

GUIDE TO
RESOURCES FOR
EARTH SCIENCE
INFORMATION
IN OKLAHOMA



Neil H. Suneson

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OKLAHOMA GEOLOGICAL SURVEY
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Front Cover: Visitors dig for “hourglass” selenite crystals at the Salt Plains National Wildlife Refuge near Jet, Alfalfa County, Oklahoma. For more details, see the listing for Great Salt Plains State Park in Chapter 3.

Back Cover: Cluster of “hourglass” selenite crystals.

Photos by Fred W. Marvel, courtesy Oklahoma Department of Tourism and Recreation.

The University of Oklahoma
Norman, Oklahoma

1996

DEDICATION

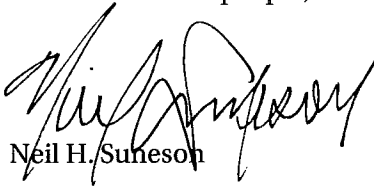
To:

Eleanor (I knew her only by her first name). The “rock lady” I visited so often when I was in grade school in Winchester, Massachusetts. An avid rockhound, she willingly shared her enthusiasm for collecting rocks, minerals, and fossils with a young boy.

Mr. Gene Bouley. My eighth-grade earth science teacher at Lynch Junior High School, Winchester, Massachusetts. He provided me with the first formal schooling in geology that I remember and took me on my first trip to the field—John Boyd Thatcher State Park in New York—in the spring of 1964.

Dr. R. M. “Pete” Foose. Professor of Geology, Amherst College, Amherst, Massachusetts. An absolutely first-rate professor and geologist, he proved to me that the science and profession of geology can be as much fun as the “hobby” of geology.

To these three people, I owe so much. Thanks.



Neil H. Suneson

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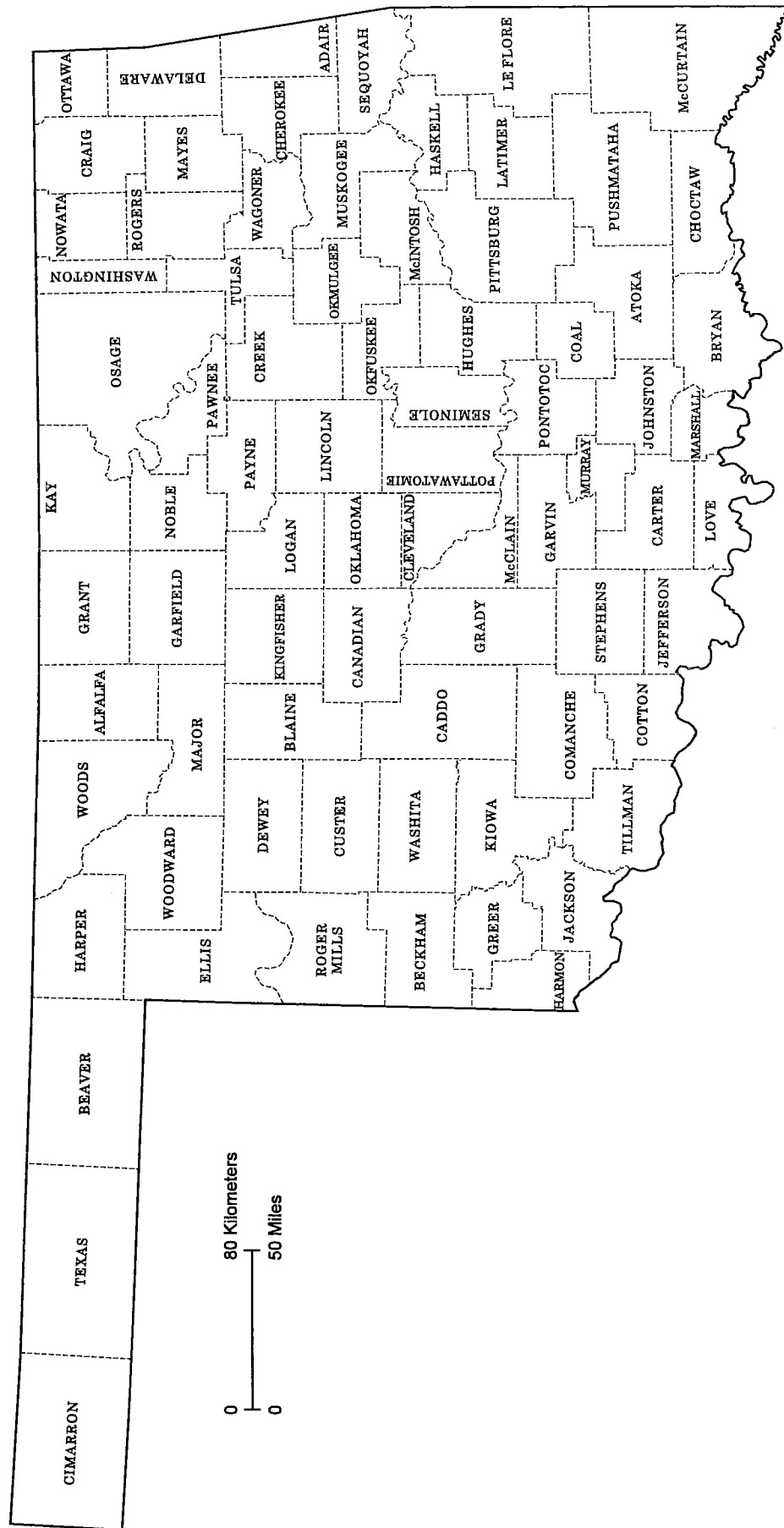
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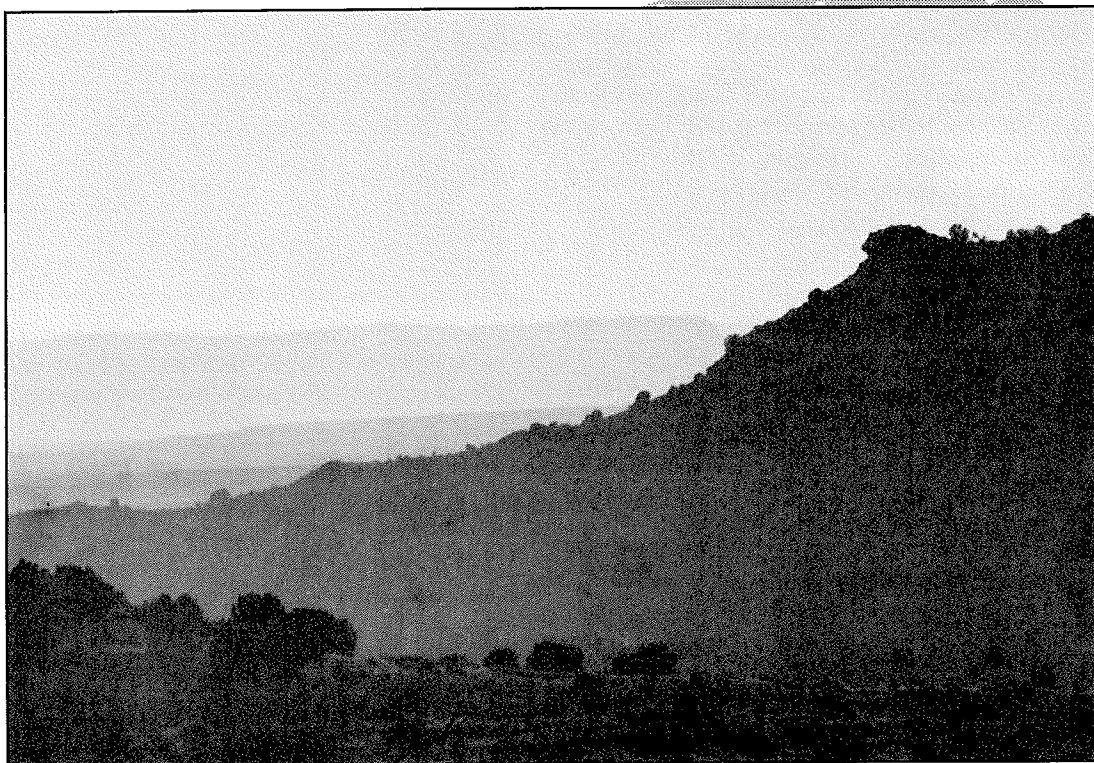
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COUNTY MAP



INTRODUCTION



Black Mesa State Park, Cimarron County (see Chapter 3). (Photo by Fred W. Marvel, courtesy Oklahoma Department of Tourism and Recreation.)

The idea and inspiration for a “Guide to Resources for Earth Science Information in Oklahoma” came from several sources. For the past several years, I have attended the “Green Country Science Teachers Workshop” sponsored by Phillips Petroleum Company in Bartlesville. I have been impressed by the high level of interest in Oklahoma geology expressed by the science teachers who have attended the workshop. The State of Oklahoma was, to a certain degree, founded and financed by things geological, yet there seemed to be a lack of non-technical information available on the State. To me, this is very surprising because there are so many geologists in the State and because geology (usually evidenced by pumpjacks or wellheads) is everywhere.

