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Cover Description

Upper left: Saurophaganax maximus, Oklahoma State Fossil, established 2000, Cimarron County. Image courtesy Sam Noble Oklahoma Museum of Natural History.

Upper right: Sand Gypsum, Alfalfa County. David London specimen, image © 2006 David London, all rights reserved. Hourglass selenite, the Oklahoma State Crystal (established 2005), is a variety of sand gypsum.

Lower left: Oklahoma Rose Rock (Barite Rose), Oklahoma State Rock, established 1968. David London specimen, image © 2006 David London, all rights reserved.

Lower right: Quartz crystals, McCurtain County. David London specimen, image © 2006 David London, all rights reserved.

Cover design by Jim Anderson, Oklahoma Geological Survey.
OKLAHOMA MINERAL LOCALITY INDEX

Arthur E. Smith, Jr.
Robert O. Fay
Joe Lobell

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Oklahoma Geological Survey
Mewbourne College of Earth and Energy
The University of Oklahoma
Norman, Oklahoma
2008
OGS Celebrates 100 Years of Service
1908–2008

The Oklahoma Geological Survey has the distinction of being the only geological survey provided for in a state constitution. The legislative mandate is to:

Investigate the state’s land, water, mineral, and energy resources and disseminate the results of those investigations to promote the wise use consistent with sound environmental practices.

Governor Charles N. Haskell signed the Enabling Act:
The OGS began work on May 29, 1908
The basic mission then, as now, is research, field work and mapping to produce reports and maps that add to the body of knowledge about Oklahoma’s geology and resources. In cooperation with academia and industry, this information is printed, disseminated in workshops, provided over the Internet, and made public through contact with individuals, schools, scout and civic groups.

Charles Newton Gould, Father of Oklahoma Geology
Director 1908–1911 and 1924–1931
When he came to OU in 1900, drive, determination and relentless energy made Charles Newton Gould the perfect person to found OU’s geology program and, in 1907, to foster in the State Constitution—what would become the Oklahoma Geological Survey.

Gould saw the need to blend academics, industry concerns and public needs in a single research and public service agency that would bring together these areas to better serve Oklahoma. His actions and vision provided the foundation for Survey programs for the next 100 years.

Gould went into the oil industry in 1911, becoming one of the pioneering geologists to work in Oklahoma. He returned to the Survey, however, when needed in 1924.

Daniel W. Oher, Director 1911–1914
Charles W. Shannon, Director 1914–1923
Because basic reconnaissance work still was needed, investigations of oil and gas, coal, glass sand, building stone, gypsum, lead and zinc, water, and building materials resulted in a number of publications and maps. The first full-color geologic map of Oklahoma was issued in 1926.

Shannon noted that the “need of conservation is apparent to members of the Survey,” and pointed to wastes of coal, oil, natural gas, forests and animal life. The Geological Survey still is mindful of the legislative mandate to conserve Oklahoma’s natural resources and promote their wise use.

Robert H. Dott, Director 1935–1952
Dott’s Survey focused on non-fuel mineral resources suitable for manufacturing and worked to develop new uses for some of the most mundane resources, Dott’s “humble materials.” Manufacturing added monetary value to the resource, such as making pottery, tile and brick from clay.

He saw the OGS through the Depression era and World War II, and in 1935 conducted a state mineral survey that hired people to verify information for base maps, collect data on building materials, and examine industrial mineral deposits. The information and the jobs were much needed.

William E. Ham, Interim Director 1952–1954
Carl C. Branson, Director 1954–1967
Branson made significant contributions to the University of Oklahoma Geology Library. This effort continues today through a cooperative exchange program between the OGS and other agencies worldwide. The publications given to the OGS are donated to the Youngblood Geology Library.

Charles J. Mankin, Director 1967–2007
During Mankin’s years, the OGS became more involved in cooperative studies with many state and federal agencies and concentrated on oil and gas activities that would help the small producers in Oklahoma. In 1978, a geophysical observatory southeast of Tulsa was added to the Survey. The Oklahoma Petroleum Information Center in Norman opened in 2002, and in 2006, the OGS officially became affiliated with the University of Oklahoma’s Mewbourne College of Earth and Energy.

G. Randy Keller, Interim Director 2007–Present
Keller, a professor of geophysics at OU, came to the Survey to assist in operations after Mankin’s retirement. His interest in and enthusiasm for the OGS mission is evident. As ever, the Survey’s goals remain wise use and conservation.

