 1912, The mining districts of the western United States: U.S. Geol. Survey Bull. 507, 309 p.

A summary catalogue of mining districts in the western U.S., including those in the Beaver-Piute County area of Utah. A brief overview of the type of ore deposit and the main minerals mined in each district is included with a few statements on the geologic sequence of events responsible for the formation of the deposit.

Hilpert, L. S., and Dasch, M. D., 1969, Uranium, in Mineral and water resources of Utah: Utah Geol. and Min. Survey Bull. 73, p. 124-132.

A report on the occurrence and production of uranium ore in Utah, including the uranium-bearing vein deposits of the Marysvale uranium area in northern Piute County and southern Sevier County, Utah. The uranium deposits occur as veins emplaced in a quartz monzonite intrusive.

Hilpert, L. S., and Roberts, R. J., 1969, Economic geology, in Mineral and water resources of Utah: Utah Geol. and Min. Survey Bull. 73, p. 28-36.

A report on the mineral deposits of Utah, including a description of the Wah Wah-Tushar mineral belt, which extends from the Nevada line eastward along an alinement of igneous intrusives to the vicinity of Marysvale, Utah.

Hintze, L. F., 1951, Lower Ordovician detailed stratigraphic sections for western Utah: Utah Geol. and Min. Survey Bull. 39, 99 p.

Describes the stratigraphy of the Ordovician Pogonip-Eureka sequence from the Ibex area, western Millard County, eastward to central Utah. Six new lithologic units and fifteen faunal zones are recognized within the Pogonip Group of western Utah.

______1958, Geology of the Ibex area, Millard County, Utah [abs.]: Geol. Soc. America Bull., v. 69, no. 12, pt. 2, p. 1688.

Describes the stratigraphy and structure of the Ibex area, just west of Sevier Lake, Millard County, Utah.

______1959, Geology of the Cricket Mountains, Millard County, Utah [abs.]: Geol. Soc. America Bull., v. 70, no. 12, pt. 2, p. 1725.

Describes the stratigraphy and structure of the Cricket Mountains, just east of Sevier Lake, Millard County, Utah.

______1963a, Geologic map of southwestern Utah: Provo, Utah, Brigham Young Univ. Geol Dept., scale 1:250,000.

A colored geologic map on a topographic base.

______1963b, Geologic map of southwestern Utah, in Guidebook to the geology of southwestern Utah: Intermtn. Assoc. Petrol. Geol., 12th Ann. Field Conf., Salt Lake City, Utah, 1:250,000.

A colored geologic map on a topographic base.

______1972a, Lower Paleozoic strata in central Utah, in Baer, J. L., and Callaghan, Eugene, Plateau-Basin and Range transition zone, central Utah, 1972: Utah Geol. Assoc. Pub. 2, p. 7-11.

Two stratigraphic rock columns in the Pavant Range are described in this report on the Cambrian through Devonian strata of central Utah.

______1972b, Oligocene volcanic-landslide deposits in west-central Utah: Geol. Soc. America Abs. with Programs, v. 4, no. 7, p. 538-539.

Describes a bouldery landslide deposit interlayered between two Oligocene ash-flow tuff units in western Millard County, Utah. K-Ar ages of 32 m.y. and 27 m.y. for the older and younger tuff units, respectively, are mentioned.

______1973, Lower and Middle Ordovician stratigraphic sections in the Ibex area, Millard County, Utah: Brigham Young Univ. Geol. Studies, v. 20, pt. 4, p. 3-36.

Describes the stratigraphy of 3,480 feet of Ordovician rock units in the Ibex area, part of the Confusion Range, western Millard County, Utah. Known as the Pogonip Group, this section is described as one of the world's most importance reference sections in terms of the variety of fossils present.

______1973, Geologic history of Utah: Brigham Young Univ. Geology Studies, v. 20, pt. 3, Studies for students no. 8, 181 p.

Not annotated.

______1974a, Preliminary geologic map of the Barn Quadrangle, Millard County, Utah: U.S. Geol. Survey Misc. Field Studies Map no. MF-633, scale 1:48,000.

A black and white geologic map on a topographic base.

______1974b, Preliminary geologic map of the Crystal Peak Quadrangle, Millard County, Utah: U.S. Geol. Survey Misc. Field Studies Map No. MF-635, scale 1:48,000.

A black and white geologic map on a topographic base.

______1974c, Preliminary geologic map of the Wah Wah Summit Quadrangle, Millard and Beaver Counties, Utah: U.S. Geol. Survey Misc. Field Studies Map MF-637, scale 1:48,000.

A black and white geologic map on a topographic base.

Hobbs, S. W., 1945, Tungsten deposits in Beaver County, Utah: U.S. Geol. Survey Bull. 945-D, p. 81-111.

Describes the stratigraphy, structure, and mineralization associated with the known occurrences of tungsten in Beaver County, Utah.

Hoover, J. D., 1974, Periodic Quaternary volcanism in the Black Rock Desert, Utah: Brigham Young Univ. Geol. Studies, v. 21, pt. 1, p. 3-72.

A detailed examination of the Quaternary basalt flows near Fillmore, Utah. The field relationships, geochronology, structure, petrography, and petrochemistry of the various lava flows are discussed.

Hose, R. K., 1966, Confusion Range structural trough, western Utah: Geol. Soc. America Spec. Paper 101, p. 313.

Discusses the Confusion Range structural trough formed from Paleozoic and Lower Triassic strata 30,000 feet thick and expressed in the outcrops in the Needles Range and Burbank Hills area of southwestern Millard County, Utah.

Hose, R. K., and Blake, M. C., Jr., 1969, Structural development of the eastern Great Basin during the Mesozoic: Geol. Soc. Amer. Abs. with Programs, v. 1, p. 34.

Discusses two episodes of deformation during the Late Mesozoic in the western part of Utah north of 38^{o} N. latitude.

Hose, R. K., and Danes, Z. F., 1967, Late Mesozoic structural evolution of the eastern Great Basin: Geol. Soc. America Spec. Paper 102, p. 102.

A discussion of the structural evolution of the Paleozoic and lower Mesozoic strata found in the eastern Great Basin. Tectonic forces responsible for the present structural configuration of the basin are traced and relationships established.

______1973, Development of the Late Mesozoic to Early Cenozoic structures of the eastern Great Basin, in DeJong, K. A., and Scholten, R., eds., Gravity and tectonics: New York, John Wiley and Sons, p. 429-441.

Discusses low-angle thrust faulting and high angle block faulting in the eastern Great Basin, based on the extensional and compressional features associated with gravitational movement. The thrust faulted terrain of the Wah Wah Mountains and Burbank Hills area of western Millard and Beaver Counties, Utah, is interpreted.

Howell, E. E., 1875, Report on the geology of portions of Utah, Nevada, Arizona, and New Mexico examined in the years 1872 and 1873, in Report upon geographical and geological explorations and surveys west of the one hundredth meridian (Wheeler): Washington, D. C., Govt. Printing Office, v. 3, p. 227-302.

An early description of the basic geology of portions of Utah. Mention is made of the Mineral Range, Beaver (now Tushar) Mountains, Pahvant Range, and the thermal springs near Minersville, Utah. Structural and stratigraphic descriptions of numerous Great Basin mountain ranges and Colorado Plateau features in southwestern Utah, give a regional setting for specific features.

Hulen, J. B., 1978, Stratigraphy and alteration, 15 shallow thermal gradient holes, Roosevelt Hot Springs KGRA and vicinity, Millard and Beaver Counties, Utah: University of Utah Research Inst., Earth Science Laboratory Rept., DOE contract EG-78-C-07-1701.

Not annotated.

Hunt, C. B., 1956, Cenozoic geology of the Colorado Plateau: U.S. Geol. Survey Prof. Paper 279, 99 p.

A comprehensive description of the stratigraphy and structure of the Colorado Plateau, including the Sevier and Markagunt Plateaus near Marysvale, Utah. Comments on the Sevier River Formation and Tertiary igneous rock units of the High Plateaus adjacent to Marysvale are significant.

Huntley, D. B., 1885, The mining industries of Utah, in Emmons, S. F., and Becker, G. F., Statistics and technology of the precious metals: U.S. Tenth Census, v. 13, p. 461-476.

Report on the mining activity and mineral production of the mining districts of Millard, Piute, and Beaver Counties, Utah. A detailed description of the Horn Silver Mine in Beaver County, Utah, is included.

Isherwood, W. F., 1969, Regional gravity survey of parts of Millard and Sevier Counties, Utah [abs.]: Geol. Soc. America Abs. with Programs, v. 1, p. 35.

Report on a regional gravity survey made from latitudes 38°45' N. to 39°30' N. and longitudes 112°00' W. to 112°45' W. in west-central Utah. Gravity data is interpreted to find the location of grabens and fault zones and estimate the amount of valley fill.

Izett, G. A., and Naeser, C. W., 1978, Fission-track dating, <u>in</u> Lipman, P. W., and others, Pleistocene rhyolite of the Mineral Mountains, Utah--geothermal and archeological significance: U.S. Geol. Survey Jour. Res., v. 6, no. 1, p. 145-146.

Gives fission-track ages for obsidian from the Mineral Mountains, Utah.

James, A. H., 1973, Lead and zinc resources in Utah: Utah Geol. and Min. Survey Spec. Studies 44, 66 p.

A summary of the production from Utah's lead and zinc mines. During the decade 1960 to 1969 an annual average of $300,000 in recoverable metals was produced from the Deer Trail Mine, a blanket deposit in replaced limestone, near Marysvale, Utah.

Jones, R. L., and Dunham, W. C., 1946, Examination of the Wah Wah lead-zinc mine, Beaver County, Utah: U.S. Bur. Mines, Rept. of Invest. 3853, 14 p.

Discusses the history, geology, quality of the ore, and workings of the Wah Wah Mine on the western side of the Wah Wah Range. Lead, zinc, copper, silver, and gold are found in the ore body. Includes a black and white map of the Wah Wah Mine on topographic base at 1:9,600 scale.

Jones, R. S., 1924, The manner of occurrence of gold in the jarosite from Marysvale, Utah: New York, Columbia Univ., unpub. M.A. thesis, 31 p.

Not annotated.

Kaiser, E. P., 1950, The Papsy's Hope autunite prospect, Marysvale district, Piute County, Utah: U.S. Geol. Survey TEM-145, 10 p.

Scattered autunite and sparse quartz veins are found over a length of 17 feet in a fracture zone of uncertain strike cutting feldspar porphyry of the Bullion Canyon Volcanics. Samples across the zone average 0.026 eU.

Kamhi, S. R., 1959, An X-ray study of umohoite: Am. Mineralogist, v. 44, nos. 9-10, p. 920-925.

Describes the dimensions of the umohoite (hydrous uranyl molybdate) molecule through the use of X-rays. The specimens examined are from the Marysvale, Utah, area.

Kennedy, R. R., 1960, Geology between Pine (Bullion) Creek and Tenmile Creek, eastern Tushar Range, Piute County, Utah: Brigham Young Univ. Res. Studies, Geol. Ser., v. 7, no. 4, 58 p.

Describes the stratigraphy and structure of a portion of the Tushar Mountains south of Marysvale, Utah. Includes a planimetric, black and white geologic map of the Bullion to Tenmile Creek area at 1:50,000 scale.