A second source of inspiration has been the geologists and amateur collectors whom I have had the good

fortune to know and work with. Most of them enjoy their chosen profession/hobby and are enthusiastic about sharing their knowledge and experiences with others, particularly children. Most also readily accept the value of an education, particularly in the earth sciences, but are frustrated because they’re not sure how to help the teachers whose efforts are so important. This guide is an attempt to help those teachers and provide a forum for those geologists and rockhounds who want to help them.

This guide essentially is a book of lists. The idea for the lists came from talking with geologists from other state geological surveys; many have compiled lists of geological features, organizations, articles and books, resources, etc., for the nonprofessional. The idea for compiling all these lists, specific to Oklahoma, and putting them in a single place, however, is mine.

WHO WILL USE THIS GUIDE

This guide is designed primarily for those who are interested in the geology of Oklahoma but are not professional geologists. That is not to say that professional geologists won't find parts of this guide useful; geologists unfamiliar with the Oklahoma Panhandle might miss its dinosaur quarries on their next camping trip to Black Mesa if they haven't seen this guide. However, the principal audience is:

- earth science teachers and students
- rockhounds and collectors
- scout groups
- visitors to Oklahoma
- adults interested in night, weekend, and summer courses.

Some chapters will be more interesting to some groups than to others. Visitors to Oklahoma who want to know about the geology of the State might find the lists of exhibits, state parks, and rock shops (Chapters 2, 3, and 5) more useful than the list of continuing-education courses (Chapter 11). Rockhounds may be more likely to use the list of nontechnical books and articles on Oklahoma geology (Chapter 12) than the lists of geologists affiliated with oil companies and professional geological organizations (Chapters 8 and 9). Some chapters, however, are directed toward everyone. I hope that future editions of this guide will appeal to a larger group of potential users, perhaps through additional chapters.

HOW TO USE THIS GUIDE

Chapters 2 through 13 of this book contain listings by subjects. In Chapter 2, for example, I have attempted to list all the museums in Oklahoma that contain geological, mining, and oil-field exhibits. Chapter 7 lists all the universities and colleges in the State that have (or may have) faculty members with some geological expertise. Chapter 12 is a list of nontechnical articles and books on different aspects of Oklahoma geology.

The chapters are organized as follows: Chapters 2 through 5 might be considered "places" that are resources for geological information. Travel is generally required to benefit from them. Chapters 6 through 10 list "people" as resources. Most of these people are members of businesses or organizations that practice geology as a profession or avocation and have volunteered to be a resource for geological information. In most cases, a phone call or letter to these people is all that is required to learn more about Oklahoma geol-



Green Country Science Teachers Workshop in Bartlesville, sponsored by Phillips Petroleum Company (see Chapter 8). (Photo courtesy Phillips Petroleum Company.)

ogy, to arrange for a classroom speaker or scout merit-badge counselor, or to identify that unusual fossil or mineral specimen you found on vacation. Finally, Chapters 11 through 13 could be grouped as "continuing education" in geology. The way I've organized the chapters in this guide is, in a sense, artificial, because there is a degree of crossover between subjects. For example, some museums (Chapter 2) also sell rocks and minerals (Chapter 5), and some of the colleges and universities (Chapter 7) teach the continuing-education courses (Chapter 11).

All of the listings in Chapters 2–11 are indexed by county at the end of the book so that individuals interested in the geological resources in only a part of the State can see quickly what is available locally. I suggest that if you are interested in what is available in a particular county, you not only look up that county, but the surrounding counties, as well. Because Chapters 12 and 13 list publications, it was not possible to index the listings in these chapters by county.

The lists were compiled from a variety of sources, which are cited at the end of or within chapters. Some of the lists were compiled by searching phone directories, libraries, and bibliographies. Although these lists are intended to be comprehensive, I may have omitted persons, organizations, courses, or articles that should have been included. For this reason, I plan to update this guide often. Therefore, it is my sincere hope that those who use this guide will contribute to future editions by telling me where I've gone wrong and what I've included or omitted that I shouldn't have. If you see any large (or small) changes, errors, or omissions, please write to me at the Oklahoma Geological Survey. A form is included in the back of this book for your convenience, but a letter will do just as well.

A NOTE OF CAUTION

Any compilation of resources to information must be limited. As my work on this guide progressed, I realized there is considerable overlap between the science of geology and conservation, environmental, and hydrological concerns. For example, in Oklahoma, there are a number of conservation organizations that have geologists on their staff and/or deal with geology. Similarly, there is a fine and generally blurred line between hydrology and geology. I have attempted to limit this guide to earth sciences information; certain chapters (6, 7, 11, 13) would probably be three times as long if I had included resources to conservation, environmental, and hydrological information.

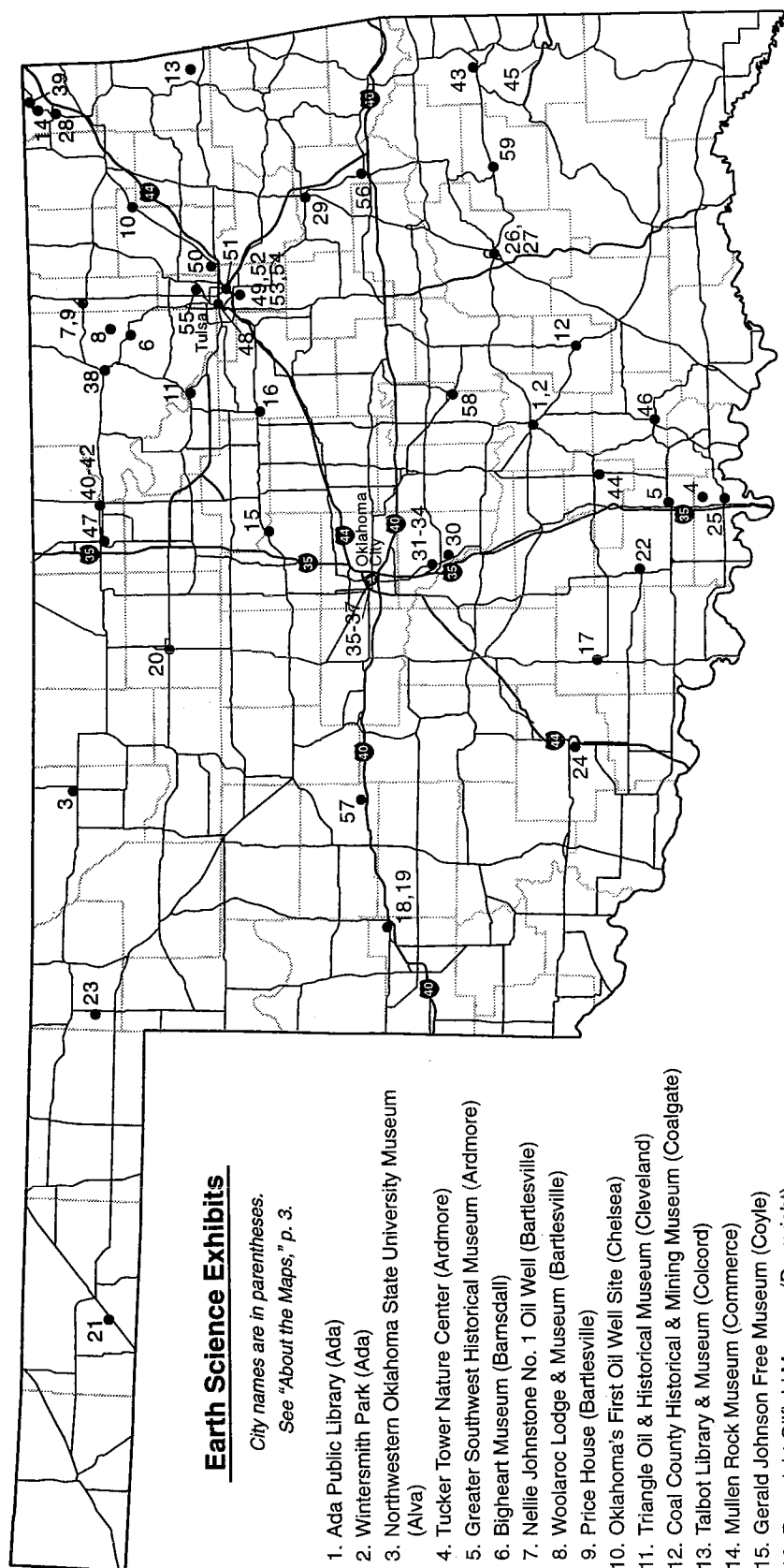
A further limitation is the information that was available to me in the few months I had to prepare this guide. I cannot emphasize enough that some of these lists are incomplete and that I would like to rely on users of this guide to provide me with updated or additional information for future editions. Similarly, although the information contained in this guide was up-to-date just prior to publication, be aware that businesses close, people change jobs, and laws change. In

most cases, a phone call is well worth the expense to be sure that the resource you'd like to take advantage of is, in fact, still where this book says it is.

ABOUT THE MAPS

The places listed in Chapters 2–5 are shown on a map of Oklahoma at the beginning of each of these chapters. Places are numbered on the map in the order in which they appear in the chapter (alphabetical by city for exhibits and shops, by name for state parks, and company name for quarries and mines); the numbers on the map correspond to the numbers of the listings. Oklahoma City, Tulsa, and interstate highways are labeled to give you points of reference. The unlabeled black lines are turnpikes, and the red lines represent U.S. highways and state highways. The gray lines are county boundaries. A county map of Oklahoma is included on page iv.