—Compiled by Connie Smith
OKLAHOMA
Mineral Locality Index

Although perhaps best known for its gypsum crystals and barite roses, Oklahoma also boasts a variety of other species, including beautiful specimens of calcite, brochantite, and sphalerite.

Oklahoma, a state with an area of almost 70,000 square miles, is not known as the source for many “world-class” mineral specimens, but it has produced fine to excellent specimens from numerous mineral localities. And, best of all, with a little effort by collectors, most localities will continue to produce. However, many collectors are unaware of the variety of minerals available from Oklahoma and think primarily of the prolific gypsum crystals that are easily collected from the Great Salt Plains, where they continue to form. Most collectors also know of the reddish barite sand roses, the best of which occur near Noble and Norman, although they are also found at many other localities in several counties. In addition, the Tri-State zinc/lead mining area, active for more than one hundred years, extends into the northeast corner of Oklahoma and has produced notable specimens. Unfortunately, the ambiguities of labeling these specimens seldom identify the source as the Picher district, which is in the Oklahoma portion of the Tri-State. This district has probably produced as many specimens as the adjacent areas in Kansas and Missouri.

Since most of the state is underlain by sedimentary rocks and the exposure of igneous and metamorphic rocks is very limited, the number of mineral species found in Oklahoma is also somewhat limited, but the potential for the mineral collector to still find and collect good specimens is excellent. An example is the Arkansas Ouachita quartz crystal belt that extends into southeastern Oklahoma. Only relatively recently has this area been seriously exploited by recreational and commercial mineral collectors, and the quality and variety of the crystals and the associated minerals have been impressive.

Some of the localities listed in this index have been so lightly collected that they are included because of their potential to produce specimens. An example of this type of locality is the copper mineral outcrops in the Permian red beds. Joe Lobell’s (1986) article describes one group of localities that was recently collected with success.

To date, there have been few articles published on the mineral localities and the mineralogy of Oklahoma. Gilmore (1963) is the only comprehensive publication on the mineralogy of the state, but it is frustratingly brief, repetitious, and inadequate in its coverage of many localities. Robert Fay at the Oklahoma Geological Survey has accumulated much information on Oklahoma mineral occurrences, but it has yet to be
published. Fortunately, he has shared much of this information in this index. This Oklahoma index is just a beginning, and additional information is solicited by the authors.

Mineral locality indexes are not intended to be field trip guides, but this index lists specific localities using section, township, and range if the information was available to assure accuracy. Mineral species marked with an asterisk (*) are particularly noteworthy occurrences.

ACKNOWLEDGMENTS

We would like to thank Al Kidwell and Pete Modreski who read this manuscript and made helpful suggestions and generously contributed their knowledge to it.

Mineral Index by Counties

**Adair County**


**Figure 2.** Collecting gypsum crystals at Great Salt Plains, Alfalfa County. Joe Lobell photo.

**Alfalfa County**


**Great Salt Plains**, about 6 mi. NW of Jet at Great Salt Plains National Wildlife Refuge, sec.22, T.26N, R.10W: gypsum* (Crystals form singly or in clusters in sand, silt, and clay less than 2 feet below the surface. These may have included sand and other materials that create an internal hourglass pattern.) (Johnson 1972).


**Beckham County**


**Blaine County**

**Southard, quarries of the U.S. Gypsum Company**, E and SE of Southard, Permian-age Nescatunga Gypsum of the Blaine Formation: anhydrite, celestine (microscopic crystals), gypsum* (crystals), preite (tiny chalky nodules), proberite (nodules that may have hairlike crystals), thanardite (fine-grained nodules), ulexite (cauliflowerlike nodules) (Ham, Mankin, and Schleicher 1961).

**Watonga, Universal Atlas quarry**, 6 mi. NE of Watonga, Nescatunga Gypsum of the Blaine Formation: celestine (microscopic crystals), proberite (nodules that may have hairlike crystals) (Ham, Mankin, and Schleicher 1961).

**Winnview West**, SW1/4 SW1/4 sec.6 and NE1/4 NW1/4 sec.7 and NE1/4 NW1/4 sec.18, T.16N, R.10W; also, SE1/4 SE1/4 sec.27 and NW1/4 NW1/4 sec.16, T.17N, R.11W, plus others, Permian-age Cedar Springs Dolomite and Flowerpot Shale: malachite (Fay 1962, 1964).