______1963a, Sedimentary stratigraphy of the Tushar Range, Piute County, Utah, in Guidebook to the geology of southwestern Utah: Intermtn. Assoc. Petrol. Geologists, 12th Ann. Field Conf., Salt Lake City, Utah, p. 118-124.

Describes the stratigraphy of the sedimentary rock units of the Tushar Mountains, Utah.

______1963b, Geology of Piute County, Utah: Tucson, Univ. of Arizona, unpub. Ph.D. thesis, 282 p.

Describes the stratigraphy and structure of Piute County, Utah. The area has an extensive accumulation of rocks which field relationships and radiometric ages indicate accumulated from Eocene to Pleistocene. Includes a planimetric, black and white geologic map of Piute County at 1:80,000 scale.

Kerr, P. F., 1963, Geologic features of the Marysvale uranium area, Utah, in Guidebook to the geology of southwestern Utah: Intermtn. Assoc. Petrol. Geologists 12th Ann. Field Conf., Salt Lake City, Utah, p. 125-135.

A summary of the geology, alteration, and mineralization of the Marysvale area. Mount Belknap Volcanics (18 m.y.) ore most closely related in age to uranium mineralization. Age of mineralization, based on 2 samples, given as 12 and 13 m.y. Though uranium is invariably associated with alteration, alunitic alteration is notably free of it.

______1968, The Marysvale, Utah, uranium deposits, in Ridge, J. D., ed., Ore deposits of the United States 1933-1967, Graton-Sales volume: American Institute of Mining Engineers, p. 1020-1042.

Chiefly an abbreviated version of Kerr and others (1957). Some new radiometric ages from the literature are incorporated.

Kerr, P. F., and Hamilton, P. K., 1953, Alteration of a vitrophyre dike, Bullion Monarch Mine, Marysvale, Utah: U.S. Atomic Energy Comm. RME-3046, Tech. Inf. Service, Oak Ridge, Tenn., p. 8-25.

Radioactive vitrophyre dikes cut quartz monzonite in the Bullion Monarch Mine. The dike studied was cut by thin veinlets and disseminations of sooty pitchblende, fluorite, jordisite, and ilsemannite; and altered to montmorillonite and a mixture of montmorillonite and illite. Chemical and spectrographic analyses are given.

______1954, Pitchblende and manganocalcite at the Deer Trail Mine, Marysvale, Utah: U.S. Atomic Energy Comm. RME-3096, pt. 1, Tech. Inf. Service, Oak Ridge, Tenn., p. 52-55.

Pitchblende identified as principal radioactive mineral at the Deer Trail Mine. It occurs on border of a replacement body of lead, zinc, and silver, associated with chlorite and manganocalcite.

Kerr, P. F., Anderson, T. P., Hamilton, P. F., and Pill, R. H., 1951, Preliminary memorandum, Marysvale, Utah: U.S. Atomic Energy Comm., Div. Raw Materials, Ann. Rept. for July 1, 1950 to June 30, 1951, RMO-797, Tech. Inf. Service, Oak Ridge, Tenn., p. 1-23.

A report on the first observations by the Columbia University group in summer of 1950. Five prospects were visited, and general observations made on alteration. Uranium is apparently related to hydrothermal alteration, but alunite is relatively non-radioactive.

Kerr, P. F., Brophy, C., Dahl, H. M., Green, Jack, and Woolard, L. E., 1952, Annual report for July 1, 1951 to June 30, 1952. Part 1. A geologic guide to the Marysvale area: U.S. Atomic Energy Comm. RMO-924, Tech. Inf. Service, Oak Ridge, Tenn., 57 p.

A progress report on the stratigraphy, structure, mineralization, and alteration of the area northeast of Marysvale, Utah. The occurrence, mineralization, and origin of the uranium deposits in the area are discussed. Includes a planimetric, black and white reconnaissance geologic map of the Marysvale area at 1:100,000 scale.

Kerr, P. F., Simpson, W. L., and Hamilton, P. K., 1953, Deer Trail area, Marysvale, Utah: U.S. Atomic Energy Comm., Ann. Rept. for June 30, 1952, to April 1, 1953, RME-3046, Tech. Inf. Service, Oak Ridge, Tenn., p. 52-58.

Uranium found at the Deer Trail Mine borders replacement zones in limestone within Permian or older sedimentary strata. The uranium occurs in association with a replacement ore body containing lead-silver-zinc ore in limestone with dolomitic phases, which in turn is associated with a gray white chlorite thought to be leuchtenbergite.

Kerr, P. F., Brophy, G. P., Dahl, H. M., Green, Jack, Woolard, L. E., 1957, Marysvale, Utah, uranium area: Geol. Soc. Am. Spec. Paper no. 64, 212 p.

The most detailed report available on the geology of the uranium deposits near Marysvale. Brings together and expands on the scattered data published by the Columbia University group between 1951 and 1954. Includes detailed geologic and alteration maps, and numerous illustrations. Replacement of ore related to hydrothermal alteration that accompanied Mount Belknap Volcanics. Two surges of alteration resulted successively in alunitic and argillic alteration; uranium accompanied the latter.

Kerr, P. F., Gavesci, A. T., and Bowes, D. R., 1974, Welded glass-breccias from Marysvale, Utah: Geological Mag., v. 111, no. 1, p. 15-22.

A petrogenetic examination of glass-breccias and volcanic glass from near Marysvale, Utah. It is shown that the samples are welded ash-flow tuffs resulting from intermittent volcanic activity and that they have a significant relationship with uranium mineralization in the area.

King, W. H., and Wilson, S. R., 1949, Investigation of tungsten deposits at Cupric Mine property, Beaver County, Utah: U.S. Bur. Mines Rept. Invest. 4590, 9 p.

Describes the scheelite deposits that occur in a contact metamorphic zone at the Cupric Mine in the San Francisco Mountains west of Milford, Utah. Scheelite is widely scattered over the contact area, but the main deposits are in the intensely metamorphosed Cambrian and Ordovician limestone.

Knopf, Adolph, 1933, Pyrometasomatic deposits, _in_ Finch, J. W. and others, eds., Ore deposits of the western states (Lindgren Volume): Am. Inst. Mining and Met. Eng., p. 537-557.

The San Francisco and adjacent districts, Utah, are mentioned in this state-by-state summary of replacement ore deposits. Chalcopyrite, pyrite, magnetite, and specularite are the main metallic minerals found in the area. Fluorite is said to occur commonly with crystals as much as one half inch in diameter at one mine.

Kreider, J. E., 1970, The Lund ash-flow tuff: Rolla, Univ. of Missouri, unpub. M.S. thesis, 73 p.

Describes the petrography of the Lund Tuff Member of the Needles Range Formation, an ignimbrite unit deposited in an extensive area of Beaver, Garfield, and Iron Counties, Utah, and adjacent counties in Nevada.

Lautenschlager, H. K., 1952, The geology of the central part of the Pavant Range, Utah: Columbus, Ohio State Univ., unpub. Ph.D. thesis.

Not annotated.

______1954, Tectonic influence on sedimentation in central Utah [abs.]: Geol. Soc. America Bull., v. 65, no. 12, pt. 2, p. 1344.

Discusses thrust faulting in the Pavant Range and the indications of the existence of a linear north-south orogenic belt in western Utah during Mesozoic time as expressed in the stratigraphic position of the sedimentary formations in the range.

Lee, W. T., 1907, The Cove Creek sulphur beds, Utah: U.S. Geol. Survey Bull. 315, p. 485-489.

Describes the geology, ore characteristics, and origin of the sulphur deposits near Cove Fort, Beaver County, Utah.

______1908, Water resources of Beaver Valley, Utah: U.S. Geol. Survey Water-Supply Paper 217, 57 p.

Describes the geology and water supply of the Beaver Valley and the surrounding mountains and foothills. The Beaver River, which is responsible for most of the water available in the Beaver Valley, has its source in the Tushar Mountains, Utah.

Lemmon, D. M., Silberman, M. L., and Kistler, R. W., 1973, Some K-Ar ages of extrusive and intrusive rocks of the San Francisco and Wah Wah Mountains, Utah, in Hintze, L. F., and Whelan, J. A., eds., Geology of the Milford area 1973: Utah Geol. Assoc. Pub. 3, p. 23-26.

Discusses ages and correlations of igneous rock units in the San Francisco, Wah Wah, and Beaver Lake Mountains, and Rocky and Star Ranges, Utah.

Lenzer, R. C., Crosby, G. W., and Berge, C. W., 1976, Geothermal exploration of Roosevelt KGRA, Utah: Symp. Rock Mech., Proc., no. 17, p. 3B1-1.

Not annotated.

Liese, H. C., 1957, Geology of the northern Mineral Range, Millard and Beaver Counties, Utah: Salt Lake City, Univ. of Utah, unpub. M.S. thesis, 88 p.

An examination of the structural geology of the northern part of the Mineral Range, Utah. Stratigraphy, geomorphology, and historical relationships are also discussed.

______1962, Indirect geothermometric mineral studies of selected silicic igneous rocks: Salt Lake City, Univ. of Utah, unpub. Ph.D. thesis, 93 p.

Not annotated.

______1964, A correlative geothermometric mineral study: Amer. Jour. Sci.,v. 262, p. 223-230.

Discusses the correlation of four indirect geothermometric methods. Several samples of silicic igneous rocks used in the study were from the Mineral Range, near Milford, Utah.

Lindgren, Waldemar, 1906, The Annie Laurie Mine, Piute County, Utah: U.S. Geol. Survey Bull. 285, p. 87-92.

A report on the gold and silver deposits and production of the Annie Laurie Mine in the Tushar Mountains west of Marysvale, Utah. The deposits occur in quartz veins cutting through the volcanic rocks, but no deposits are known to occur in the rhyolite flows and tuffs of the area.

Lindsey, D. A., and Osmonson, L. M., 1978, Mineral potential of altered rocks near Blawn Mountain, Wah Wah Range, Utah: U.S. Geol. Survey Open-File Report 78-114, 18 p.

Describes a mineralized area near Blawn Mountain in the southern Wah Wah Mountains, Beaver County, Utah. The area has potential for deposits of lithophile metals, such as uranium, tin, molybdenum, and beryllium. Includes a topographic, black and white map of the Blawn Mountain area at 1:24,000 scale.

Lipman, P. W., Rowley, P. D., and Pallister, J. S., 1975, Pleistocene rhyolite of the Mineral Range, Utah--geothermal and archaeological significance: Geol. Soc. America Abs. with Programs, v. 7, no. 7, p. 1173.

Discusses the Pleistocene rhyolitic tuffs, domes, and flows found along the western margin of the Mineral Range. The stratigraphic, mineralogic, and geologic age relationships of the volcanics are developed and correlated with the surrounding area.

Lipman, P. W., Rowley, P. D., Mehnert, H. H ., Evans, S. H., Jr., Nash, W. P., and Brown, F. H., 1978, Pleistocene rhyolite of the Mineral Mountains, Utah--geothermal and archeological significance: U.S. Geol. Survey Jour. Res., v. 6, no. 1, p. 133-147.

Describes the late Cenozoic rhyolitic domes and flows found in the central Mineral Mountains, Beaver County, Utah. K-Ar dating, chemical composition analysis, and geothermal implications are topics discussed. Includes a planimetric, black and white map of the central Mineral Mountains at 1:78,000 scale.