A free map of the State of Oklahoma, helpful in planning trips, can be obtained from the Department of Tourism and Recreation by calling (800) 652-6552, or, in the Oklahoma City area, (405) 521-2409.



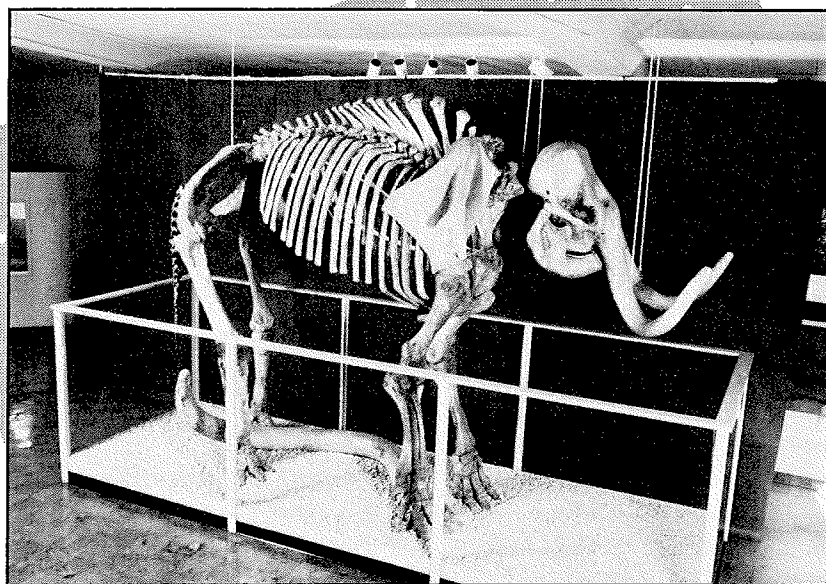
Earth Science Exhibits

City names are in parentheses.
See "About the Maps," p. 3.

1. Ada Public Library (Ada)
2. Wintersmith Park (Ada)
3. Northwestern Oklahoma State University Museum (Alva)
4. Tucker Tower Nature Center (Ardmore)
5. Greater Southwest Historical Museum (Ardmore)
6. Bigheart Museum (Barnsdall)
7. Nellie Johnstone No. 1 Oil Well (Bartlesville)
8. Woolaroc Lodge & Museum (Bartlesville)
9. Price House (Bartlesville)
10. Oklahoma's First Oil Well Site (Chelsea)
11. Triangle Oil & Historical Museum (Cleveland)
12. Coal County Historical & Mining Museum (Coalgate)
13. Talbot Library & Museum (Colcord)
14. Mullen Rock Museum (Commerce)
15. Gerald Johnson Free Museum (Coyle)
16. Drumright Oilfield Museum (Drumright)
17. Stephens County Historical Museum (Duncan)
18. Western Oklahoma Earth Science Museum (Elk City)
19. Parker Drilling Rig No. 114 (Elk City)
20. Midgley Museum (Enid)
21. No Man's Land Museum (Goodwell)
22. Healdton Oil Museum (Healdton)
23. Graff Rock Museum (Laverne)
24. Museum of the Great Plains (Lawton)
25. Love County Pioneer Museum (Marietta)
26. Pioneer Coal Miner Memorial (McAlester)
27. Pittsburg County Historical Society (McAlester)
28. Dobson Museum (Miami)
29. Ataloea Museum (Muskogee)
30. Timberlake Rose Rock Gallery & Museum (Noble)
31. Department of Geology & Geophysics (Norman)
32. Laurence S. Youngblood Energy Library (Norman)
33. Oklahoma Geological Survey (Norman)
34. Oklahoma Museum of Natural History (Norman)
35. State Museum of History (Oklahoma City)
36. Omniplex Science Museum (Oklahoma City)
37. National Cowboy Hall of Fame (Oklahoma City)
38. Osage County Historical Museum (Pawhuska)
39. Picher Mining Field Museum (Picher)
40. Marland Mansion & Estate (Ponca City)
41. Pioneer Woman Monument, Museum, & State Park (Ponca City)
42. Conoco Refinery Tours (Ponca City)
43. Robert S. Kerr Museum (Poteau)
44. Travertine Nature Center (Sulphur)
45. Tallmena Scenic Drive (NE of Tallhina)
46. Axolotl Natural History Collection (Tishomingo)
47. A. D. Buck Museum of Science & History (Tonkawa)
48. American Association of Petroleum Geologists (Tulsa)
49. Society for Sedimentary Geology (Tulsa)
50. Redbud Valley Nature Preserve (Tulsa)
51. Harmon Science Center (Tulsa)
52. Elsing Museum (Tulsa)
53. Oral Roberts University Visitor Center (Tulsa)
54. Society of Exploration Geophysicists Foundation Museum (Tulsa)
55. Tulsa Zoological Park & Robert J. LaFortune North American Living Museum (Tulsa)
56. Wallis Museum at Connors State College (Warner)
57. General Thomas P. Stafford Museum (Weatherford)
58. Seminole Nation Museum (Wewoka)
59. Lutie Coal Miners Museum (Wilburton)

EARTH SCIENCE EXHIBITS

AT MUSEUMS AND OTHER PLACES



Woolly mammoth skeleton on display at the Oklahoma Museum of Natural History in Norman. (Photo courtesy Oklahoma Museum of Natural History.)

This list includes not only museums throughout the State that have geology exhibits, but nature centers, sites, parks, libraries, and places of business that have displays that might be of interest to educators, collectors, and visitors to Oklahoma. The displays range from outdoor exhibits of early oil-field and mining equipment to modern drilling rigs; from small collections of local rocks and minerals to exhibits of rare and valuable minerals from around the world; and from “hands-on” interactive displays to exhibits that are part of research collections and those that are strictly “behind glass.” The quality of the museums listed here is in the eye of the beholder; the slightly cramped, private local museum with dusty, hand-labeled exhibits may hold more fascination for some than the large, professionally designed public museum at the local university.

The descriptions of the geology exhibits given here are based on literature available from the museum or the references (cited by superscript numbers) listed at the end of the chapter. If you would like to visit any of the places listed, it is advisable that you call in advance for hours and admission fees. (Complete addresses and

phone numbers were not available for each location.) You also may want to check to make sure that a particular museum or exhibit is suitable for the ages in your group.

It should be noted that some rock shops (see Chapter 5) have small museums that are part of the shop. Also, some of the museums listed here sell rocks, minerals, and fossils. The rock, mineral, and gem shows sponsored by local gem and mineral clubs (Chapter 10) have educational exhibits that are a kind of “traveling museum”; contact your local society for information about these shows.

There may be private collections not listed here that school groups, collectors, visitors to Oklahoma, and others can visit. Owners of many of these collections probably belong to local gem and mineral clubs (see Chapter 10), and the clubs may be able to provide information about the collections. In addition, there probably are geological displays and exhibits that have not been included. If you know or learn of anything that should be included in the next edition of this resources guide, please fill out the form in the back of this book or write to me at the OGS.

Exhibitors are listed by city, in alphabetical order.

1. ADA PUBLIC LIBRARY

124 S. Rennie
Ada, OK 74820 (405) 436-8125
PONTOTOC COUNTY

The Arbuckle Geoscience Collection contains about 750 fossils, minerals, and rocks from around the world.

2. WINTERSMITH PARK

Southeast of East Central University, off 18th Street
Ada, OK (405) 436-6300
PONTOTOC COUNTY

A fallen petrified tree is in the park, and the Girl Scout cabin on the edge of the lake is partly built from petrified wood.

3. NORTHWESTERN OKLAHOMA STATE UNIVERSITY MUSEUM

Oklahoma Boulevard
Alva, OK 73717 (405) 327-1700
WOODS COUNTY

A primary research facility reserved for the study of natural history, the museum houses a collection of Pleistocene fossils and other materials relating to the natural sciences.¹

4. TUCKER TOWER NATURE CENTER

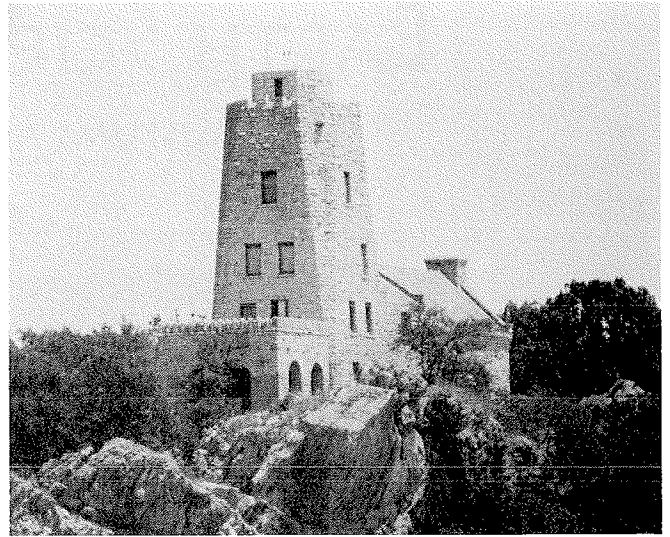
3310 S. Lake Murray Dr., No. 1
Ardmore, OK 73401 (405) 223-2109
Attn: Mark Teders
CARTER COUNTY

Exhibits include representative fossils from the following groups: fish (Devonian), pelecypods, cephalopods, ammonites, brachiopods, gastropods, trilobites, echinoids, coelenterates, bryozoans, crinoids, various ferns and trees (Carboniferous), minerals of Oklahoma (rose rocks, etc.), various concretions, and five wax exhibits pertaining to the Ordovician, Devonian, Pennsylvanian, Permian, and Cretaceous time periods. A large (288-pound) meteorite that fell approximately 90 million years ago, a mastodon skull, and a tooth from a saber-toothed cat from the Pleistocene also are displayed. The center conducts paleontology programs for the public and has an audiovisual program titled "Fossils—Clues to the Past" from the National Geographic Society.