**Figures 3–5.** Gypsum, variety selenite, Great Salt Plains, Alfalfa County. Left, 12 cm high; center, 17.6 cm high; right, 7 cm high. Fred and Sue Keitel specimens, Terry Huizing photos.
Figure 6. Calcite, 6.5 cm long, Picher district, Ottawa County. Richard Russell specimen, Terry Huizing photo.

Figure 7. Barite ("rose"), 5 cm across, Norman, Cleveland County. Fred and Sue Keitel specimen, Terry Huizing photo.

Figure 8. Calcite, 11 cm high, Tri-State mine, Cardin, Ottawa County. Terry Huizing specimen and photo.

Figure 9. Gypsum, variety selenite, 8 cm high, Glass Mountains, Orienta, Major County. Fred and Sue Keitel specimen, Terry Huizing photo.

Figure 10. Galena and dolomite, 6.6 cm high, Picher district, Ottawa County. Grant Gibson specimen, Jeff Scovil photo.
Caddo County
Apache, a calcite mine near Apache, a vein of massive calcite exposed in a hill: calcite (fluoresces blue, pink, and cream, phosphorescent) (Kennedy 1972).
Cement, near, in Rush Springs Sandstone, top 4 feet mined: carnotite, tyuyamunite (Gilmore 1963).

Canadian County

Carter County
Lone Grove, Wilson, and Healdton areas, in clay seams: gypsum (crystals to 7.5 cm, some fluorescent yellow-green).
Milo area, NW1/4 SE1/4 sec.7, T.2S, R.1W: pyrite (crystal clusters) (Gilmore 1963).

Cherokee County

Cimarron County
Kenton, includes Wiggins and Labrier prospects, N of Kenton and Black Mesa, secs. 19, 20, 28, 29, 30, T.6N, R.1E, mineralized brecciated plugs of Triassic-age Sheep Pen Sandstone, prospected in 1898: azurite, chalcocite (nODULES), hematite, malachite (Fay 1983).

Cleveland County
Norman, E of Norman near Lake Thunderbird in a belt extending to the N and S to the SE of Slaughterville, sec.18, T.9N, R.2E; secs. 18, 22, 30, 31, T.9N, R.1E; secs. 18, 19, 30, 31, T.9N, R.1W; secs. 22, 30, 31, T.9N, R.2W; secs. 5, 8, 25, T.8N, R.1W; sec. 29, T.9N, R.1W, weathers from Garber Sandstone of Lower Permian age: barite* ("rosecas" with included sand) (Ham and Merritt 1944; Towner 1975).

Coal County
Bromide, Mosley prospect, 4 mi. N of Bromide in the valley of Mosley Creek, NE1/4 NE1/4 sec.20 and NE1/4 NE1/4 NW1/4 NE1/4 sec.17, T.1S, R.8E; NW1/4 SW1/4 sec.28, T.1S, R.8E, manganese replacement of Silurian Hunton Lime-

Arthur E. Smith, a consulting editor of Rocks & Minerals, is a petroleum geologist. His most recent article for the magazine was on the mineral hall at the Houston Museum of Natural Science and appeared in the May/June 1997 issue.

Robert O. Fay, a geologist with the Oklahoma Geological Survey, is a frequent contributor to popular and scientific publications in mineralogy and paleontology.

Joe Lobell specializes in collecting Oklahoma and Texas minerals. His last article for Rocks & Minerals was titled "Rediscovering Lampasas Celestine" and was in the March/April 1992 issue.

Comanche County
Cache, several locations S of Cache, secs. 7 and 18, T.1N, R.13E; sec.26, T.1N, R.14E; sec.32, T.2N, R.13W; sec 6 and W1/2 SE1/4 sec.18, T.1N, R.13W, maroon Permian-age Hennessey shales; barite (veins, nodules, claystone concretions and rosas, not all at each locality), aragonite (fluorescent in claystone concretions), malachite (Ham and Merritt 1944).

Chattanooga, 2 mi. N of Chattanooga, extends into Tillman County; autunite, bayleyite, carnotite, torbernite (Gilmore 1963).


Hale Copper mine, in Sandy Creek, NW1/4 NE1/4 and SW1/4 NE1/4 sec.9, T.3N, R.15W, Cambrian-age Quannah Granite pegmatite and gabbro: bornite, chalcocpyrite, copper, cuprite, pyrhotite (Powell et al. 1982).