Livingston, D. E., 1961, Structural and economic geology of the Beaver Lake Mountains, Beaver County, Utah: Tucson, Univ. of Arizona, unpub. M.S. thesis, 68 p.

Not annotated.

Loughlin, G. E., 1915, Recent alunite developments near Marysvale and Beaver, Utah: U.S. Geol. Survey Bull. 620, p. 237-270.

Alunite deposits seven miles southwest of Marysvale and northeast of Beaver are described. The geology of the Tushar Mountains, the mineralization and the geochemistry of the deposits, the occurrence of alunite at various mining operations in the area, and suggestions regarding the development and utilization of the alunite are discussed.

Mackin, J. H., 1960, Structural significance of Tertiary volcanic rocks in southwestern Utah: Am. Jour. Sci., v. 258, p. 81-131.

Discusses the significance of Tertiary volcanic rock units in the correlation of local and regional tectonism. Volcanic units provide a means of dating the episodic nature of tectonically produced structures, as well as correlating them over a large area in southwestern Utah.

______1963, Reconnaissance stratigraphy of the Needles Range Formation in southwestern Utah, in Guidebook to the geology of southwestern Utah: Intermtn. Assoc. Petrol. Geologists Guidebook, 12th Ann. Field Conf., Salt Lake City, Utah, p. 71-78.

Examines the extent of the Needles Range Formation, a Tertiary volcanic unit with a wide distribution, from the Tushar-Marysvale area on the east to Nevada on the west. Correlation of the formation between the different locales is discussed.

Mackin, J. H., Cook, E. F., and Threet, R. L., 1954, Stratigraphy of Early Tertiary rocks in southwestern Utah [abs.]: Geol. Soc. America Bull., v. 65, p. 1280.

An examination of the regional extent and stratigraphic relationships of early Tertiary ignimbrite units in Beaver and Iron Counties, Utah. Regional stratigraphy provides a basis for cross-dating local episodes of intrusion, mineralization, and deformation in the Cordillera.

Mardirosian, C. A., 1976, Mining districts and mineral deposits of Utah: Utah Geol. and Min. Survey map, scale 1:1,000,00.

Not annotated.

Marsell, R. E., 1963, Ground-water development in Beaver, Piute, Iron, Garfield, Washington, and Kane Counties, Utah, in Guidebook to the geology of southwestern Utah: Intermtn. Assoc. Petrol. Geologists, 12th Ann. Field Conf., Salt Lake City, Utah, p. 157-168.

Ground-water usage in Beaver County is discussed. A large ground-water reservoir is being pumped extensively south of Milford, Utah, with significant drops in water table-levels resulting. The ground-water reservoir in Beaver Valley is not being used significantly because of downstream water commitments. Both ground-water reservoirs are in alluvium associated with the Beaver River.

Maxey, G. B., 1946, Geology of part of the Pavant Range, Millard County, Utah: Amer. Jour. Sci., v. 244, p. 324-356.

Describes the geology of the southwestern Pavant Range and adjacent Pavant Valley. The stratigraphy, structure, and geologic history are described. Geomorphologic features of Pleistocene Lake Bonneville in Pavant Valley are given considerable attention. Includes a planimetric, black and white geologic map of the southwest part of Pavant Range at 1:250,000 scale.

McDowell, F. W., 1971, K-Ar ages of igneous rocks from the western United States: Isochron/West, no. 2, p. 1-16.

Gives the K-Ar ages and mineral compositions of certain igneous rocks in the western United States, including two samples taken near Marysvale, Utah.

McKelvey, G. E., 1973, Geology of the Imperial Mine area, San Francisco Mountains, Beaver County, Utah, in Hintze, L. F., and Whelan, J. A., eds., Geology of the Milford area 1973: Utah Geol. Assoc. Pub. 3, p. 57-62.

Describes the stratigraphy, structure and mineralization of the Imperial Mine area, near the southern end of the San Francisco Mountains, Utah. The mine was developed in a skarn zone adjacent to an intrusive, and some copper has been produced.

McKinney, D. B., 1978, Annotated bibliography of the geology of Roosevelt Hot Springs Known Geothermal Resource Area and the adjacent Mineral Mountains, March 1978: University of Utah Research Institute, Earth Science Laboratory Rept., DOE contract EG-78-C-07-1701.

Not annotated.

McKnight, E. T., 1933, Mesothermal silver-lead-zinc deposits, in Finch, J. W., and others, eds., Ore deposits of the western states (Lindgren Volume): New York, Am. Inst. Mining and Met. Eng., p. 582-602.

Mention is made of the San Francisco district, Utah. The ore deposits replace limestone along fissures of differing trend and dip. Copper-gold veins in the quartz monzonite intrusion are associated with the lead-silver-zinc deposits in the limestones.

McLaughlin, D. H., 1933, Hypothermal deposits, in Finch, J. W., and others, eds., Ore deposits of the western states (Lindgren Volume): New York, Am. Inst. Mining and Met. Eng., p. 557-569.

Copper-tourmaline ore is said to occur in a large pipelike body at the Cactus Mine in the San Francisco district, Utah. The ore occurs within a monzonite stock which intrudes Paleozoic sediments and Tertiary volcanics. Pyrite, chalcopyrite, and hematite are the major metallic minerals present. Deposition at high temperature is clearly indicated by tourmaline and specularite.

Mehnert, H. H., Rowley, P. D., and Lipman, P. W., 1978, K-Ar ages and geothermal implications of young rhyolites in west-central Utah: Isochron/West, no. 21, p. 3-7.

Gives K-Ar ages for rhyolites in the Mineral Mountains, Black Rock Desert, and in southern Beaver County, Utah. Young rhyolites in the Mineral Mountains and Black Rock Desert are potential indicators of magma-heated geothermal systems.

Meinzer, O. E., 1911, Ground water in Juab, Millard, and Iron Counties, Utah: U.S. Geol. Survey Water-Supply Paper 277, 162 p.

A report on the quantity, quality, and location of important sources of ground water in the valleys and mountains of Juab, Millard, and Iron Counties, Utah. Brief comments on the physiography and geology of the main valleys and adjacent mountains are included.

Miller, G. M., 1958, Regional thrust relations in the Wah Wah Mountains, southwest Utah [abs.]: Geol. Soc. America Bull., v. 69, p. 1696.

Describes two large thrusts that are present in the southern portion of the Wah Wah Mountains, southwest Utah. The lower thrust is clearly post-Jurassic and may belong with the frontal Laramide thrusts developed at the eastern border of the Great Basin. The upper thrust is a westward extension of the Frisco thrust and is interpreted as a frontal breakthrough of the decollement in the northern Snake Range.

______1963, Outline of structural-stratigraphic units of the Wah Wah Mountains, southwest Utah, in Guidebook to the geology of southwestern Utah: Intermtn. Assoc. Petrol. Geologists, 12th Ann. Field Conf., Salt Lake City, Utah, p. 96-102.

Describes the structure and stratigraphy of a portion of the Wah Wah Mountains, Utah. The Wah Wah and Blue Mountain thrust plates and their relationship to the local Mesozoic rocks are discussed.

______1966, Structure and stratigraphy of southern part of Wah Wah Mountains, southwest Utah: Am. Assoc. Petroleum Geol., Bull., v. 50, p. 858-900.

Describes the stratigraphy and structure of a portion of the southern Wah Wah Mountains, Utah. Regional correlations are developed for major structural features, such as the large thrust plates. Includes a planimetric, black and white geologic map of the southern portion of Wah Wah Range, 1:125,000.

Miller, W. R., McHugh, J. B., and Ficklin, W. H., 1979, Possible uranium mineralization, Mineral Mountains, Utah: U.S. Geol. Survey Open-File Report 79-1354, 35 p.

Interpretation of simple plots of uranium concentrations and the results of a Q-mode factor analysis for 30 water samples and 29 stream-sediment samples indicate that potential exists for uranium mineral deposits within the Mineral Mountains. The most favorable areas are in the granitic pluton near its contacts with sedimentary and metamorphic rocks. The most likely source of uranium anomalies is uraninite-bearing epigenic veins along faults and fractures within the pluton.

Molloy, M. W., and Kerr, P. F., 1962, Tushar uranium area, Marysvale, Utah: Geol. Soc. Amer. Bull., v. 73, p. 211-236.

Mines produce uranium ore from deposits genetically related to the tuff and rhyolite. Quartz monzonite intrusives and associated ore bodies lie along a major east-west zone of weakness which passes through Marysvale. Uranium mineralization and related alteration have formed fissure veins along these younger fault trends.

Mount, Priscilla, 1969, Sulfur, in Mineral and water resources of Utah: Utah Geol. and Min. Survey Bull. 73, p. 228-232.

A report on the occurrence and production of sulfur in Utah, including the deposits at Cove Creek-Sulphurdale, 20 miles north of Beaver, Utah. Native sulfur is also found at the south end of the Wah Wah Valley, Beaver County, and at a location 11 miles northwest of Lund, Iron County, Utah.

Mower, R. W., 1963, Selected hydrologic data, Pavant Valley, Millard County, Utah: Utah State Eng., Basic-Data Rept. 5, 20 p.

Records of selected wells and springs, selected drillers logs of wells, and chemical analysis of ground and surface waters in the Pavant Valley, Millard County, Utah.

______1965, Ground-water resources of Pavant Valley, Utah: U.S. Geol. Survey Water-Supply Paper 1794, 78 p.

Describes the geography, general geology, water resources, and chemical quality of the water of the Pavant Valley in southeastern Millard County, Utah. The geologic history and water-bearing properties of the geologic formations are described.

Mower, R. W., and Cordova, R. M., 1973, Ground-water in the Milford area, Utah, in Hintze, L. F., and Whelan, J. A., eds., Geology of the Milford area 1973: Utah Geol. Assoc. Pub. 3, p. 63-71.

Describes the ground-water reservoir in the alluvium of the desert valley in which the towns of Milford and Minersvile, Utah, are located. Recent heavy pumping for irrigation has decreased water levels by as much as 30 feet near Milford, resulting in fracturing and subsidence of the land surface.

Mundorff, J. C., 1970, Major thermal springs of Utah: Utah Geol. and Min. Survey, Water-Resources Bull. 13, 60 p.

A description of the major thermal springs of Utah, including their possible heat source, percentage dissolved solids, and geothermal resource potential. Thermo, Roosevelt, Radium, and the Monroe area thermal springs are included.

Myerson, B. L., 1958, Diamond drilling report, Marysvale area, Piute County, Utah: U.S. Atomic Energy Comm. RME-2065, Tech. Inf. Service, Oak Ridge, Tenn., 34 p.

The U.S. Atomic Energy Commission conducted a diamond drilling project in the Marysvale area in which 27 exploration holes were drilled to a total depth of 9,943 feet. Of the 27 holes drilled, 9 penetrated mineralized material, and 4 penetrated ore-grade material. Lenticular bodies of ore occur as disseminations in altered basal glassy welded fragmented tuffs of the Mount Belknap Rhyolite in the vicinity of hydrothermal veins in the "central area." These bodies indicate a possibility for future discoveries, whereas occurrences of secondary minerals in altered rocks of the Bullion Canyon Volcanic Series, though numerous, appear to offer little hope as potential producers. The same appears true of fissures in the intrusive outside of the immediate central producing area.