5. GREATER SOUTHWEST HISTORICAL MUSEUM

35 Sunset Dr.
Ardmore, OK 73402 (405) 226-3857
CARTER COUNTY

Outdoor displays include oil-field equipment.²



Tucker Tower Nature Center, Ardmore. (Photo courtesy Tucker Tower Nature Center.)

6. BIGHEART MUSEUM

520 W. Main
Barnsdall, OK 74002 (918) 847-2023
OSAGE COUNTY

The museum contains, among other items, artifacts from the city's oil-field days.³

7. NELLIE JOHNSTONE NO. 1 OIL WELL

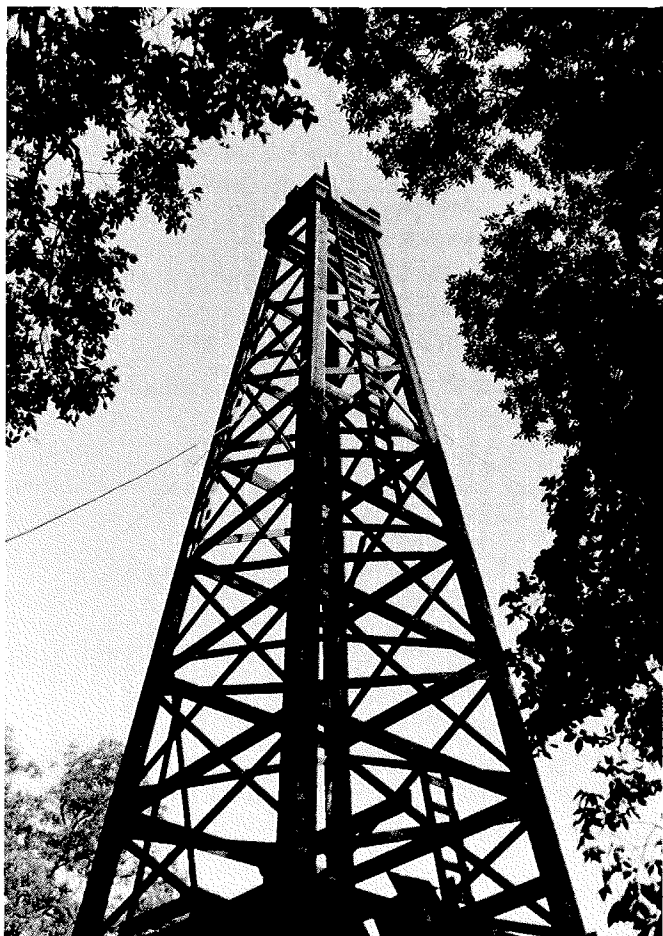
P.O. Box 2366
Bartlesville, OK 74005 (918) 336-8708
WASHINGTON COUNTY

The Nellie Johnstone No. 1 generally is acknowledged as the first well in what is now Oklahoma to have produced petroleum in commercial quantities. Today a reconstruction of the original well house and derrick stands on the site where oil was struck in April 1897, signaling the start of the first big oil boom in the Cherokee Nation, Indian Territory.¹

8. WOOLAROC LODGE AND MUSEUM

Route 3, Box 2100
Bartlesville, OK 74003 (918) 336-0307
Attn: Linda Stone Lewis, Curator of Art
OSAGE COUNTY

The museum houses a large and varied collection that includes the H. V. Foster mineral collection, in which specimens are classified and labeled according to chemical composition. The display extends from simple native elements through oxides, acids, bases, and salts, and is arranged to show the morphological and physical properties of different minerals.



Nellie Johnstone No. 1 oil well site, Bartlesville. (Photo by Fred W. Marvel, courtesy Oklahoma Department of Tourism and Recreation.)

9. PRICE HOUSE (SHIN'ENKAN, "PLACE OF THE FAR-DISTANT HEART")

Bartlesville, OK
OSAGE COUNTY

Shin'enKan is a house designed by Oklahoma architect Bruce Goff. Coal masonry was used as a building finishing material in pillars, foundation veneer, and retaining walls. For tour information, contact:

Oklahoma Center for Continuing Education
The University of Oklahoma
1700 Asp Ave.
Norman, OK 73019 (405) 325-5101

10. OKLAHOMA'S FIRST OIL WELL SITE

Chelsea, OK (918) 789-2220
ROGERS COUNTY

A replica of an old-fashioned oil well is built on what is said to be Oklahoma's first noncommercial oil-well site.⁴

11. TRIANGLE OIL AND HISTORICAL MUSEUM

P.O. Box 20
Cleveland, OK 74020 (918) 358-3348
Attn: Earl Littlefield
PAWNEE COUNTY

The museum features historical information and displays about early-day Cleveland and vicinity and the importance of oil to the region.⁴

12. COAL COUNTY HISTORICAL AND MINING MUSEUM

212 S. Broadway
Coalgate, OK 74538 (405) 927-2360
Attn: Freddie Brice
COAL COUNTY

Exhibits include coal from Coal County, mining tools, picks, drill bits, mule harness, oil lamps, safety devices, models of coal mines, and miners' lunch pails. Maps of segregated coal lands of Oklahoma and many photographs are also on display.

13. THE TALBOT LIBRARY AND MUSEUM

P.O. Box 349
Colcord, OK 74338-0349 (918) 326-4532
Attn: Virgil Talbot, Librarian and Curator
DELAWARE COUNTY

Displays include fossils, minerals, and rocks.

14. MULLEN ROCK MUSEUM

203 S. Mickey Mantle Blvd.
Commerce, OK 74399 (918) 675-4524
OTTAWA COUNTY

The museum, connected with Mullen's (Phillips 66) Service Station, consists of two rooms filled with specimens from the Tri-State area (Oklahoma, Kansas, and Missouri).

15. GERALD JOHNSON FREE MUSEUM

P.O. Box 175
Coyle, OK 73027-0175 (405) 466-2440
LOGAN COUNTY

Rocks, minerals, crystals, and fossils from Oklahoma are displayed.

16. DRUMRIGHT OILFIELD MUSEUM

P.O. Box 668
Drumright, OK 74030 (918) 352-2739
Attn: Eilene Huff
CREEK COUNTY

This is an industrial museum that houses items pertaining to the local history of the petroleum industry. Oil-field tools and equipment are exhibited, and a series of murals depict the development of the Drumright oil pool, which was discovered 40 miles west of Tulsa in 1912 and became one of the State's important petroleum-producing areas before World War I.¹

17. STEPHENS COUNTY HISTORICAL MUSEUM

P.O. Box 1294
Duncan, OK 73533 (405) 252-0717
STEPHENS COUNTY

The museum houses a one-third-scale model of the cable tool drilling rig that drilled the Magnolia 1 O-Nah-Dy discovery well in 1918. Pictures of early-day oil activities in Stephens County are displayed. The museum also houses early Halliburton vehicles, tools, and other memorabilia. (Halliburton Oil Well Cementing Company was one of the first oil- and gas-well servicing companies in the world. The original corporate office was in Duncan. Halliburton is now a worldwide well-servicing company.)

18. WESTERN OKLAHOMA EARTH SCIENCE MUSEUM (also called ANADARKO BASIN MUSEUM OF NATURAL HISTORY)

c/o John C. West, Jr.
204 N. Main
Elk City, OK 73644 (405) 243-0437
BECKHAM COUNTY

Western Oklahoma fossils and artifacts are exhibited.⁴

19. PARKER DRILLING RIG NO. 114

107 E. Third
Elk City, OK 73648
BECKHAM COUNTY

The site features one of the world's tallest drilling rigs — a good photo opportunity.³

20. THE MIDGLEY MUSEUM

1003 Sequoyah Dr.
Enid, OK 73703 (405) 234-7265 or 237-8252
Attn: Al Ray
GARFIELD COUNTY

The museum houses a collection of exotic rocks and minerals, mostly from Oklahoma and the Texas shoreline. The collection includes more than 30 types of exotic rocks, fossil stones, crystals, agate, sandstone, and petrified wood. It also contains a fluorescent rock display, a 7,000-pound petrified tree stump found near Woodward, Oklahoma, a glass house with a gabled roof of fossil stones, and what is reported to be the largest selenite crystal ever found in the nearby Salt Plains National Wildlife Refuge (see Chapter 3).