Hobs Canyon, cent. NW1/4 sec.30, T.4N, R.14W, at the mouth of Mount Scott Granite and gabbro: clinohumite, diopside (Huang 1957).

Indiana, near Indiana, sec. 36, T.2N, R.4W, in claystone geodes: aragonite, barite (also as nodules, fluorescent), calcite (Gilmore 1963).

Lawton, American Girl mine, Coal Iode, Copper Eagle mine, and Starley mine (Parker prospect), a few miles NW of Lawton all in the Fort Sill Military Reservation, shafts and pits, quartz veins in Quannah Granite of Cambrian age associated with faulting: barite, chalcocpyrite, galena, malachite, sphalerite.


Mount Scott, 1.5 mi. WNW of Lake Lawtonka dam, cent. 1/2 SE1/4 sec.11, T.3N, R.13W, Mount Scott Granite with milarolitic cavities: epidote, hematite, orthoclase (crystals), quartz (crystals) (Johnson and Denison 1973).

Post Oak Creek, in the bed of the creek, secs. 25 and 36, T.3N, R.14W: quartz (smoky with included rutile needles) (Gilmore 1963).

Quanah Parker Lake, near the spillway, SE1/4 SE1/4 sec.23, T.3N, R.14W, Permian red sandstone: calcite, malachite, novacekite (rectangular microcrystals in cavities), quartz (Huang 1956).

Taupe, W of Taupe between Blue Beaver and Cache Creek, Permian red beds: barite (roses and nodules), chalcocite, malachite (Zeitner 1972).

Twin Mountain, 0.5 mi. NW of Twin Mountain, cent. sec.14, T.3N, R.15W, small cavities in sandstone: novacekite (Gilmore 1963).

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Figure 11. Quartz, 12 cm high, northwest of Broken Bow, McCurtain County. Art Smith specimen, Terry Huizing photo.

Figure 12. Galena, 7.5 cm high, Kenora mine, Picher district, Ottawa County. Martin Zimm specimen, Jeff Scovil photo.

Figure 13. Pyrite on sphalerite, Tri-State district, Picher. Sphalerite 1.25 mm high. Dan Behnke specimen and photo.

Figure 14. Hematite on and in calcite, specimen 4.3 mm high, Davis, Murray County. Dan Behnke specimen and photo.

Figure 15. Arsenopyrite on sphalerite, 1.5 mm high, Picher district, Ottawa County. Dan Behnke specimen and photo.
Wichita National Wildlife Refuge, Crystal King Zircon mine, also called Ashton location, 6 mi. NNW of Indiahoma, SW1/4 NE1/4 sec.21, T.3N, R.15W, other mines 600 feet SSW and 0.25 to 0.5 mile N, Hale Spring pegmatite in Cambrian-age Quahah Granite: zircon* (crystals) (Anderson 1946; Johnston 1955; Bush 1956).

Wichita Mountains, dike rock cutting gabbro, SE1/4 sec.4, T.3N, R.15W: aegirine (crystals 1 to 2 cm long), arfvedsonite, orthoclase, quartz (Gilmore 1963).

Cotton County

Benson prospect, NE1/4 NE1/4 sec.3, T.4S, R.11W, Ryan Sandstone member at base of the Permian-age Wellington Formation: azurite, atacamite, chalcocite, malachite, and uranium minerals (Totten and Fay 1982).

Cherry Canyon, in Cherry Canyon, secs. 19 and 31, T.4S, R.11W, calcareous geodes in shale: aragonite (crystals), barite (crystals), calcite, malachite (Ham and Merritt 1944).


Creek County


Custer County

Foss, NE of Foss, also into Washita County, SW1/4 NW1/4 sec.29, T.12N, R.18W, Upper Cloud Chief shales and Lower Doxide silstone: carnitite, tyuyamunite (Fay and Hart 1978).

Weatherford, 3 mi. W to 6 mi. SW of Weatherford, cores in the Cloud Chief Gypsum of Permian age: anhydrite, gypsum, proberite (in nodules), ulexite (in nodules, not with proberite) (Ham, Mankin, and Schleicher 1961).

Delaware County

Leach, NNW of Leach on top of a bluff, SE1/4 sec.7, T.21N, R.22E: calcite (massive, fluorescent and phosphorescent) (Gilmore 1963).