Nackowski, M. P., and Levy, Enrique, Mineral resources of the Delta-Milford area: Utah Eng. Experiment Station Bull. no. 101, 112 p.

A summary of the mineral resources, recent mineral production, and future mineral economic potential of the area near Milford, Utah. Economic and geologic data are presented for each mineral commodity that has been produced in the recent past or that has significant future economic possibilities.

Nairn, A. E. M., Rowley, P. D., and Anderson, J. J., 1975, Paleomagnetism of selected Tertiary volcanic units, southwestern Utah, in Anderson, J. J., Rowley, P. D., Fleck, R. J., and Nairn, A. E. M., Cenozoic geology of southwestern High Plateaus of Utah: Geol. Soc. America Spec. Paper 160, p. 63-88.

Discusses the use of paleomagnetism in understanding the correlation of certain ash-flow tuff rock units of the Tushar Mountains and adjoining High Plateaus with those in nearby areas of the Basin and Range Province.

Nash, W. P., 1976, Petrology of Quaternary volcanics of the Roosevelt KGRA, and adjoining area, Utah: Univ. Utah Publications Board Rept. 261 549/OST, 102 p.

Not annotated.

Nash, W. P., and Smith, R. P., 1977, Pleistocene volcanic ash deposits in Utah: Utah Geology, v. 4, no. 1, p. 35-42.

Describes the occurrence, chemistry, and age relationships of Pleistocene volcanic ashes in Utah. Volcanic tuffs in the Mineral Mountains near Milford, Utah, are included and analyzed.

Nathenson, Manuel, and Muffler, L. J. P., 1975, Geothermal resources in hydrothermal convection systems and conduction-dominated areas, in White, D. E., and Williams, D. L., eds., Assessment of geothermal resources of the United States, 1975: U.S. Geol. Survey Circ. 726, 155 p.

Estimates the potential electric energy from identified high-temperature hydrothermal convection systems, including Roosevelt, Cove Fort, Sulphurdale, and Monroe thermal springs, in the Richfield-Milford area, Utah.

Nielson, D. L., 1978, Radon emanometry as a geothermal exploration technique; theory and an example from Roosevelt Hot Springs KGRA, Utah: Univ. Utah Research Inst. Earth Science Laboratory Rept. no. 14, DOE/DGE contract EG-78-C-07-1701, Salt Lake City.

Not annotated.

Nielson, D. L., Sibbellt, B. S., McKinney, D. B., Hyulen, J. B., Moore, J. N.,and Samberg, S. M., 1978, Geology of Roosevelt Hot Springs KGRA, Beaver County, Utah: Univ. Utah Research Inst., Earth Science Lab. Rept. 12, 120 p.

Not annotated.

Nolan, T. B., 1933, Epithermal precious-metal deposits, in Finch, J. W., and others, eds., Ore deposits of the western states (Lindgren Volume): New York, Am. Inst. Mining and Met. Eng., p. 623-640.

The Gold Mountain district of Piute and Sevier Counties, Utah, is mentioned. Ore veins are found in volcanic rocks that are locally silicified and sericitized. Native gold, argentite, pyrite, tetrahedrite and a silver mineral are the metallic minerals found in the district. The Ohio-Mount Baldy, Newton, Jarloose, and Fortuna districts in Piute and Beaver Counties are said to have small production.

______ 1943, The Basin and Range Province in Utah, Nevada, and California: U.S. Geol. Survey Prof. Paper 197-D, p. 141-196.

Summarizes the geologic history and stratigraphic relationships common to the Basin and Range Province including western Millard, Beaver and Iron Counties, Utah. A regional interpretation of the structural features and mineral occurrences in this area is included.

Olson, J. C., and Adams, J. W., 1962, Thorium and rare earths in the United States: U.S. Geol. Survey Mineral Inv. Resource Map MR-28.

Not annotated.

Park, G. M., 1968, Some geochemical and geochronologic studies of the beryllium deposits in western Utah: Salt Lake City, Univ. of Utah, unpub. M.S. thesis, 105 p.

Describes the geology and mineralization associated with several beryllium deposits in western Utah, including one deposit in the Mineral Mountains, Beaver County, Utah. The geochemistry and absolute ages of the deposits are discussed.

Parker, R. L., 1954, Alunitic alteration at Marysvale, Utah: U.S. Geol. Survey, Open-File Report 276.

Not annotated.

______1969, Alunite, in Mineral and water resources of Utah: Utah Geol. and Min. Survey Bull. 73, p. 151-154.

A report on the occurrence and production of alunite in Utah, including vein and replacement deposits near Marysvale, Piute County, Utah. Similar deposits of alunite are also found in a widespread area of Beaver County, Utah.

Parkinson, Gerald, 1974, Golden pilot plant points way to 500,000-tpy alumina-from-alunite mine and plant in Utah: Eng. and Mining Jour., v. 175, no. 8, p. 75-78.

A report on the technology being tested to process alumina from alunite by a company which has discovered a large deposit of alunite in the Wah Wah Mountains west of Milford, Utah. References to the future growth and development of other potential alunite ore deposits in the area are made.

Parry, W. T., 1978, Hydrothermal alteration at the Roosevelt Hot Springs thermal area, Utah--Part I. Mineralogy of the clay fraction from cuttings, Thermal Power Co. well Utah State 14-2. Part II--Chemical composition of rocks, Thermal Power Co. well Utah State 14-2, Dept. of Geology and Geophysics, University of Utah, DOE/DGE contract EG-78-C-07-1701.

Not annotated.

Parry, W. T., and Nackowski, M. P. 1963, Copper, lead, and zinc in biotites from Basin and Range quartz monzonites: Econ. Geol., v. 58, p. 1126-1144.

A spectrochemical analysis of biotite from monzonite stocks, including samples from the San Francisco mining district and the Mineral Range stock near Milford, Utah. Trace contents of copper, lead, and zinc in the biotite are shown to correlate with the past production of these metals in the mining district.

Parry, W. T., Benson, N, and Miller, C. D., 1976, Geochemistry and hydrothermal alteration at selected Utah hot springs, v. 3: National Technical Information Service Report 264-415/1, 141 p.

Not annotated.

Petersen, C. A., 1973, Roosevelt and Thermo Hot Springs, Beaver County, Utah, in Hintze, L. F., and Whelan, J. A., eds., Geology of the Milford area 1973: Utah Geol. Assoc. Pub. 3, p. 73-74.

A brief description of the temperature, dissolved solids content, and surface features of the Roosevelt and Thermo Hot Springs, near Milford, Utah.

______1974, Summary of stratigraphy in the Mineral Range, Beaver and Millard Counties, Utah: Utah Geology, v. 1, no. 1, p. 45-50.

A brief description of the Precambrian to Quaternary age metamorphic and sedimentary rock units and the Tertiary igneous rocks of the Mineral Range, Utah.

______1975a, Geology and geothermal potential of the Roosevelt Hot Springs area, Beaver County, Utah [M.S. thesis]: Salt Lake City, Univ. of Utah, 50 p.

Not annotated.

______1975b, Geology of the Roosevelt Hot Springs area, Beaver County, Utah: Utah Geology, v. 2, p. 109-116.

A study of the stratigraphy, structure, and geomorphology of the Roosevelt Hot Springs area near the Mineral Mountains, Utah. Also investigates the temperature and mineral content of the hot springs and the feasibility of their being used as a source of geothermal energy. Includes a black and white geologic map of the Roosevelt area on a topographic base at 1:24,0000 scale.

Peterson, D. L., 1972, Complete Bouguer gravity anomaly map of parts of Beaver, Iron, and Millard Counties, southwestern Utah: U.S. Geol. Survey Open-File Report.

Not annotated.

Proctor, P. D., 1943, Geology of the Bully Boy Mine, Piute County, Utah: Ithaca, Cornell Univ., unpub. M.S. thesis, 26 p.

Not annotated.

Pushkar, Paul, and Condie, K. C., 1973, Origin of the Quaternary basalts from the Black Rock Desert region, Utah: strontium isotopic evidence: Geol. Soc. America Bull., v. 84, p. 1053-1058.

A discussion of the chemical variation in some basalt flows near Fillmore, Utah, as evidenced by variations in strontium isotopic ratios. Mixing of magmas and different differentiation-assimilation histories are used to explain some of this variation.

Radtke, A. S., Taylor, C. M., and Frost, J. E., 1967, Bismuth and tin minerals in gold- and silver-bearing sulfide ores, Ohio mining district, Marysvale, Utah: U.S. Geol. Survey Prof. Paper 575-D, p. D127-D130.

Describes the ore mineralogy and chemistry associated with abnormally large amounts of bismuth, copper, and tin minerals in the ore of the Tunnel Extension Number Two Mine, in the Tushar Mountains near Marysvale, Utah.

Reiser, A. R., 1934, Occurrence, paragenesis, and microscopic features of certain ores of the San Francisco mining district, Utah: Salt Lake City, Univ. of Utah, unpub. M.S. thesis, 59 p.

Not annotated.

Renner, J. L., White, D. E., and Williams, D. L., 1975, Hydrothermal convection systems, in White, D. E., and Williams, D. L., eds., Assessment of geothermal resources of the United States, 1975: U.S. Geol. Survey Circ. 726, p. 5-57.

A report on the characteristics, distribution, and geothermal potential of hydrothermal convection systems. Roosevelt, Thermo, Cove Fort-Sulphurdale, Meadow, Monroe, and Joseph thermal springs, located in the Richfield-Milford area, Utah, are listed and have their significant characteristics summarized.

Richards, Arthur, and Brooke, J. E., 1961, Geology of the southern Wah Wah Mountains, Utah: Southern Methodist University Geology Dept., unpublished map.

Not annotated.

Richardson, G. B., 1907, Underground water in Sanpete and central Sevier Valleys, Utah: U.S. Geol. Survey Water-Supply and Irrigation Paper 199, 63 p.

Describes the occurrence and use of ground water in Sanpete Valley and that portion of Sevier Valley in which are located Richfield and Monroe, Utah. A brief overview of the geology of the valleys and adjacent foothills is included. Includes a color reconnaissance geologic map of the Sanpete and central Sevier Valleys on a topographic base at 1:250,000 scale.

Ritzma, H. R., 1972, Six Utah "hingeline" wells, in Baer, J. L., and Callaghan, Eugene, eds., Plateau-Basin and Range transition zone, central Utah, 1972: Utah Geol. Assoc. Pub. 2, p. 75-80.

Discusses six wells drilled in central Utah and provides stratigraphic section for each. The Antimony Canyon unit, just west of Antimony, Utah, is 7925 in depth and passes through rock units of Cenozoic, Mesozoic, and Paleozoic age.

Rodriquez, E. L., 1960, Economic geology of the sulfur deposits at Sulfurdale, Utah: Salt Lake City, Univ. of Utah, unpub. M.S. thesis, 74 p.

Describes the stratigraphy, structure, and mineralogy of the Sulphurdale area, located about 15 miles north of Beaver, Utah. The distribution, size, and grade of the sulphur deposits are described and hypotheses as to the origin and depositional controls proposed. Includes planimetric, black and white, geologic map of the Sulphurdale area at 1:18,000 scale.

Ross, C. P., 1933, Quicksilver deposits, in Finch, J. W., and others, eds., Ore deposits of the western states (Lindgren Volume): New York, Am. Inst. Mining and Met. Eng., p. 652-658.