21. NO MAN'S LAND MUSEUM

Panhandle State University
Goodwell, OK 73939 (405) 349-2670
TEXAS COUNTY

The museum has minerals, a limited number of rocks, and some fossils. Most have been collected locally and reflect the geology of the region.

22. HEALDTON OIL MUSEUM

315 E. Main
Healdton, OK 73438 (405) 229-0317
CARTER COUNTY

The museum features a collection of artifacts and photographs relating to Oklahoma's oil fields during the early part of the century. Outside the building, exhibits feature heavy oil-field equipment.⁴

23. GRAFF ROCK MUSEUM

R.R. 2
Laverne, OK 73848 (405) 735-2356
HARPER COUNTY

Exhibits consist of a large private collection of minerals, rock samples, and fossils obtained from the surrounding area.¹

24. MUSEUM OF THE GREAT PLAINS

P.O. Box 68
Lawton, OK 73502 (405) 581-3460
Attn: Elisabeth West Manning
COMANCHE COUNTY

Exhibits on the geological history of the Great Plains region, emphasizing western Oklahoma, are scheduled to open in 1996.

25. LOVE COUNTY PIONEER MUSEUM

P.O. Box 134
Marietta, OK 73448 (405) 276-5888
Attn: Laquitta Ladner
LOVE COUNTY

A small collection of rocks and fossils, including ammonites and a trilobite, mostly from the local area, are displayed.

26. PIONEER COAL MINER MEMORIAL

400 Block, S. Third at Chadick Park
McAlester, OK 74502 (918) 423-2550
PITTSBURG COUNTY

A life-sized bronze statue and "Wall of Memories" pay tribute to the thousands of miners who labored in the mines in the McAlester area, and especially to those who lost their lives in their work. On the wall are inscribed the names of more than 1,700 miners who were killed in pursuit of their trade over a 100-year period.

27. PITTSBURG COUNTY HISTORICAL SOCIETY

113 E. Carl Albert Parkway
McAlester, OK 74502 (918) 426-0388
PITTSBURG COUNTY

Mining tools are displayed.³

28. DOBSON MUSEUM

110 A St. S.W.
Miami, OK 74354 (918) 542-5388
OTTAWA COUNTY

Mining displays are exhibited.¹

29. ATALOA MUSEUM

Bacone College
2299 Old Bacone Road
Muskogee, OK 74402 (918) 683-4581, ext. 283
MUSKOGEE COUNTY

The fireplace is made with rocks from North and Central America. Exhibits include a petrified dinosaur egg, a footprint made by a juvenile *Tyrannosaurus rex*, and a collection of land- and sea-animal fossils found around Lake Eufaula.²

30. TIMBERLAKE ROSE ROCK GALLERY AND MUSEUM

419 S. U.S. Highway 77
Noble, OK 73068 (405) 872-9838
CLEVELAND COUNTY

The museum houses a rose-rock diorama, displays, and gift shop.³

31. DEPARTMENT OF GEOLOGY AND GEOPHYSICS

The University of Oklahoma
Sarkeys Energy Center, Room 810,
and Gallery, 2nd floor
100 E. Boyd St.
Norman, OK 73019 (405) 325-3253
CLEVELAND COUNTY

The exhibits consist of mineral and ore specimens from around the world. Also displayed are casts of a skull and forelimb of *Acrocanthosaurus atokensis*, an Early Cretaceous carnivorous dinosaur first described from Oklahoma specimens. (Dinosaur casts are on loan; you may want to confirm that the display is still there before visiting.)

32. LAURENCE S. YOUNGBLOOD ENERGY LIBRARY

The University of Oklahoma
Sarkeys Energy Center, Room R-220
100 E. Boyd St.
Norman, OK 73019 (405) 325-6451
CLEVELAND COUNTY

Displays include a meter-long, remarkably well-preserved Lower Jurassic crinoid from Germany; a slab of Middle Pennsylvanian shale with abundant plant fossils from Pennsylvania; an unusually large Cretaceous ammonite from Mexico; and 1.5-meter-high selenite crystals from Mexico. The walls of the reception area consist of highly fossiliferous Cedar Park Limestone (Cretaceous) from Texas, and the floor is polished Precambrian quartz monzonite from Canada.

33. OKLAHOMA GEOLOGICAL SURVEY

Sarkeys Energy Center, Room N-131
100 E. Boyd St.
Norman, OK 73019-0628 (405) 325-3031
CLEVELAND COUNTY

Rocks and minerals from Oklahoma, exhibits of current research, and a working seismograph are displayed.

34. OKLAHOMA MUSEUM OF NATURAL HISTORY

1335 Asp Ave.
Norman, OK 73019 (405) 325-4711
CLEVELAND COUNTY

This important agency promotes the systematic study of the natural and cultural history of Oklahoma and the Southwest. The museum houses varied collections relating to the earth, life, and social sciences, including fossil displays.¹

35. STATE MUSEUM OF HISTORY

Wiley Post Historical Building
2100 N. Lincoln Blvd.
Oklahoma City, OK 73105 (405) 521-2491
Attn: Bill Pitts, Director
OKLAHOMA COUNTY

An outside exhibit features an early-day derrick, drillers' "doghouse," and oil-field tools. Inside exhibits to be completed in 1996 will feature the gate valve from the "Wild Mary Sudik" oil well, many photographs of the Oklahoma City field, drill bits, and other items.

36. OMNIPLEX SCIENCE MUSEUM

2100 N.E. 52nd St.
Oklahoma City, OK 73111 (405) 427-5461
Attn: Lynn Haun
OKLAHOMA COUNTY

Exhibits include an earthquake simulator; the "Geovator," which provides a trip through time and space to learn about Oklahoma geology; a recording seismometer; a collection of Oklahoma fossils and fluorescent minerals; a replica of *Camarasaurus* (Oklahoma dinosaur); an interactive map of the rocks and minerals of Oklahoma; and various technological specimens related to the location and recovery of petroleum resources. Additional earth sciences exhibits are scheduled to be completed in the near future.

37. NATIONAL COWBOY HALL OF FAME AND WESTERN HERITAGE CENTER

1700 N.E. 63rd St.
Oklahoma City, OK 73111 (405) 478-2250
OKLAHOMA COUNTY

Displays on the lower level pertain to facets of western culture and industry. Visitors may walk through a reconstruction of a gold mine.¹

38. OSAGE COUNTY HISTORICAL MUSEUM

P.O. Box 267

Pawhuska, OK 74056

(918) 287-9924

Attn: Betty Smith or R. D. Bennett

OSAGE COUNTY

A display shows early oil operations in Osage County and includes information on boom towns in the county and on famous oilmen. Specimens on display include fossils (brachiopods, horn corals), petrified wood, dinosaur bone, obsidian, hour-glass selenite crystals, Biggs picture agate, rose rocks, fossil leaves, and cores of oil sand.

39. PICHER MINING FIELD MUSEUM

528 N. Connell

Picher, OK 74360

(918) 673-1192

OTTAWA COUNTY

Lead and zinc specimens and mining artifacts are exhibited.³

40. MARLAND MANSION AND ESTATE

901 Monument Road

Ponca City, OK 74601

(405) 767-0420

Attn: Ben Mead

KAY COUNTY

Personal mementos and relics of E. W. Marland's early oil operations are displayed.¹ E. W. Marland became one of the richest oilmen in Oklahoma and later served as its 10th governor. He founded and owned the Marland Oil Company, which later became Conoco.²

41. PIONEER WOMAN MONUMENT, MUSEUM, AND STATE PARK

701 Monument Road

Ponca City, OK 74601

(405) 765-6108

KAY COUNTY

Presently the museum houses artifacts and photographs of local oil activities.¹

42. CONOCO REFINERY TOURS

1500 S. Fourth St.

Ponca City, OK 74602

(405) 767-6484

KAY COUNTY

The tour begins with an orientation held in the Fourth Street clubhouse, a renovated pump house that now houses the visitors center and meeting rooms. From there, visitors tour the complex and learn about the many products made from crude oil and the processes that take place in the refinery.²

43. ROBERT S. KERR MUSEUM

1507 S. McKenna

Poteau, OK 74953

(918) 647-8221

LE FLORE COUNTY

Materials pertaining to the history of eastern Oklahoma and geological items are displayed.¹

44. TRAVERTINE NATURE CENTER

P.O. Box 201

Sulphur, OK 73086

(405) 622-3165

MURRAY COUNTY

The center was established in 1969 in an area long noted for its interesting geological features, varied ecology, wildlife, and numerous mineral and freshwater springs.¹

45. TALIMENA SCENIC DRIVE (OKLAHOMA STATE HIGHWAY 1)

northeast of Talihina, Oklahoma

LE FLORE COUNTY

The drive has many scenic turnoffs, some with explanations of local geology.