Garfield County

Hillsdale, O. P. Barnes farm (W. W. Thomas farm in 1940), NE1/4 SE1/4 sec.24, T.24N, R.8W, shaft 80 feet deep in red shale and clay of the Salt Plains Formation of Permian age: copper (thin plates) (Merritt 1940b).

Garvin County


Paoli, Teepee Queen Copper Company area, just E of Paoli, sec.18, T.4N, R.1E, ore shipped from surface workings, Permian-age red sandstones and shales: barite (rosettes, crystal aggregates, cement, and in concretions), chalcolite (nodules and fragments), copper, hematite, malachite* (needleslike crystals), pyrite (Merritt 1940b).

Paoli, other areas, secs. 7, 18, 19, T.4N, R.1E. Permian-age sandstones and shales: azurite, barite (crystals in concretions, nodules, and roses), chalcolite* (concretions), malachite (Ham and Merritt 1944).

Grady County

Alex, S side of Route 19: barite (miniature roses) (Morrison 1986).

Grant County


Greer County

Altus Lake, N of the bridge along the lake shore, NE1/4 sec.30, T.6N, R.20W: quartz (crystals lining geodes) (Gilmore 1963).

Granite, gravel quarry, SW1/4 SW1/4 sec.9, T.6N, R.21W, pegmatites: biotite (books), hornblende, orthoclase* (crystals), quartz (colorless and smoky crystals) (Gilmore 1963).

Jester, W and NW of Jester, along Elm Fork of Red River and to the N into Beckham County: gypsum (crystals to 25 cm).


Harper County

General, common in much of the county: quartz (variety moss, plume, and banded agate, and jasper) (Gilmore 1963).


Selma, 2.5 mi. N of Selma: gypsum (crystals, rosettes) (Huckaby 1955).


Hughes County

Wetumka, SW of Wetumka, sec.30, T.8N, R.9E: barite (coarsely crystalline) (Ham and Merritt 1944).
Jackson County

Cretaceous area, includes Eagle-Picher mine, extends from Cretaceous to the SE for 5 mi., first copper mineral was recognized in 1852, mine discovered by Kenneth E. Smith in January 1962, copper mined by Eagle-Picher from 1965 to 1975, Per-

mian-age shales with two copper-bearing shales in the upper part of the Flowerpot Shale: azurite, barite, botallackite, bor-

nite, brochantite* (with malachite forms pseudomorphs after gypsum), callaghanite, chalcocite (minute crystals), chalcopy-

rite, covellite, cuprite(?), galena, gypsum (crystals), mala-
chite* (fibrous aggregates, microcrystals), pyrite, silver (Dinges 1966; Ham and Jackson 1964; Kidwell and Bower 1976).


Olustee-Eldorado area, along State Highway 6: gypsum (“fishtail twins” to 10 cm).

Jefferson County


Johnston County

Bromide, Springbrook deposit, also calledViola prospect, 3 mi. SW of Bromide, NW1/4 SW1/4 sec.13 and NE1/4 SE1/4 sec.14, T.2S, R.7E, prospect trenches, mineralized fault zone in Chinneyhill Limestone: ankerite, calcite (manganooan, gray to reddish-brown), dolomite, glauconite, hausmannite (tiny pyramids, veinlets), hematite, manganite, neotite, pyrite, quartz (some chaledony), rhodochrosite, siderite (Merritt 1941; Ham and Oakes 1944).

Pontotoc, W of Pontotoc, top and flanks of a hill, SW1/4 sec.16, T.1S, R.6E, long trench, bog iron-ore deposit, Arbuckle Dolomite outcrops: goethite (cellular, fine needles lining cavities, rombohedra after siderite), hematite, quartz (chert), wavellite (radiating needle crystals) (Merritt 1940a).

Ravia, area just S of Ravia, sec.1., T.4S, R.5E, granite porphyry dike: chlorite, galena, hornblende, kainolinite, orthoclase (crystals), quartz (crystals), serpentine, smithsonite, sphalerite (Zeitner 1972).

Thompson Ranch, NE of Mill Creek, NW1/4 sec.15, T.1S, R.5E., in clay: barite* (crystals, white with bluish interiors), calcite, goethite (after pyrite cubes), pyrite, quartz (chaledony), siderite (Ham and Merritt 1944).

Troy, Ten Acre Rock, and Capitol quarry, near Troy just E of Rock Creek, cent.1/4 sec.3., T.3S, R.5E, Tishomingo Granite with pegmatite that has cavities, quarry opened in 1915: fluorite (purple), microcline* (crystals), quartz* (crystals, rutilated) (Ham 1973).