Mention is made of the formerly productive deposits of quicksilver in the Marysvale district, Utah. The deposits are of Tertiary age, of probable epithermal origin, and are in the form of onofrite and tiemannite, with cinnabar, barite, quartz, and calcite in shaley limestone.

Rowley, P. D., 1968, Geology of the southern Sevier Plateau, Utah: Austin, Univ. of Texas, unpub. Ph.D. thesis, 385 p.

A comprehensive description of the geology of the southern Sevier Plateau area of Utah. The stratigraphy, structure, geomorphology, economic geology, and geochronology of the area are presented with reference to the region as a whole. Includes a planimetric, black and white geologic map of the southern Sevier Plateau at 1:62,500 scale.

______1970, Geologic evolution of the southern Sevier Plateau, Utah: Geol. Soc. America Abs. with Programs, v. 2, no. 5, p. 347-348.

Discusses the geologic evolution of the Sevier Plateau, an eastward-tilted fault block in the Colorado Plateau-Great Basin transition zone of south-central Utah.

______1972, Cenozoic history of the Black Mountains, southwestern Utah: Geol. Soc. America Abs. with Programs, v. 4, no. 6, p. 405.

Discusses the Cenozoic evolution of the Black Mountains, southwest of Beaver, Utah.

______1977, Preliminary geology of the Thermo 15-minute Quadrangle, Beaver and Iron Counties, Utah: U.S. Geol. Survey Open-File Report 77-508, scale 1:62,500.

A black and white gologic map on a topographic base.

______1977, Geologic map of the Thermo 15-min quadrangle, Beaver and Iron Counties, Utah: U.S. Geol. Survey Geol. Quad. Map GQ-1493, scale 1:62,500.

Not annotated.

Rowley, P. D., and Anderson, J. J., 1972, Cenozoic normal fault structures of the southwestern High Plateaus and adjacent Great Basin, Utah: Geol. Soc. America Abs. with Programs, v. 4, no. 6, p. 406.

Discusses the role of high-angle normal faulting in the understanding of structural deformation near the Colorado Plateau-Basin and Range transition zone in south-central Utah. Structural features in the Marysvale area, adjacent High Plateaus, and Great Basin mountain ranges are mentioned.

______1975, Guidebook to the Cenozoic structural and volcanic evolution of the southern Marysvale volcanic center, Iron Springs mining district and adjacent areas, southwestern Utah: Geol. Soc. America Ann. Mtg., Salt Lake City, Utah, 1975, Kent, Ohio, Dept. Geology, 37 p.

A description of the volcanic rock units of the Tushar Mountains and adjacent High Plateaus, Utah. The stratigraphy and structural features of the associated sedimentary and metamorphic rock units are described.

Rowley, P. D., and Lipman, P. W., 1975, Geologic setting of the Thermo KGRA (Known Geothermal Resource Area), Beaver County, Utah: Geol. Soc. America Abs. with Programs, v. 7, no. 7, p. 1254.

Discusses the geology of Thermo Hot Springs and the Black Mountains area and their relationship to the structure and stratigraphy of the surrounding region. The relationship of local structure to the existence of geothermal energy explained.

Rowley, P. D., Anderson, J. J., and Williams, P. L., 1975, A summary of Tertiary volcanic stratigraphy of the southwestern High Plateaus and adjacent Great Basin, Utah: U.S. Geological Survey Bull. 1405-B, 20 p.

A revision of the stratigraphic nomenclature associated with the Marysvale volcanic field and surrounding High Plateaus and Great Basin regions. The stratigraphy of all rock units included is reviewed.

Rowley, P. D., Anderson, J. J., Williams, P. L., and Fleck, R. J., 1978, Age of structural differentiation between the Colorado Plateaus and Basin and Range Provinces in southwestern Utah: Geology, v. 6, p. 51-55.

A discussion of how the distribution of Tertiary regional ash-flow tuffs indicates that the Colorado Plateaus and Basin and Range Provinces in southwestern Utah became separate structural terrains some time after 29 million years ago.

______1978, Age of structural differentiation between the Colorado Plateaus and Basin and Range Provinces in southwestern Utah--Reply: Geology, v. 6, p. 572-575.

Not annotated.

Rowley, P. D., Lipman, P. W., Mehnert, H. H., Lindsey, D. A., and Anderson, J. J., 1978, Blue Ribbon lineament, an east-trending structural zone within the Pioche mineral belt of southwestern Utah and eastern Nevada: U.S. Geol. Survey Jour. Research, v. 6, no. 2, p. 175-192.

Discusses the structural significance of the Blue Ribbon lineament that extends across southwestern Utah from the Nevada line to the Sevier Plateau at about 38° N. latitude. Discusses relationships between the Blue Ribbon lineament, believed to be a deep crustal fault zone, and the mineralization found along its margin.

Rush, R. W., 1951, Stratigraphy of the Burbank Hills--western Millard County, Utah: Utah Geol. and Min. Survey Bull. 38, 24 p.

Examination of the stratigraphic sequence found in the Burbank Hills area of western Millard County, Utah. Paleozoic sedimentary and Tertiary igneous rocks are summarized.

Rush, R. W., 1956, Silurian rocks of western Millard County, Utah: Utah Geol. and Min. Survey Bull. 53, 66 p.

A description of more than 1,000 feet of Silurian dolomitic strata, 650 feet of which are asphaltic, outcropping in the Burbank Hills-Confusion Range area of western Millard County, Utah. Paleontological evidence supports the establishment of a definite Ordovician-Silurian boundary and subdivision of the Silurian strata into three lithic units in this area.

Sainsbury, C. L., 1962, Helvite near Beaver, Utah: Am. Mineralogist, v. 47, p. 395-398.

A report on the discovery of helvite in association with beryl at the Miller Mine in the Mineral Range near Beaver, Utah. It is suggested that further investigation into the beryllium potential of the area should be made.

Sandberg, G. W., 1963, Ground-water data, Beaver, Escalante, Cedar City, and Parowan Valleys, parts of Washington, Iron, Beaver, Millard Counties, Utah: Utah State Eng., Basic-Data Report 6, 26 p.

Records of selected wells and springs, selected driller's logs of wells, and chemical analysis of ground and surface waters in, among other locations, the Beaver Valley area of Beaver and Millard Counties, Utah.

Sanders, D. T., 1962, The mineral resources of the Sevier River drainage, central Utah: Logan, Utah State Univ., unpub. M.S. thesis.

Not annotated.

Sbar, M. L., Barazangi, Muawia, Dorman, James, Scholz, C. H., and Smith, R. B., 1972, Tectonics of the Intermountain seismic belt, western United States: microearthquake seismicity and composite fault plane solutions: Geol. Soc. America Bull., v. 83, p. 13-20.

Discusses the seismicity of the earthquake belt along the eastern physiographic boundary of the Basin and Range Province. The Marysvale area was found to be one of the most seismically active areas in Utah during the study. Most activity was found to lie on the west side of the graben along the Tushar Fault zone. A description of the composite fault plane solution of the activity is given.

Schaeffer, O. A., Stoenner, R. W., and Bassett, W. A., 1961, Dating of Tertiary volcanic rocks by the potassium-argon method, in Geochronology of rock systems: New York Acad. Sci. Annals, v. 91, art. 2, p. 317-320.

Discusses the use of the K-Ar method for dating Tertiary volcanic rocks. Examples of dated specimens in this paper came from the Marysvale, Utah, area.

Schmoker, J. W., 1972, Analysis of gravity and aeromagnetic data, San Francisco Mountains and vicinity, southwestern Utah: Utah Geol. and Min. Survey Bull. 98, 24 p.

Interprets aeromagnetic and gravity data taken in the San Francisco Mountains and vicinity, Utah. Both forms of data indicatre a buried Tertiary pluton with a deep seated east-west fault zone bounding the pluton on the north running in a line connecting the north edge of the Beaver Lake Mountains with the Wah Wah Pass area.

______1974, Detailed magnetic surveys in the Star Range, Beaver County, Utah: Utah Geology, v. 1, no. 1, p. 51-69.

Vertical-field ground magnetic data that were obtained in four areas of the Star Range are interpreted in terms of causative geologic structures.

Schneider, M. C., 1964, Geology of the Pavant Mountains west of Richfield, Sevier County, Utah: Brigham Young Univ. Geology Studies, v. 11, p. 129-139.

Describes the stratigraphy and structure of a 36-square-mile portion of the Pavant Range west of Richfield, Utah. Disagreements over structure and stratigraphy in the area by earlier investigations are discussed and an alternate interpretation is proposed. Includes a planimetric, black and white geologic map of the Pavant Mountains west of Richfield at 1:36,000 scale.

______1967, Early Tertiary sediments of central and south-central Utah: Brigham Young Univ. Geology series, v. 14, p. 143-194.

Correlations are made of lower Tertiary rock formations between the Pavant Range and the Markagunt-Paunsagunt Plateau area of south-central Utah. The two areas are separated by 80 miles of Tertiary volcanics in the Marysvale, Utah area.

Shawe, D. R., and Stewart, J. H., 1976, Ore deposits as related to tectonics and magmatism--Nevada and Utah: Trans. Soc. Mining Eng., Am. Inst. of Mining Engineers, v. 260, no. 3, p. 225-232.

Discusses the relationship of mineral belts in Nevada and western Utah to possible tectonic and igneous controlling mechanisms. The Wah Wah-Tushar (Pioche) mineral belt of Beaver and Piute Counties, Utah, is discussed with Tertiary igneous intrusive activity mentioned as one of the major controlling mechanisms for this mineral belt.

Shawe, D. R., Rowley, P. D., Heyl, A. V., and Poole, F. G., 1978, Road log of field excursion C-2 route, August 21-25, 1978, southwestern Utah, in Shawe, D. R., and Rowley, P. D., eds., Internat. Assoc. Genesis of Ore Deposits Field Excursion C-2, Guidebook to mineral deposits of southwestern Utah: Utah Geol. Assoc. Pub. 7, p. 9-34.

Not annotated.

Shuey, R. T., Schellinger, D. K., Johnson, E. H., and Alley, L. B., 1973, Aeromagnetics and the transition between the Colorado Plateau and Basin and Range Provinces: Geology, v. 1, no. 3, p. 107-110.

Discusses the proposal that the major lateral change between Basin Range and Colorado Plateau crustal geophysical parameters occurs some 50 to 100 km farther east in Utah than the physiographic boundary.

Shuey, R. T., Caskey, C. F., and Best, M. G., 1976, Distribution and paleomagnetism of the Needles Range Formation, Utah and Nevada: Am. Jour. Science, v. 276, p. 954-968.

A discussion of the distribution of the three regional members of the Needles Range Formation in Beaver and Millard Counties, Utah. Stratigraphic relations of the formation to associated rocks and analysis of paleomagnetic data are developed.

Sill, W. R., and Bodell, J., 1977, Thermal gradients and heat flow at Roosevelt Hot Springs: Dept of Geology and Geophysics, Univ. Utah, Technical Report 77-3, ERDA contract EY-76-S-07-1601.

Sill, W. R., and others, 1965, Electrical and geochemical models of the near-surface zone at Roosevelt Hot Springs KGRA, Utah [abs.]: Soc. Explor. Geophys. Ann. Int. Mtg., Abs. no. 46, p. 95-96.