46. AXOLOTL NATURAL HISTORY COLLECTION

Murray State College

Tishomingo, OK 73460

(405) 371-2371, ext. 225

Attn: Bruce G. Stewart, Chair, Division of Science

JOHNSTON COUNTY

47. A. D. BUCK MUSEUM OF SCIENCE AND HISTORY

Northern Oklahoma College

1220 E. Grand

Tonkawa, OK 74653

(405) 628-3318

Attn: Rex D. Ackerson

KAY COUNTY

Specimens from the Herbert Walther Collection, which is housed in the Crowder Science Building, are on display, including about 160 different mineral samples and about 30 plant compression fossils, such as *Calamites* and *Neuropteris*.

48. AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS

1444 S. Boulder Ave.

Tulsa, OK 74101-0979

(918) 584-2555

TULSA COUNTY

Fossils, geodes, etc., are displayed in the lobby and throughout the building.

49. SOCIETY FOR SEDIMENTARY GEOLOGY (SEPM)

1731 E. 71st St.

Tulsa, OK

(918) 493-3361

TULSA COUNTY

Rocks and minerals from the Tulsa Geological Society are exhibited in the building.

50. REDBUD VALLEY NATURE PRESERVE

c/o Oxley Nature Center

6700 Mohawk Blvd.

Tulsa, OK 74115

(918) 669-6644

ROGERS COUNTY

The preserve is a natural area with a one-mile walking trail that passes limestone bluffs with small caves and a spring in a beautiful glen. A small visitor center has an exhibit depicting a cutaway view of the bluff.

51. HARMON SCIENCE CENTER

5707 E. 41st St.
Tulsa, OK 74135 (918) 622-5000
TULSA COUNTY

The center features an exhibit called "Underground Tulsa." Visitors crawl through the subsurface of Tulsa, beginning at the top of the Redbud Valley ecological preserve, slide "miles deep" into magma, and climb back to the surface through layers of granite, oil-bearing sandstone, an abandoned coal mine, a limestone cave, and the downtown tunnel system.

52. ELSING MUSEUM

8555 S. Lewis Ave.
Tulsa, OK 74137 (918) 298-3628
Attn: Willard Elsing
TULSA COUNTY

The Elsing Museum houses a collection of rocks, minerals, and gem stones, tracing the Earth's history through millions of years. Of particular interest are displays of crystals, corals, opals, ivories, and jades. There is also an exhibit of rare and valuable Chinese art. (Note: This is a museum for older children, serious students of science, and adults.)²

53. ORAL ROBERTS UNIVERSITY VISITOR CENTER

7777 S. Lewis Ave.
Tulsa, OK 74171 (918) 495-6993
Attn: Dr. Nate Meleen
TULSA COUNTY

A display of minerals from Willard Elsing is located in the Earth Science hallway, LRC 105D area.

54. SOCIETY OF EXPLORATION GEOPHYSICISTS FOUNDATION MUSEUM

Geophysical Resource Center
8801 S. Yale
Tulsa, OK 74136 (918) 493-3516
Attn: Robert Baxter, Curator
TULSA COUNTY

The objective of the museum is (1) to preserve and display historical instruments and documents; (2) to educate and provide a learning facility for schools and the public; and (3) to exchange geophysical artifacts with other museums.

55. TULSA ZOOLOGICAL PARK and ROBERT J. LAFORTUNE NORTH AMERICAN LIVING MUSEUM

5701 E. 36th St. North
Tulsa, OK 74115 (918) 669-6200
TULSA COUNTY

A unique four-building complex exhibits fossils and mineral specimens. A life-sized model of a dinosaur (*Deinonychus*) also is displayed.¹

56. WALLIS MUSEUM AT CONNORS STATE COLLEGE

Student Union Building
Warner, OK 74469 (918) 463-2931
Attn: Richard McClure
MUSKOGEE COUNTY

The museum houses geological specimens, mostly from Oklahoma. Quartz, copper, sulfur, garnet, mica, geodes, opalized petrified wood, rose rocks, and limestone are displayed. Fossil coral, limpets, crinoids, sea urchins, clams, reptiles, and mammals, as well as fossilized horse-tail reeds, ferns, and the tree *Lepidodendron* also are on exhibit.

57. GENERAL THOMAS P. STAFFORD MUSEUM

3000 Logan Road
Weatherford, OK 73096 (405) 772-6143
CUSTER COUNTY

Moon rocks are displayed.³

58. SEMINOLE NATION MUSEUM

524 W. Wewoka Ave.
Wewoka, OK 74884 (405) 257-5580
Attn: Leta Smith
SEMINOLE COUNTY

A history of the Seminoles and local oil-boom history are featured. The museum presents displays that include memorabilia dating from the days of the oil boom, which was centered 10 miles northwest of Wewoka at Seminole in the mid-1920s.¹

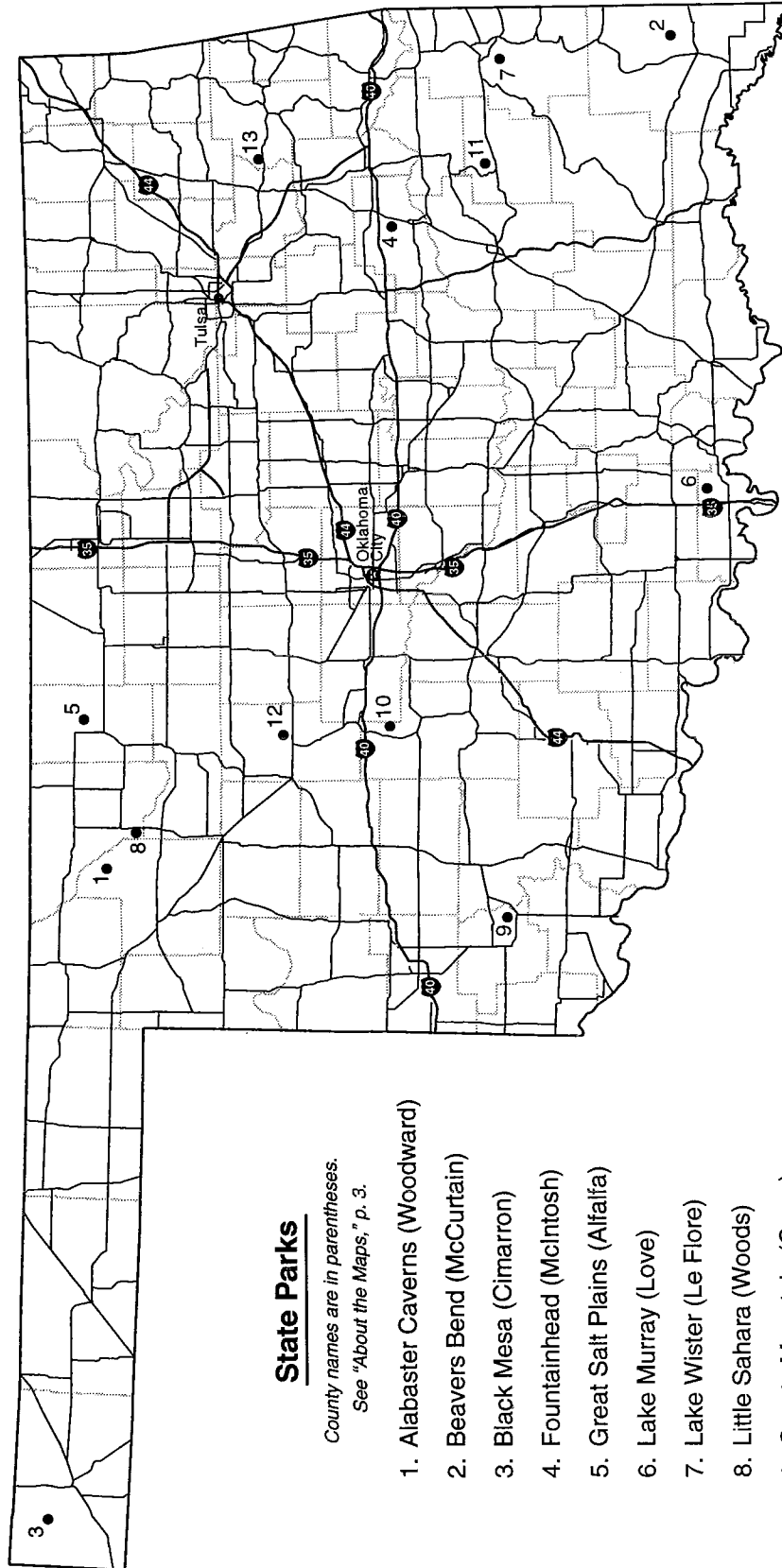
59. LUTIE COAL MINERS MUSEUM

Lutie Road
Wilburton, OK 74578 (918) 465-2114
LATIMER COUNTY

Displays depict coal mining in early-day Latimer County and the surrounding area.⁴

REFERENCES

1. Hunt, David C., 1981, Guide to Oklahoma Museums: University of Oklahoma Press, Norman, 147 p.
2. Lowrey, Sarah (ed.), 1995, Exploring Oklahoma with Children: Inprint Publishing Company, Edmond, 288 p.
3. Oklahoma Native America, Cruisin' Route 66. 1995 Vacation Guide. Booklet published by *Oklahoma Today* magazine, Oklahoma Department of Tourism and Recreation, Oklahoma City.
4. Oklahoma's Museums and Historic Sites. Pamphlet published by Oklahoma Department of Tourism and Recreation, Oklahoma City.