Kay County

Camp McFarland, also McFadden, 10 mi. NE of Ponca City, Campfire Girls Camp in hills and along the river, geodes: barite, calcite (scalenoehedral crystals, fluorescent) (Gilmore 1963).

Kiowa County

Cold Springs, W of Cold Springs at apex of most northern peak, medium-grained granite: orthoclase (crystals), quartz (crystals) (Evans 1936).


Lugert, Government quarry, also called Lugert granite quarry, 0.75 mi. E of Lugert, just E of the dam, SE1/4 sec.26, T.5N, R.20W, miarolitic cavities in granite: biotite (books), brookite (microscopic red needles), microcline (crystals), opal (hyalite), quartz (large crystals), riebeckite (crystals) (Gilmore 1963).


Lugert, Quartz Mountain State Park area, in a railroad cut near Lugert Dam, cent. E1/2 sec.27, T.5N, R.20W, basalt with seams and cracks: prehnite* (crystalline, botryoidal, pale green) (Gilmore 1963).

Magnetite deposits, W bank of a creek, SE1/4 sec.14, T.4N, R.17W; old prospect pit, SE1/4 SE1/4 sec.18, NW1/4 SW1/4 sec.24; side of a hill, NW1/4 sec.29; shaft, NW1/4 sec.33, T.4N, R.16W, loose fragments from weathered anorthosite: chalcopyrite, magnetite (poor octahedra, brown or yellow coating), ilmenite, malachite (Merritt 1940).

Saddle Mountain, 8 mi. E of Cooperton, conglomerates along streams: goethite (after pyrite), pyrite (crystals) (Evans 1936).

Teepee Creek, SW1/4 SW1/4 sec.6, T.4N, R.18W, in a trench and inclined adit, also secs. 32 and 33, T.5N, R.18W: analcime (microcrystals) (Gilmore 1963).

Lincoln County

Jacktown, crossroads 6 mi. W of Meeker along the road to the S: barite (nodules, fluorescent), calcite.


Logan County

Mulhall, NW of Mulhall, road cut through a hill, Permian red beds with nodules, septarians, and geodes: calcite (fluorescent red and phosphorescent) (Kennedy 1972).

Orlando, 1 mi. NE of Orlando off Highway 77 and along railroad right-of-way, Permian redbeds with nodules, geodes, and septarians: barite (crystals), calcite* (fluorescent pink), gypsum (Kennedy 1972).

Love County

Greenville, in a creek bank near Greenville, claystone geodes: dolomite (crystals).

Major County

Fairview, NE of Orion, 4–6 mi. SW of Fairview, S1/2 sec.24, T.21N, R.15W; S1/2 secs.27 and 28 and N1/2 secs.33 and 34, T.21N, R.14W: dolomite (“pyramids,” partial hopper pseudomorphs after halite), gypsum and calcite (halite pseudo-morphs) (Gilmore 1963).

Marshall County

Enos, near Enos in a creek bank: pyrite (cuboctahedral crystals and pseudomorphs after carbonized wood).

Mayes County


Spavinaw, 0.5 mi. W of Spavinaw, NE1/4 NW1/4 sec.15, T.22N, R.21E, prospect shaft: copper* (arborescent crystal masses), goethite (after pyrite), malachite, quartz (fluorescent) (Gilmore 1963).

Spavinaw Lake areas, W of the dam to the bridge, sec.15, T.22N, R.21E, Spavinaw Granite: cerussite, dolomite, galena, goethite (after pyrite), magnetite (crystals), pyrite, quartz (crystals) (Zeitner 1972).

McClain County

Byars deposits, includes the Criswell mine, 4 mi. SW of Byars along Garvin County line, sec.33, T.5N, R.2E, mined for silver, 1897–98, 1913–16, Permian-age Garber sandstones and shales, aragonite (tiny crystals in geodes): azurite, barite (concretions and crystals), calcite (crystals in geodes), chalcantite, chrysocolla, goethite* (microcrystals), malachite, quartz (petrified wood), silver chloride (unknown mineral) (Butler and Dunlop 1916; Lobel 1986).