Not annotated.

Smith, J. L., Isselhardt, C. F., and Matlick, J. S., 1977, Summary of the 1976 geothermal drilling, western United States: Geotherm. Energy, v. 5, no. 5, p. 8-17.

Not annotated.

Smith, R. B., and Sbar, M. L., 1974, Contemporary tectonics and seismicity of the western United States with emphasis on the Intermountain seismic belt: Geol. Soc. America Bull., v. 85, p. 1205-1218.

A discussion of the Intermountain seismic belt, a north-trending zone of seismicity in the western United States, interpreted as a boundary between subplates of the North American plate. The seismic activity closely follows the Basin and Range-Colorado Plateau transition zone in south-central Utah.

Smith, R. L., and Shaw, H. R., 1975, Igneous-related geothermal systems, in White, D. F., and Williams, D. L., eds., Assessment of geothermal resources of the United States, 1975: U.S. Geol. Survey Circ. 726, p. 58-83.

A report on the distribution and geothermal potential of igneous-related geothermal systems. The magnitudes and heat contents are summarized for the Mineral Mountains, Cove Creek Domes, White Mountain, and Tushar Mountains in the Millard-Beaver-Piute County area, Utah, which are identified volcanic systems with possible geothermal significance.

Snyder, C. T., Hardman, George, and Zdenek, F. F., 1964, Pleistocene lakes in the Great Basin: U.S. Geol. Survey Misc. Geol. Inv. Map I-416, scale 1:1,000,000.

Map showing distribution of Pleistocene lakes in Utah and surrounding areas.

Sontag, R. J., 1965, Regional gravity survey of parts of Beaver, Millard, Piute, and Sevier Counties, Utah: Salt Lake City, Univ. of Utah, unpub. M.S. thesis, 30 p.

Not annotated.

Spieker, E. M., 1954, Structural history, in Geology of portions of the High Plateaus and adjacent Canyon Lands, central and south-central Utah: Intermtn. Assoc. Petrol. Geologists Guidebook, 5th Ann. Field Conf., p. 9-14.

Mainly discusses the structural history of the Colorado Plateau, but comments on the Pavant Range and the age of faulting associated with the High Plateaus may be significant.

Stearns, N. D., Stearns, H. T., and Waring, G. A., 1937, Thermal springs in the United States: U.S. Geol. Survey Water-Supply Paper 679-B, p. 59-191.

Discusses the geologic aspects of thermal springs, such as source of heat, sources of water, and relation of thermal springs to geologic structure. Provides a list of known thermal springs and basic data on each, such as location and temperature, including many in the Sevier, Millard, and Beaver County area of Utah.

Steele, Grant, 1960, Pennsylvanian-Permian stratigraphy, central Nevada and adjacent Utah: Intermtn. Assoc. Petroleum Geol. Guidebook, 11th Ann. Field Conf.

Not annotated.

Steinhauser, S. R., and Myerson, B. L., 1955, Underground exploration of the Quartzite Cap claims, Yellow Jacket Arch, Marysvale, Utah: U.S. Atomic Energy Comm. RME-2038, Tech. Inf. Service, Oak Ridge, Tenn., 7 p.

Exploration at the Quartzite Cap claim was undertaken to search for the downward projection of an outcrop containing uranium minerals in altered tuffs of the Tertiary Bullion Canyon volcanic series. No uranium minerals were encountered at depth along the fractures and joints.

Stephens, J. C., 1974, Hydrologic reconnaissance of the Wah Wah Valley drainage basin, Millard and Beaver Counties, Utah: Utah Dept. of Nat. Resources, Tech. Pub. 47, 45 p.

A report on the water resources and their development potential in the Wah Wah Valley of Beaver and Millard Counties, Utah. The water-bearing characteristics of the rock types in the drainage basin and chemical quality and temperature of the water in the valley are some subjects examined. Includes colored hydrogeologic and geologic maps and sections of the Wah Wah Valley drainage basin on topographic base at 1:250,000 scale.

_____1976, Hydrologic reconnaissance of the Pine Valley drainage basin, Millard, Beaver, and Iron Counties, Utah: Utah Dept. of Nat. Resources, Tech. Pub. 51, 31 p.

A report on the water resources and their development potential in the Pine Valley of western Beaver, Millard, and Iron Counties, Utah. The geology, physiography, surface and ground water conditions, and chemical quality of the water are some subjects examined. Includes colored hydrogeologic and geologic maps of Pine Valley drainage basin on topographic base at 1:250,000 scale.

Steven, T. A., 1978, Geologic map of the Sevier SW Quadrangle, west-central Utah: U.S. Geol. Survey Misc. Field Studies Map MF-962.

Not annotated.

Steven, T. A., Cunningham, C. G., Naeser, C. W., and Mehnert, H. H., 1977, Revised stratigraphy and radiometric ages of volcanic rocks and mineral deposits in the Marysvale area, west-central Utah: U.S. Geol. Survey Open-File Report 77-569, 77 p.

A comprehensive study of the stratigraphy of the Marysvale volcanic pile and associated rocks. Several significant changes in rock unit names and the known extent of these and other units through the use of radiometric age determinations and geochemical correlations are noted.

Steven, T. A., Cunningham, C. G., Naeser, C. W., Mehnert, H. H., and Ludwig, K. R., 1978, Multiple ages of mineralization in the Marysvale area, west-central Utah [abs.]: International Association on the Genesis of Ore Deposits, Symposium, 1978, Programs and Abstracts.

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Steven, T. A., Rowley, P. D., and Cunningham, C. G., 1978, Geology of the Marysvale volcanic field, west-central Utah; in Geological Society of America, 31st Annual Meeting, Rocky Mountain Section field trip guidebook: Brigham Young University Geology Studies, v. 25, p. 1, p. 67-70.

Not annotated.

Steven, T. A., Cunningham, C. G., and Rowley, P. D., 1978, Geology and mineralization in the Marysvale mining area, west-central Utah, in Guidebook to mineral deposits of southwestern Utah: Utah Geological Association Publication 7, p. 67-70.

Not annotated.

Steven, T. A., Rowley, P. D., Hintze, L. F., Best, M. G., Nelson, M. G., and Cunningham, C. G., 1978, Preliminary geologic map of the Richfield 1° x 2° Quadrangle, Utah: U.S. Geol. Survey Open-File Report 78-602, scale 1:250,000.

Not annotated.

Stewart, J. H., Moore, W. J., and Zietz, Isidore 1977, East-west patterns of Cenozoic igneous rocks, aeromagnetic anomalies, and mineral deposits, Nevada and Utah: Geol. Soc. America Bull., v. 88, p. 67-77.

Discusses the southward migrating, east-west oriented pattern of igneous activity in Nevada and western Utah during Cenozoic time. Examines the geochronological, aeromagnetic, and mineral deposit data available on the rock units involved.

Stokes, W. L., 1968, Relation of fault trends and mineralization, eastern Great Basin, Utah: Econ. Geology, v. 63, p. 751-759.

Not annotated.

______1972, Stratigraphic problems of the Triassic and Jurassic sedimentary rocks of central Utah, in Baer, J. L., and Callaghan, Eugene, eds., Plateau-Basin and Range transition zone, central Utah, 1972: Utah Geol. Assoc. Pub. 2, p. 21-28.

Triassic and Jurassic rocks that outcrop near Marysvale, Utah, and in the Pavant Range are mentioned in this report on the Triassic and Jurassic rocks of central Utah. A stratigraphic column of surface outcrops near the Deer Trail Mine, Tushar Mountains, Utah, is included.

______1977, Subdivisions of the major physiographic provinces in Utah: Utah Geology, v. 4, no. 1, p. 1-17.

Discusses geomorphologic and geophysical evidence that exists favorable to the establishment of a separate physiographic subprovince for the Basin and Range-Colorado Plateau transition area of central and south-central Utah.

Stokes, W. L., and Heylmun, E. B., 1963, Tectonic history of southwestern Utah, in Guidebook to the geology of southwestern Utah: Intermtn. Assoc. Petrol. Geologists, 12th Ann. Field Conf., Salt Lake City, Utah, p. 19-25.

Presents the tectonic history and present structure of southwestern Utah including Beaver and Piute Counties, Utah. Discusses the past regional influences responsible for present structural features.

Stowe, C. H., 1974, Utah's mineral activity--An operational and economic review: Utah Geol. and Min. Survey Bull. 105, 35 p.

A report on the mineral production of Utah, including 1964-1971 production summaries and commodity reports. Mining activity in Beaver and Piute Counties is mentioned.

Stowe, C. H., 1975, Utah mineral industry statistics through 1973: Utah Geol. and Min. Survey Bull. 106, 121 p.

Production statistics for Utah's mining industry, including the yearly production of copper, lead, zinc, gold, and silver by mining district for the years 1960 to 1972. Several mining districts in Beaver and Piute Counties are included.

Stringham, Bronson, 1963, Hydrothermal alteration in the southeast part of the Frisco Quadrangle, Beaver County, Utah: Utah Geol. and Min. Survey Spec. Studies 4, 21 p.

An investigation of an extensive east-west trending hydrothermally altered area involving ignimbrites fourteen miles south of the Horn Silver Mine. The alteration consists of weak to very strong development of fine-grained, massive, white alunite often intimately mixed with kaolinite followed by silicification. Includes planimetric, color and black and white, alteration geologic maps of the west and east White Mountain area and a geologic map of the Grover Wash area all at 1:8,000 scale.

______1964a, Hydrothermal alteration of ignimbrites, Beaver County, Utah [abs.]: Geol. Soc. America Spec. Paper 76, p. 294.

Describes a zone of hydrothermal alteration developed in the Needles Range, Isom, and Quichapa ignimbrite units in the Shauntie Hills area, southwest of Milford, Utah.

______1964b, Alteration area south of the Horn Silver Mine, Beaver County, Utah: Utah Geol. and Min. Survey Spec. Studies 9, 18 p.

An investigation of an area of intense alteration and mineralization of extrusive rocks in the southern part of the San Francisco Mountains. Alteration consists of irregular, elongated to equi-dimensional silicification, kaolinization, and a restricted development of alunite. Mineralization is confined to the development of pyrite which has been oxidized. Includes a planimetric, black and white geologic map of the alteration area south of the Horn Silver Mine at 1:6,000 scale.

______1967, Hydrothermal alteration near the Horn Silver Mine, Beaver County, Utah: Utah Geol. and Min. Survey Spec. Studies 16, 35 p.

The study of rock alteration in the vicinity of the Horn Silver Mine is part of an investigation of alteration and mineral deposits in the Milford region designed to assist in the search for exploitable mineral deposits. A review of the stratigraphic sequence and stages of alteration reveals that barite may possibly be a guide to ore, but was not found elsewhere in the district. Includes a planimetric, black and white alteration geologic map of the Horn Silver Mine and vicinity at 1:8,000 scale.

Su, Bo-Chin, 1976, Fluid inclusion geothermometry of fluorite, Star Range, Utah: Salt Lake City, Univ. of Utah, unpub. M.S. thesis, 63 p.

Discusses the fluid inclusion studies that were made on fluorite from the southwestern portion of the Star Range, southwest of Milford, Utah. The overall results show the similarities that exist with other Cordilleran Province base-metal vein deposits.