State Parks

County names are in parentheses.

See "About the Maps," p. 3.

1. Alabaster Caverns (Woodward)
2. Beavers Bend (McCurtain)
3. Black Mesa (Cimarron)
4. Fountainhead (McIntosh)
5. Great Salt Plains (Alfalfa)
6. Lake Murray (Love)
7. Lake Wister (Le Flore)
8. Little Sahara (Woods)
9. Quartz Mountain (Greer)
10. Red Rock Canyon (Caddo)
11. Robbers Cave (Latimer)
12. Roman Nose (Blaine)
13. Sequoyah (Cherokee)

STATE PARKS

WITH GEOLOGICAL EXHIBITS OR LITERATURE



Little Sahara State Park, Woods County. (Photo by Fred W. Marvel, courtesy Oklahoma Department of Tourism and Recreation.)

Oklahoma's state parks offer some of the most outstanding geological scenery in the State. In addition, many of the park rangers and naturalists are very knowledgeable about local natural history and are able to answer questions about the geology of the parks.

Although many of Oklahoma's state parks have noteworthy geological features, the list below includes only those parks that have exhibits explaining the local geology, and parks for which popular books, guidebooks, pamphlets, or fact sheets on the geology are available. The geological descriptions given below are taken from literature available from the state park, from letters sent to me from park officials, or from popular or technical geological literature. In some cases, the descriptions apply specifically to a par-

ticular state park. In others, available information pertains to a relatively large area or to general geologic principles.

There is a great deal of professional literature on the geology of some of Oklahoma's state parks; the Oklahoma Geological Survey can provide interested individuals with technical information on the geology of the state park areas (see Chapters 6 and 12).

For a free booklet containing general information on Oklahoma's state parks and resorts, call (800) 652-6552 and ask for a parks and resorts guide. To reserve rooms in state-operated resorts or cabins in state parks, call (800) 654-8240. For more specific information about a particular park or to reserve a campsite, contact the park at the address or phone number that appears with its listing.

Parks are listed in alphabetical order.

1. ALABASTER CAVERNS STATE PARK

Route 1, Box 32

Freedom, OK 73842

(405) 621-3381

WOODWARD COUNTY

Alabaster Caverns State Park, the largest gypsum cave in the world open to the public, is three-fourths of a mile long. Such rock and mineral formations can be seen in few other places. Massive boulders of alabaster, a fine-grained variety of gypsum, are seen in many colors: pink, white, and even a rare black.

Nature set the stage for the cave's formation about 200 million years ago when the area was covered by an inland sea. As the water evaporated, deposits of gypsum were left behind. A perennial stream flowing through the cave is fed by various lateral tunnels and by seepage from the roof. What is now a tiny brook was once a roaring river. Geologists say the roaring river was capable of completely filling the 2,256-foot-long cavern.

The park office has a working seismograph in the interpretive center, along with a mineral display with area rocks labeled, a stuffed rattlesnake, and carved alabaster objects — some from the present day and some from the 1930s and 1940s. Park employees have recently completed an interpretive screen that explains and shows the cave geology. A slide show about bats and a videotape of the cave can be viewed. Additional videos will be available in the near future.

Book available:

Oklahoma Geological Survey Guidebook 15. *Guidebook to Alabaster Cavern and Woodward County, Oklahoma*, by A. J. Myers and others (\$1.00). See back of book for OGS publication order form.

2. BEAVERS BEND STATE PARK

P.O. Box 10

Broken Bow, OK 74728

(405) 494-6300 or 494-6301

McCURTAIN COUNTY

The rugged and scenic topography of Beavers Bend State Park is the result of erosion of steeply tilted and complexly folded strata that range in age from about 450 million to 350 million years old. The long ridges are the eroded, upturned edges of resistant rocks such as chert and novaculite; the valleys are generally underlain by more easily eroded rocks such as shale. One of the more unusual formations in the area is the Beavers Bend tuff, which is exposed at Rattlesnake Bluff on the east side of the Mountain Fork River. The tuff is made up of volcanic ash and pumice that, despite the fact that it was erupted under water, was so hot that individual fragments "welded" together. Geologists call these kinds of rocks welded ash-flow tuffs. The area near Beavers Bend State Park is the only place in Oklahoma where tuffs like these occur.

Book available:

Oklahoma Geological Survey Guidebook 11. *Guide to Beavers Bend State Park*, by W. D. Pitt and others (\$2.00). See back of book for OGS publication order form.

3. BLACK MESA STATE PARK

HCR 1, Box 8

Kenton, OK 73946

(405) 426-2222

CIMARRON COUNTY

Black Mesa State Park, established in 1959, is in the western tip of Oklahoma's Panhandle and consists of 549 acres of land, of which 259 acres are leased, and 90 acres are state-owned. It also encompasses Lake Carl Etling, a 200-acre lake. The Black Mesa itself is northwest of the most widely used part of the park. The top of the mesa is essentially flat, and slopes from an elevation of above 6,600 feet at the western end to 4,900 feet at the eastern end. The highest point in Oklahoma, 4,972.97 feet above sea level, is marked by a granite monument atop the mesa. The monument is located 443 yards from the New Mexico state line to the west and 4.7 miles from Colorado to the north.

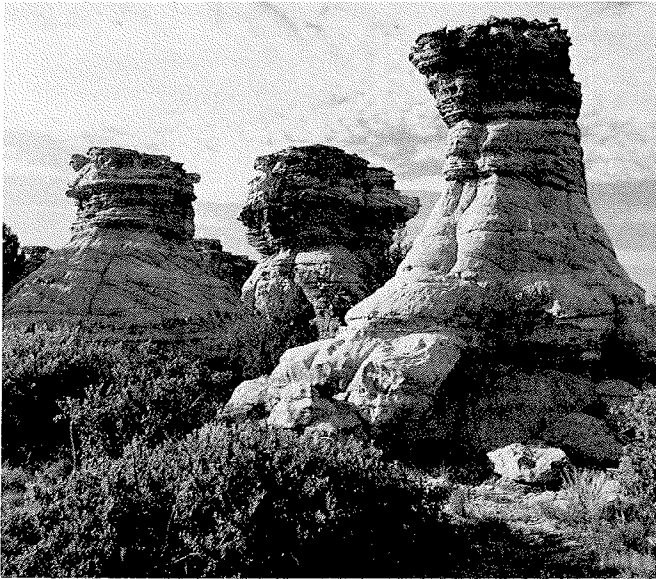
Black Mesa may be an erosional remnant of a basaltic lava flow that was extruded by Piney Mountain in Colorado, seven miles north-northwest of the Oklahoma border. As the lava welled up, it spread over the flats in Colorado and covered a rather extensive area, some of it flowing into valleys. The lava capping Black Mesa had flowed down a valley that probably was a predecessor of the present Cimarron Valley. Subsequently, streams have cut down into the border, composed of less resistant rocks, and left the flows as mesas.

The mesa rises 700 feet above river level. The lava flow is post-middle Pliocene and pre-early Pleistocene. In the steep sides of the mesa, the following rock units are exposed in descending order below the basalt: sands and gravels of the Pliocene Ogalalla Group, thick cross-bedded sandstone of the Cretaceous Dakota Group, and gray shale and sandstone of the Cretaceous Purgatoire Formation. The more gentle slopes between the mesa and the rivers expose in descending order: marl and shale of the Jurassic Exeter Sandstone, and red and buff shale, marl, and conglomerate of the Triassic Dockum Group. In this region, the Ogalalla Group contains common horse teeth and bones of horses and other mammals; the Purgatoire Formation carries abundant specimens of the marine pelecypod genus *Gryphea*; and the Morrison Formation contains many dinosaur bones.

Among the unusual rock formations in the canyon country of Black Mesa State Park is one characterized as "The Old Maid's Profile." Another, known locally as "The Wedding Party," is represented by huge pinnacles properly positioned as the bride, groom, and minister. A massive cluster of smaller pinnacles represents the wedding guests facing the principal characters.

Dinosaur Quarries at Black Mesa

During the early 1930s several dinosaur quarries were opened and excavated under the supervision of the late Dr. J. Willis Stovall, paleontologist from the University of Oklahoma. More than 18 tons of fossilized prehistoric animal bones have been excavated from Cimarron County quarries. Five distinct species of dinosaur were found in the same quarry. Some of the bones excavated by Stovall



Wedding Party rock formation (also called "Three Sisters") near Black Mesa State Park, Cimarron County.

are on exhibit in the Oklahoma Museum of Natural History (see Chapter 2).

4. FOUNTAINHEAD STATE PARK

HC 60, Box 1340
Checotah, OK 74426 (918) 689-5311
McINTOSH COUNTY

An exhibit at the nature center depicts some of the geology of the area. It also includes some of the fossils of the area and describes the Pennsylvanian Period. There are also some fossils from other parts of Oklahoma.

5. GREAT SALT PLAINS STATE PARK

Route 1, Box 28
Jet, OK 73749 (405) 569-2032
ALFALFA COUNTY

Located in northwestern Oklahoma, Great Salt Plains State Park is perhaps the most unusual of all Oklahoma State Parks. The Salt Flats literally are a sea of salt and one of Oklahoma's most intriguing geological phenomena. One theory of their existence has it that the flats represent the remains of a prehistoric sea.