McCourtain County

General. Quartz veins traverse the county east to west in two parallel bands. The first extends from DeQueen Lake in Arkansas westward between Broken Bow and Hee Mountain to Pine Creek Lake. The second band is 5–10 mi. to the north: brookite* (yellow to amber tabular crystals), quartz (crystals, clear, milky, and smoky; phantoms; chlorite, clay, pyrite, and manganese oxides may be included in the quartz, also skeletal or hopper crystals) (London 1994).

Broken Bow area, 150 paces S of cent. sec.8, and 200 paces N of SE1/4 corner sec.25, NE1/4 sec.28 and sec.24, T.5N, R.23E, quartz veins in Crystal Mountain Sandstone: chlorite* (in and with quartz), orthoclase (adularia), quartz* (crystals) (Gilmore 1963).

Broken Bow Lake, includes Stevens Gap Recreational Area, Carson Creek area, Holly Creek Campground, and elsewhere, secs. 1, 10, 11, 12, 13, T.5S, R.25E, quartz veins in Crystal Mountain Sandstone: goethite (after pyrite), marcasite (with pyrite), pyrite (encrusting petrified wood), quartz (crystals) (Massey 1990; Gilmore 1963; Morrison 1989).

Eagletown, Johnson copper prospect, N of Eagletown on Rock Creek, SW1/4 sec.16, T.5S, R.27E, discovered 1917, brecciated sandstone and shale with veins of milky quartz: chalcopryite (crystals), galena, malachite, pyrite, quartz (crystals), sphalerite.

Hochatown, 0.5 mi. NE of Hochatown, SW1/4 sec.14, T.4S, R.25E, fractured novaculite, three pits: cryptomelane, pyrolusite (Gilmore 1963).

Pine Mountain prospect, on the crest of Pine Mountain, SW1/4 sec.15, T.3S, R.26E, fractured and jointed Arkansas Novaculite, eight shallow pits: cryptomelane* (botryoidal and stalactitic), manganite, pyrolusite (Merritt 1941).


Watson, Buffalo mines, 4 mi. S of Watson on Buffalo Creek, NW corner sec.14, T.2S, R.26E, fracture zone in black shale and quartzite, two shafts with dumps, active 1907-15: calcite (massive, white), galena, pyrite, sphalerite.

Watson, Eades mine, 2 mi. SW of Watson, SE1/4 NW1/4 sec.33, T.1S, R.26E, quartz vein in dark shale and quartzite: barite (crystalline), calcite (microcrystals), dolomite, pyrite (crystals, cubes, and octahedra), quartz (crystals).

Watson, 100 yards E of Watson on Highway 21 on N side: quartz (crystals with pyrite or hydrocarbon inclusions) (Gilmore 1963).


Oklahoma County


Okmulgee County


Ottawa County

**Picher district**, zinc mining area surrounding Miami, Picher, Peoria, and most of the north part of the county. Many mines; each may have numerous names. Mississippi Valley-type deposits in Boone Chert of Mississippian age that is fractured, brecciated, and contains numerous solution cavities; ore discovered about 1901 with first production in 1904; peak production in 1925; mining ceased in 1957 but resumed in 1960 at a reduced rate into the early 1970s when the rising water level claimed most of the mines: anglesite (gray films), aragonite, arsenopyrite barite (plates), calcite* (crystals, twinned, scalenohedra and rhombohedra), carphosiderite (yellow crusts), cerussite (microcrystals), chalcopyrite* (spheneoids, pseudomorphs after enargite), copiapite, covellite (thin blue coatings), diadochite (minute crystals), dolomite* (pink saddle-shaped crystals), enargite* (microcrystals and veinlets with chalcopyrite), epsomite (postmining product), fluorapatite, galena* (cubes, octahedra and combinations, some platy crystals),

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**Figure 18.** Hematite on and in calcite, 4.5 cm high, Davis, Murray County. Dan Behnke specimen and photo.

**Figure 19.** Calcite and galena, Picher district, Ottawa County; specimen 5 cm high. Terry Huizing specimen and photo.
Figure 20 (above left). Custom mill, Picher district, Ottawa County. Art Smith photo (1959).

Figure 21 (above). Postcard view of ore cars waiting to be lifted to the surface (ca. 1910), Picher district, Ottawa County. Art Smith collection.

Figure 22 (left). Postcard view of lead and zinc mills near Miami, Picher district, Ottawa County. Art Smith collection.

Figure 23 (above left). Sphalerite, 1.1 mm high, Picher district, Ottawa County. Dan Behnke specimen and photo.