Taylor, A. O., 1953, Wah Wah Mountains: U.S. Geol. Survey TEI-390, p. 214-215.

Geologic mapping in the Wah Wah Mountains disclosed a thrust fault involving Paleozoic rocks. Uranium-fluorite deposits occur at the contact between Paleozoic sedimentary rocks and rhyolite porphyry dikes and plugs injected along the lower plate of the thrust. The low-grade uranium occurrences were discovered about half a mile northeast of the Staats Mine. Samples assayed contained .027 to 0.30 percent U and .015 and .030 percent U respectively.

Taylor, A. O., 1959, Geologic map of the Wah Wah Range, Beaver County, Utah: U.S. Geol. Survey Open-File Report 65.

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Taylor, A. O., and Powers, J. F., 1953, Reconnaissance geologic map, Wah Wah Range, Beaver County, Utah: U.S. Geol. Survey Trace Elements Memorandum Report (Map on Open File).

Not annotated.

Taylor, A. O., and others, 1951, Geology and uranium deposits of Marysvale, Utah: U.S. Atomic Energy Comm. RMO-896, Tech. Inf. Service, Oak Ridge, Tenn.

Discusses the stratigraphy, alteration, and mineralization associated with the uranium deposits at Marysvale, Utah.

Thoenen, J. R., 1941, Alunite resources of the United States: U.S. Bureau Mines Report of Investigation 3561, 48 p.

A report on the genesis, deposit type and occurrence of alunite in the United States. Considerable emphasis is given the deposits in Piute and Beaver Counties, Utah. The numerous vein and replacement deposits are discussed according to the type of deposit, estimated reserves, and chemical composition of the alunite present.

Thomas, H. E., and Taylor, G. H ., 1946, Geology and groundwater resources of Cedar City and Parowan Valleys, Iron County, Utah: U.S. Geol. Survey Water-Supply Paper 993, 210 p.

Describes the stratigraphy and structure associated with the sources, condition, and uses of ground water in the Cedar City and Parowan Valleys. A portion of Parowan Valley extends above 38^{o} N. latitude in northeastern Iron County, Utah. Includes a planimetric, color geologic map of Cedar City and Parowan Valleys at 1:62,500 scale.

Thompson, G. A., and Burke, D. B., 1974, Regional geophysics of the Basin and Range Province: Ann. Review of Earth and Planetary Sciences, v. 2, p. 213-238.

Some geophysical anomalies of the Basin and Range Province are discussed. Regional crust and mantle structure, rate and direction of spreading, faulting, heat flow, and crustal temperature are examined for the province, in which all of western Utah is included.

Threet, R. L., 1956, Cenozoic volcanic rocks and structure of the northern Markagunt Plateau, Utah [abs.]: Geol. Soc. America Bull., v. 67, p. 1802.

Describes the volcanic stratigraphy and structure of the northern Markagunt Plateau, Iron and Garfield Counties, Utah. Regional correlation with the Bullion Canyon volcanic sequence of the Marysvale area, Utah, suggests an Eocene-Oligocene age for the igneous rock units.

______1963, Geology of the Parowan Gap area, Iron County, Utah, _in_ Guidebook to the geology of southwestern Utah: Intermtn. Assoc. Petrol. Geologists, 12th Ann. Field Conf., Salt Lake City, Utah, p. 136-145.

Describes the stratigraphy and structure of the Parowan Gap and Parowan Valley area of northeastern Iron County, Utah. A portion of Parowan Valley extends north of 38^{o} N. latitude south of Beaver, Utah. Includes a planimetric, black and white geologic map of the Red Hills area at 1:100,000 scale.

Thurston, W. R., Staatz, M. H., Cox, D. C., and others, 1954, Fluorspar deposits of Utah: U.S. Geol. Survey Bull. 1005, 53 p.

A study of the known fluorspar localities of Utah. Describes the geology of producing mines and various prospects and summarizes production and reserves as applicable to the Beaver County area.

Townsend, J. W., 1950, Investigation of the Vicksburg lead-zinc mine, Beaver County, Utah: U.S. Bur. Mines Report of Invest. 4642, 18 p.

A report on the Vicksburg Property in the Star Range in central Beaver County, Utah. Drilling of the rock units under and near the mine indicated a lack of mineralization and a large granodioritic intrusion near the surface throughout the area.

_____1953, Investigation of lead-zinc deposits at the Harrington-Hickory Mine, Beaver County, Utah: U.S. Bur. Mines Report Invest. 4953, 20 p.

Describes the stratigraphy, structure, and mineralization of the Harrington-Hickory Mine, Star Range southwest of Milford, Utah. A series of nearly parallel fissures that traverse the sediments have been the source of major production.

Umshler, D. B., 1975, Source of the Evan's Mound obsidian [M.S. thesis]: Socorro, New Mexico Inst. of Mining and Tech., 38 p.

Obsidian from the Evan's Mound archeological site near Cedar City, Utah, is traced to its source in Wild Horse Canyon in the Mineral Mountains, east of Milford, Utah. This proposal is based on a comparison of the physical characteristics and the content of selected elements in the obsidian from both sites.

U.S. Geological Survey Map GP-598, 1966, Aeromagnetic map of the San Francisco Mountains and vicinity, southwestern Utah: U.S. Geol. Survey, Geophysical Investigations Map GP-598, scale 62,500.

Not annotated.

Van Sant, J. N., 1964, Refractory-clay deposits of Utah: U.S. Bur. Mines Inf. Circ. 8213, 176 p.

A description of refractory clay occurrences in Utah, including a number of deposits in the Milford and Marysvale areas. Each deposit was sampled and tested to determine its characteristics and suitability for industrial use.

Walker, G. W., 1963, Age of uranium veins in the conterminous United States: U.S. Geol. Survey Prof. Paper 455.

Gives a compilation of existing age dates for veins including three from Marysvale, Utah: 9.8, 10.5, and 24(?) m.y. All are pitchblende ages.

Walker, G. W., and Osterwald, F. W., 1956, Relation of secondary uranium minerals to pitchblende-bearing veins of Marysvale, Piute County, Utah, in Page, L. R., Stocking, H. E., and Smith, H. B., comps., Contributions to the geology of uranium and thorium by the United States Geological Survey and Atomic Energy Commission for the United Nations International Conference on Peaceful Uses of Atomic Energy, Geneva, Switzerland, 1955: U.S. Geol. Survey Prof. Paper 300, p. 123-129 [1956].

Most commercial deposits of uranium are restricted to quartz-pyrite-adularia-fluorite-pitchblende veins. Many secondary minerals are found. The grade of secondary and primary ore is similar, and suggests essential formation of secondary minerals in place. Some "secondary" minerals may have formed hydrothermally.

Ward, S. H., and Sill, W. R., 1976, Dipole-dipole resistivity delineation of the near-surface zone at the Roosevelt HotSprings area: Dept. of Geology and Geophysics, Univ. Utah, Technical Report 76-1, ERDA contract EY-76-S-07-1601, 7 p.

Not annotated.

Ward, S. H., Parry, W. T., Nash, W. P., Sill, W. R., Cook, K. l., Smith, R. B., Chapman, D. S., Brown, F. H., Whelan, J. A., and Bowman, J. R., 1978, A summary of the geology, geochemistry, and geophysics of the Roosevelt Hot Springs thermal area, Utah: Geophysics, v. 43, no. 7, p. 1515-1542.

Not annotated.

Waring, G. A., 1965, Thermal springs of the United States and other countries of the world--a summary: U.S. Geol. Survey Prof. Paper 492, 383 p.

Roosevelt, Thermo, Radium, and Hatton thermal springs near Milford, Utah, are mentioned along with numerous thermal springs in the Monroe-Joseph area of the Sevier Valley.

Webb, G. W., 1956, Middle Ordovician detailed stratigraphic sections for western Utah and eastern Nevada: Utah Geol. and Min. Survey Bull. 57, 77 p.

Describes the stratigraphy, petrography, regional structural implications, and geologic history of five Middle Ordovician stratigraphic units. Three stratigraphic sections were measured in the Confusion Range-Crystal Peak area of western Millard County and one southwest of Kanosh in eastern Millard County, Utah.

______1958, Middle Ordovician stratigraphy in eastern Nevada and western Utah: Amer. Assoc. Petrol. Geol. Bull., v. 42, no. 10, p. 2335-2377.

Describes the Middle Ordovician stratigraphy of western Utah and eastern Nevada. Stratigraphic sections from the southern Confusion Range and Crystal Peak area of southwestern Millard County, Utah, are discussed.

Welsh, J. E., 1972, Upper Paleozoic stratigraphy Plateau-Basin and Range transition zone, central Utah, in Baer, J. L., and Callaghan, Eugene, eds., Plateau-Basin and Range transition zone, central Utah, 1972: Utah Geol. Assoc. Pub. 2, p. 13-20.

Rock units in the Star, Mineral, and Pavant Ranges and San Francisco and Tushar Mountains are described in this report on Mississippian through Permian rocks of central Utah. Thrust faulting in the Pavant Range, and mineral deposits in the Star and Mineral Ranges and the Deer Trail Mine area near Marysvale, Utah, are mentioned.

______1973a, Paleozoic and Mesozoic stratigraphy of the Milford area, Beaver County, Utah, in Hintze, L. F., and Whelan, J. A., eds., Geology of the Milford area 1973: Utah Geol. Assoc. Pub. 3, p. 9-12.

Examines the stratigraphy and regional correlation of the Paleozoic and Mesozoic rock units exposed in the San Francisco Mountains, Beaver Lake Mountains, Rocky Range, and Star Range, near Milford, Utah.

______1973b, Geology of the Beaver Lake Mountains, Beaver County, Utah, in Hintze, L. F., and Whelan, J. A., eds, Geology of the Milford area, 1973: Utah Geol. Assoc. Pub. 3, p. 49-53.

A summary of the stratigraphy and structure of the Beaver Lake Mountains, north of Milford, Utah. Includes a black and white gologic map of the Beaver Lake Mountains and Rocky Range on a topographic base at 1:62,500 scale.

Wender, L. E., 1976, Chemical and mineralogical evolution of the Cenozoic volcanics of the Marysvale, Utah, area: Salt Lake City, Univ. of Utah, unpub. M.S. thesis, 57 p.

Discusses the mineralogic composition and petrologic nature of the volcanic rocks in and around the Tushar-Marysvale area of Utah. A possible sequence of petrogenetic events outlined.

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

Describes two adjacent areas of hydrothermal alteration and mineralization about 45 miles southwest of Milford, Utah. The Staats Mine and Blawn Mountain area, both having a rhyolitic porphyry intrusive, are characterized by fluorite, uranium, kaolinite, alunite, and some iron mineralization. The report lists recommendations for prospecting and exploration. Includes a planimetric, black and white geologic map of Blawn Mountain at 1:4,80 scale and of the Staats Mine area at 1:3,600 scale.

______1969, Subsurface brines and soluble salts of subsurface sediments, Sevier Lake, Millard County, Utah: Utah Geol. and Min. Survey Spec. Studies 30, 13 p.

Describes the findings from three shallow holes drilled on the west side of Sevier Lake that encountered brines with slightly under 200 grams per liter dissolved solids and sediments containing an average of 12 percent soluble salts. The subsurface brines represent a possible exploitable saline deposit.

______ compiler, 1970, Radioactive and isotopic age determinations of Utah rocks: Utah Geol. and Min. Survey Bull. 81, 70 p.

Summary of age determinations made on rocks at various localities in Utah by several different laboratories. Published age determinations are summarized for the extrusive rocks at Marysvale and the Needles Range and for the intrusive rocks of the Rocky Range, Mineral Mountains, and Marysvale areas.

______1973a, Mineral resources of the Milford area, Beaver County, Utah, in Hintze, L. F., and Whelan, J. A., eds., Geology of the Milford area, 1973: Utah Geol. Assoc. Pub. 3, p. 1-3.

A review of the mineral production of the mines of the San Francisco Mountains, Beaver Lake Mountains, Rocky Range, and Star Range, near Milford, Utah.

______1973b, Geology of the Rocky Range, Beaver County, Utah, in Hintze, L. F., and Whelan, J. A., eds., Geology of the Milford area, 1973: Utah Geol. Assoc. Pub. 3, p. 55-56.

A brief summary of the geology of the Rocky Range, north of Milford, Utah.

Whelan, J. A., Nash, W. P., Parry, W. T., Petersen, C. A., 1975, Design of exploration systems with application to Roosevelt KGRA, Utah [abs.]: United Nations Symp. on the Dev. and Use of Geotherm. Res., abs. no. II-55.

Describes various geophysical and geochemical techniques being developed for geothermal exploration and evaluation. The Roosevelt KGRA near Milford, Utah, where studies of the geology have indicated the geothermal energy possibilities are high, is the site of such experimentation and development.

Willard, M. E., and Callaghan, Eugene, 1962, Geology of the Marysvale Quadrangle, Utah: U.S. Geol. Survey Geologic Quadrangle Map GQ-154, 1:62,500.

Regional geology. A colored geologic map on a topographic base.

Willard, M. E., and Proctor, P. D., 1946, White Horse alunite deposit, Marysvale, Utah: Econ. Geology, v. 41, p. 619-643.

Describes the White Horse alunite deposit, a replacement deposit in a calcic quartz latite of the upper part of the Bullion Canyon Volcanics, located 4.5 miles northeast of Marysvale, Utah. The alunite occurs in three main ore bodies and surrounding each of the bodies is a thick envelope of partly kaolinized latite. It is indicated that the alunite replacement was accomplished by a sulphate-bearing solution.

Williams, P. L., 1967, Stratigraphy and petrography of the Quichapa Group, southwestern Utah and southeastern Nevada: Seattle, Univ. of Washington, unpub. Ph.D. thesis, 139 p.

Describes the petrography, stratigraphy, and regional extent of four Miocene igneous formations that were deposited over an extensive area of southeastern Nevada and southwestern Utah. Sampling and correlative studies are made at the Wah Wah and San Francisco Mountains locations of the study area.

Wilson, R. F., 1965, Triassic and Jurassic strata of southwestern Utah, in Goode, H. D., and Robison, R. A., eds., Geology and resources of south-central Utah: Utah Geol. Soc. Guidebook to the Geology of Utah, no. 19, p. 31-46.

Describes the stratigraphic relationships and regional extent of Triassic and Jurassic formations in southwestern Utah. The exposures of Moenkopi and Chinle Formations and Navajo Sandstone at Deer Trail Mountain and in the Pavant Range near Marysvale, Utah, are discussed.

Woodward, L. A., 1968, Lower Cambrian and Upper Precambrian strata of Beaver Mountains, Utah: Am. Assoc. Petroleum Geologists Bull., v. 52, p. 1279-1290.

Describes the Cambrian Prospect Mountain Quartzite and seven underlying units, tentatively considered to be Precambrian, in the Beaver Mountains north of Milford, Utah. Lithologic correlation of the Beaver Mountains section with the strata from the Canyon Range in central Utah is established. Includes a topographic, black and white map of the Beaver Mountains area at 1:42,000 scale.

______1970, Tectonic implications of structure of Beaver and northern San Francisco Mountains, Utah: Geol. Soc. America Bull., v. 81, p. 1577-1584.

Discusses thrust faulting in the Beaver and San Francisco Mountains of Beaver County, Utah. Results of detailed mapping indicate eastward yielding along a laterally continuous thrust rather than gliding in various directions from locally uplifted areas as the most tenable explanation for thrust fault exposed in the area.

______1972a, Upper Precambrian strata of the eastern Great Basin as potential host rocks for mineralization: Econ. Geology, v. 67, p. 677-681.

Discusses how Precambrian carbonate rock units in many locations in western Utah and eastern Nevada may, under specialized conditions, be the host rock for mineralization. The Beaver Mountains, northwest of Milford, Utah, are mentioned as having such Precambrian units.

______1972b, Upper Precambrian stratigraphy of central Utah, in Baer, J. L., and Callaghan, Eugene, eds., Plateau-Basin and Range transition zone, central Utah, 1972: Utah Geol. Assoc. Pub. 2, p. 1-5.

A description of the upper Precambrian rocks of the Basin and Range and Wasatch Mountains of central Utah, and the correlation between the two depositional locations. The Beaver Mountains, near Milford, Utah, are represented as having a large sequence of basinal Precambrian rock units.

______1973, Upper Precambrian and Lower Cambrian rocks of the Milford area, Utah, in Hintze, L. F., and Whelan, J. A., eds., Geology of the Milford area, 1973: Utah Geol. Assoc. Pub. 3, p. 5-8.

Examines the stratigraphy and regional correlation of upper Precambrian-Lower Cambrian rock units exposed in the Beaver Mountains and northern San Francisco Mountains, Utah.

Woolard, L. E., and Kerr, P. F., 1951, Preliminary memorandum on the Dark Horse and Saturday areas, Marysvale, Utah: U.S. Atomic Energy Comm., RMO-860, Tech. Inf. Service, Oak Ridge, Tenn., 15 p.

Study revealed that the Dark Horse quartz monzonite intrusive was comparable to the intrusive in the Central Mining District (Marysvale) in having: 1) gradation of texture from a finer periphery to a coarse center; 2) fractures cutting quartz-monzonites; 3) highly radioactive zones limited to fractures and veins. Fractures running NE and NW are commonly altered. Alteration in tuffs is generally restricted to conversion of the feldspars to clay and silicification along shear zones. Abnormal surface erosion and leaching may yield radioactive counts that are lower than would be expected in the Marysvale central area.

______1952, Preliminary memorandum on the Beaver Creek area, Marysvale, Utah: U.S. Atomic Energy Comm. RME-885, Tech. Inf. Service, Oak Ridge, Tenn., 15 p.

The Beaver Creek area was subjected to intense alteration by mineralization dominantly controlled by a north-south fault. Tuffs and glasses within the Mount Belknap red facies overlie the area. The absence of radioactive highs makes it probable that uranium mineralization had been largely completed prior to the deposition of the upper part of the Mount Belknap Series. However, a separate period of hydrothermal alteration related to that producing the Big Rock Candy Mountain and White Horse areas may have produced this sequence.

Woolley, R. R., 1947, Utilization of the surface-water resources of Sevier Lake Basin, Utah: U.S. Geol. Survey Water Supply Paper 920, 393 p.

Discusses the Sevier River, its tributaries, and many other streams that comprise the drainage of Sevier Lake, Utah. The geomorphology and geology of the drainage basin, including the Tushar Mountains and Pavant Range areas, is included.

Worl, R. G., Van Alstine, R. E., and Heyl, A. V., 1974, Fluorite in the United States: U.S. Geol. Survey Mineral Resource Map MR-60, 13 p.

Not annotated.

Wray, W. B., Jr., Geology and ore deposits of the Rebel Mine area, Beaver County, Utah [B.S. dissertation]: Salt Lake City, Univ. of Utah, 89 p.

Not annotated.

Wray, W. B., Jr., 1973, Geology and mineralization of the Rebel Mine area, Star Range, Beaver County, Utah, in Hintze, L. F., and Whelan, J. A., eds., Geology of the Milford area, 1973: Utah Geol. Assoc. Pub. 3, p. 39-41.

Describes the stratigraphy, structure, mineralization, and alteration of the Rebel Mine area, near Milford, Utah.

Wyant, D. G., 1951, The East Slope No. 2 uranium prospect, Piute County, Utah: U.S. Geol. Survey TEM-211, pt. 1, 12 p.

Secondary uranium minerals occur in hydrothermally altered hornfelsed Bullion Canyon volcanics along the edge of a quartz monzonite stock. Channel samples of two uranium-bearing zones, traced for a length of 60 and 110 feet, showed up to 0.047 percent uranium. Significant for occurrence of uranium in association with alunitized rock in altered hornfels, and also outside of central producing area.

Wyant, D. G., 1954, The East Slope No. 2 uranium prospect, Piute County, Utah: U.S. Geol. Survey Circ. 322, 6 p.

The deposit has significance because it is outside central producing area, and is associated with hydrothermally altered earlier (Bullion Canyon) volcanics. Author believes secondary uranium minerals favor beidellite-montmorillonite clay marginal to alunite-kaolinite rock.

Wyant, D. G., and Stugard, Frederick, Jr., 1951, Indian Creek uranium prospects, Beaver County, Utah: U.S. Geol. Survey TEM-212, pt. 1, Open-File Report.

The deposits are located about three-eights of a mile east of a quartz monzonite stock. Uranium minerals are sparsely disseminated in argillized and silicified earlier Tertiary latite of the Bullion Canyon Volcanics and related volcanic rock beneath, but close to, the contact of the overlying later Tertiary gray rhyolite of the Mount Belknap Volcanics. The occurrence is similar to others in the Marysvale uranium district in that the secondary uranium minerals occur in beidellite-montmorillonite rock formed by alteration of earlier Tertiary rocks near a quartz monzonite stock.

Young, R. A., 1960, Ground-water areas and well logs, central Sevier Valley, Utah: U.S. Geol. Survey Open-File Report, 33 p.

Not annotated.

Young, R. A., and Carpenter, C. H., 1965, Ground-water conditions and storage in the central Sevier Valley, Utah: U.S. Geol. Survey Water-Supply Paper 1787, 95 p.

Describes the geology and ground-water characteristics of the Sevier River Valley in Piute and Sevier Counties, Utah. The structural and water-bearing features of the geologic formations of the valley floor and adjacent upland areas are described. Includes a colored geologic map of the Sevier Valley and adjacent uplands on a topographic base at 1:125,000 scale.

Yusas, M. , and Bruhn , R., in prep., Fracture systems in the Roosevelt Hot Springs KGRA: Dept. of Geology and Geophysics, Univ. of Utah, DOE/DGE contract EG-78-C-07-1701.

Not annotated.

Zietz, Isidore, Shuey, R. T., and Kirby, J. R., 1976, Aeromagnetic map of Utah: U.S. Geol. Survey Geophys. Inv. Map GP-907.

A colored aeromagnetic map of Utah.

Zimmerman, J. T., 1961, Geology of the Cove Creek area, Millard and Beaver Counties, Utah: Salt Lake City, Univ. of Utah, unpub. M.S. thesis, 91 p.

Describes the stratigraphy, structure, alteration, geologic history, and igneous rocks of the Cove Creek area, 25 miles north of Beaver, Utah. Includes a planimetric, black and white geologic map of the Cove Creek area at 0,000 scale.