Figure 24 (above). Calcite twin on (0112), 7 cm across, St. Clair Lime quarry, Marble City, Sequoyah County, Terry Huizing specimen and photo.

Figure 25 (left). Calcite, 4.9 cm across, Sequoyah County. Terry Huizing specimen, Jeff Scovil photo.
goslarite (postmining product), greenockite (yellow coatings),
gypsum (clear crystals, also a postmining product), hemimorphite (called silicate and calamine), hydrozincite (fluorescent coatings), kaolinite, luzonite (minute crystallites on earlier minerals), malachite, marcasite* (crystals, some twins, botryoidal, hairlike masses), melanterite (postmining product), plumbojarosite (masses of minute platy crystals), pyrite (small cubes or pyritotheirda), quartz (crystals), smithsonite (early-day ore), sphalerite* (black jack, rosin jack, ruby jack, crystals), sulfur (minute crystals), szomolnokite (postmining product) (McKnight and Fischer 1970; Ransome 1935).

Pawnee County

Lela, a few mi. N of Lela, NW corner NE1/4 SW1/4, sec.19 and NE1/4 sec.8, T.22N, R.4E, also NE1/4 sec.23 and NW1/4 sec.19, NW1/4 sec.28, T.22N, R.3E, red Permian sandstones and conglomerates: azurite, carnotite, chalcocite (nodules and fossil wood), malachite, uranophane (with lignite and copper minerals) (Fischer 1937; Merritt 1940b).

Payne County

Glencoe, 3 mi. SW of Glencoe, SE1/4 NW1/4 and cent. NW1/4 SW1/4 sec.23, also SE1/4 SE1/4 sec.22, T.20N, R.3E, Permian-age Doyle sandstones and shales, discovered 1901, 60-foot adit made in 1910: azurite, calcite, chalcantite, chalcocite (nodules and petrified wood), covellite, malachite, pyrite, tenorite (Merritt 1940b; Naff 1981).

Pontotoc County

Ada, Lawrence quarry, 6 mi. S of Ada near State Route 1, NE1/4 sec.36, T.3N, R.5E: calcite* (rhombohedral crystals), galena* (cubes modified by octahedra), marcasite* (crystals), pyrite, sphalerite (marmatite) (Zeitner 1972).

Ahlosa, on the road to Ada in a shallow creek, shale: pyrite (crystal clusters) (Zeitner 1972).

Arbuckle Mountains, NE1/4 sec.17, T.2N, R.6E, in Hunton Limestone along a fault: galena (small crystals) (Reeds 1910).

Pottawatomie County

Pink area, S of Pink, sec.18, T.9N, R.2E: barite (roses) (Gilmore 1963).

Pushmataha County

Pine Creek State Park area, off access road to the park: quartz (small doubly terminated crystals) (Morrison 1984).

Roger Mills County


Seminole County

Konawa Country Club, SE1/4 NW1/4, sec.34 and SW1/4 NE1/4, sec.34, T.6N, R.5E, Hart Limestone of Pennsylvanian age: malachite.

Sequoyah County

Marble City area, St. Clair Lime quarry, NW1/4 SW1/4 sec.1, T.13N, R.23E: aragonite, calcite* (rhombohedral crystals, some twins), goethite, pyrite (Gilmore 1963).

Stephens County

Comanche, east of Comanche, SW1/4 SW1/4 SW1/4 sec.6, T.3S, R.6W and secs. 23, 25, 31, T.2S, R.7W: veins, in clay carbonate concretions, and as radial nodules (Ham and Merritt 1944).

Marlow, W of Marlow on S bank of Little Beaver Creek, SW1/4 sec.13 and SE1/4 sec.14, T.2N, R.8W: gypsum (sand included crystals, "rabbit ears") (Gilmore 1963).

Tillman County

Chattooga, S of Chattooga, secs. 27 and 28, T.3S, R.14W: barite (roses) (Ham and Merritt 1944).


Tulsa County

Lotsee, N line sec.15 and SW1/4 sec.27, T.19N, R.10E: calcite, dolomite* (crystals), pyrite (Gilmore 1963).


Wagoner County

Tulsa, E of Tulsa, waste dumps of strip pits, sec.18, T.18N,
Washita County


See also listing for Foss in Custer County.

REFERENCES

——. 1983. Copper deposits in Sheep Pen Sandstone (Triassic) in Cimarron County, Oklahoma, adjacent parts of Colorado and New Mexico. Oklahoma Geological Survey Circular 86.