Just west of Great Salt Plains State Park, within the **Salt Plains National Wildlife Refuge**, is the only spot in the world where people can dig for "hourglass" selenite crystals (see cover photos).

SALT PLAINS NATIONAL WILDLIFE REFUGE

Route 1, Box 76
Jet, OK 73749 (405) 626-4794
ALFALFA COUNTY

The crystals are found just beneath the surface of the enormous salt flats. They are quite fragile and require a

shovel or hand spade for their retrieval. The digging is seasonal, from April 1 through October 15.

Selenite is a crystallized form of gypsum. Chemically, it is a hydrous calcium sulphate. Gypsum is a common mineral that takes on a great variety of crystal forms and shapes. On the Salt Plain, the crystals are formed just below the salt-encrusted surface. They are seldom found deeper than two feet below the surface.

Crystals take on the characteristics of their environment; the finer the soil, the clearer the crystals. Iron oxide in the soil gives the crystals their chocolate-brown color. Because these crystals form in wet soil, they often contain sand and clay particles. These particles often form an "hourglass" shape, found only in crystals from this area. Other foreign objects in the soil, such as sticks, rocks, bones, and even cockleburrs, are sometimes included in the crystals.

Single crystals, penetration twins, and clusters are the typical crystal shapes most frequently found on the refuge. Exceptional individual crystals measuring up to seven inches long have been found, along with complex combinations weighing as much as 38 pounds.

Only in certain places on the Salt Plains are the saline solutions sufficiently concentrated to promote crystal growth. When temperature and brine conditions are ideal, the crystals may form very rapidly. When heavy rains or floods bring great quantities of fresh water to the plains, some of the selenite crystals may go back into solution until conditions are right for recrystallization.

As long as nothing happens to change the mineral content of the waters draining into the Salt Plains, these crystals will continue to form, just as they do today.

6. LAKE MURRAY RESORT AND STATE PARK

3310 S. Lake Murray Dr. #12-A
Ardmore, OK 73402 (405) 223-4044
LOVE COUNTY

See "Tucker Tower Nature Center," Ardmore, Oklahoma, Chapter 2.

7. LAKE WISTER STATE PARK

Route 2, Box 6B
Wister, OK 74966 (918) 655-7756
LE FLORE COUNTY

Lake Wister State Park is located in the Arkoma Basin, a part of Oklahoma and Arkansas long recognized for its coal, and more recently, natural gas resources. The rocks in the park are Pennsylvanian in age (about 310 million to 315 million years old). At that time, this part of Oklahoma was near the edge of the ocean; fossiliferous layers with abundant shells indicate some of the rocks were deposited in the marine environment. Coal beds associated with some of the other rock layers suggest swamp or marsh environments. Put together, all the geologic evidence points to a nearshore environment, sometimes just below sea level, at other times just above.

After deposition, the rocks exposed in Lake Wister State Park were folded by the same compressional forces that formed the Ouachita Mountains to the south. The large Heavener anticline is located immediately south of the lake; rocks on the north side of the anticline dip north, those on the south side dip south. Differential erosion of these tilted strata has resulted in a distinct valley-and-ridge type of topography. The ridges, such as Buzzards Roost and Quarry Isle, are underlain by relatively resistant rocks such as sandstone. In contrast, the valleys form in easily eroded rocks such as shale.

Most of the flat or nearly flat low-lying areas in the park are underlain by floodplain deposits of the Poteau River or by sand and gravel of modern streams.

Book available:

Oklahoma Geological Survey Guidebook 28. *Geology of the Wister State Park Area, Le Flore County, Oklahoma*, by L. A. Hemish (\$5.00). See back of book for OGS publication order form.

8. LITTLE SAHARA STATE PARK

Route 2, Box 132

Waynoka, OK 73860

(405) 824-1471

WOODS COUNTY

According to geologists, much of the sand that forms the dunes at Little Sahara State Park originally was deposited by the Cimarron River during the Pleistocene. At that time, melting glaciers to the north and northwest resulted in a larger and more swiftly flowing river than is present today, causing a large volume of sand to be brought into the area.

Water was an initial cause of the sand's presence, and wind was the next link in the formation of the dunes. Wind moving at least 16 mph has sufficient force to move sand along in saltation, a "bouncing" movement in which sand is blown along and just above the surface. The wind blows, rolls, or pushes sand grains up the windward (upwind) side of the dune to the dune crest. Because the wind velocity decreases on the leeward (downwind) side of the dune, sand grains are deposited there. This constant erosion of sand grains from the windward side of dunes and deposition on the leeward slopes causes the dunes to migrate in the direction of the prevailing winds. At Little Sahara, the prevailing winds are from the southwest, and it is estimated that the dunes move northeast about one foot each year.

9. QUARTZ MOUNTAIN STATE RESORT PARK

Route 1, Box 40

Lone Wolf, OK 73655

(405) 563-2238

GREER COUNTY

The Quartz Mountain State Resort Park office houses a small nature center with displays on the natural features of the area. Specifically, there is a display explaining the formation of the Wichita Mountains and several examples of rocks found locally. A trail leads up the mountain over

granite boulders and offers views of the range for many miles east.

10. RED ROCK CANYON STATE PARK

P.O. Box 502

Hinton, OK 73047

(405) 542-6344

CADDO COUNTY

Geologic History of Red Rock Canyon:

At many times in the past, forces within the Earth caused parts of Oklahoma and surrounding states to sink below and rise above sea level alternately. When the region sank, large areas were covered by shallow seas, and thick layers of marine mud, sand, and calcareous skeletal debris were deposited. Other sands and muds were laid down at the same time as alluvial and deltaic deposits near the ancient seas. When certain areas later were raised out of the seas, sediments and rocks deposited earlier were exposed and eroded, just as they are being eroded today. Uplift occurred either by gentle arching of broad areas or by the formation of mountains where rocks were intensely folded or faulted and thrust upward.

Following the period of mountain building, a shallow Permian sea covered western Oklahoma. The mountains were largely worn down, and sand and mud eroded from land in the eastern half of the State were carried in rivers to the sea. The red color of these Permian sandstones comes from red iron oxide compounds deposited with the sand and mud.

These sediments were transformed into rock, and after millions of years of erosion, have become one of 22 geomorphic provinces found in Oklahoma. This province, known as Western Sandstone Hills, includes Red Rock Canyon State Park and most of Caddo County.

11. ROBBERS CAVE STATE PARK

P.O. Box 9

Wilburton, OK 74578

(918) 465-2565

LATIMER COUNTY

The sandstones and shales found throughout Robbers Cave State Park are about 310 million to 315 million years old. They were deposited in a variety of nearshore environments, all of which were associated with deltas that formed at the mouths of generally south-flowing rivers and streams. These streams drained the interior of the continent, the southern edge of which is marked by the Arkoma Basin, which includes the Robbers Cave area.

The two formations exposed in the park are the Savanna and overlying Boggy Formations. The Boggy Formation occurs only in the extreme western part of the park. Its base, known as the Bluejacket Sandstone, is spectacularly exposed in the cliff face on the west side of Lake Carlton. The Savanna Formation, which is composed of seven sandstone beds separated by shale layers, underlies most of the park; the cliff beneath the guest cabins exposes the next-to-the-highest of the sandstones.

The strata at Robbers Cave State Park have been folded into a syncline with rocks in the southern part of the park



Robbers Cave State Park, Latimer County.

tilted to the north and those in the north tilted to the south.

Book available:

Oklahoma Geological Survey Guidebook 22. *Guide to Robbers Cave State Park*, by A. J. Myers, A. M. Gibson, B. P. Glass, and C. R. Patrick (\$5.00). See back of book for OGS publication order form.

12. ROMAN NOSE STATE RESORT PARK

Route 1

Watonga, OK 73772

(405) 623-4215

BLAINE COUNTY

Roman Nose State Park is located in that part of the State underlain by Permian "redbeds"—the beautifully colored and, here, spectacularly exposed, rocks that occur in much of western Oklahoma. The most common rock in the park is the easily eroded shale of the Flowerpot, Blaine, and Dog Creek Formations, but Roman Nose State Park owes its unique character to the thin but relatively resistant light-colored gypsum and dolomite layers. These layers form cliffs and ledges and cap many of the unusual rock formations along the sides of the canyons in the park.

In addition to the scenic cliffs and rugged topography, Roman Nose State Park is noted for its springs. Caves in

the gypsum layers serve as natural outlets for ground water in the area.

Books available:

Oklahoma Geological Survey Guidebook 9. *Guide to Roman Nose State Park, Blaine County, Oklahoma*, by R. O. Fay (\$2.00). See back of book for OGS publication order form.

Roman Nose: A History of the Park, by M. C. Weber, 1994, published by Oakhaven Books: Southard, Oklahoma.

13. SEQUOYAH STATE PARK

Three Forks Nature Center

Route 1, Box 198-3

Hulbert, OK 74441

(918) 772-2108

CHEROKEE COUNTY

Taken from the park's brochure, the following is a partial description of the interpretive fossil trail:

"Here you will take a journey through ancient Oklahoma, a time period which would be impossible to duplicate.

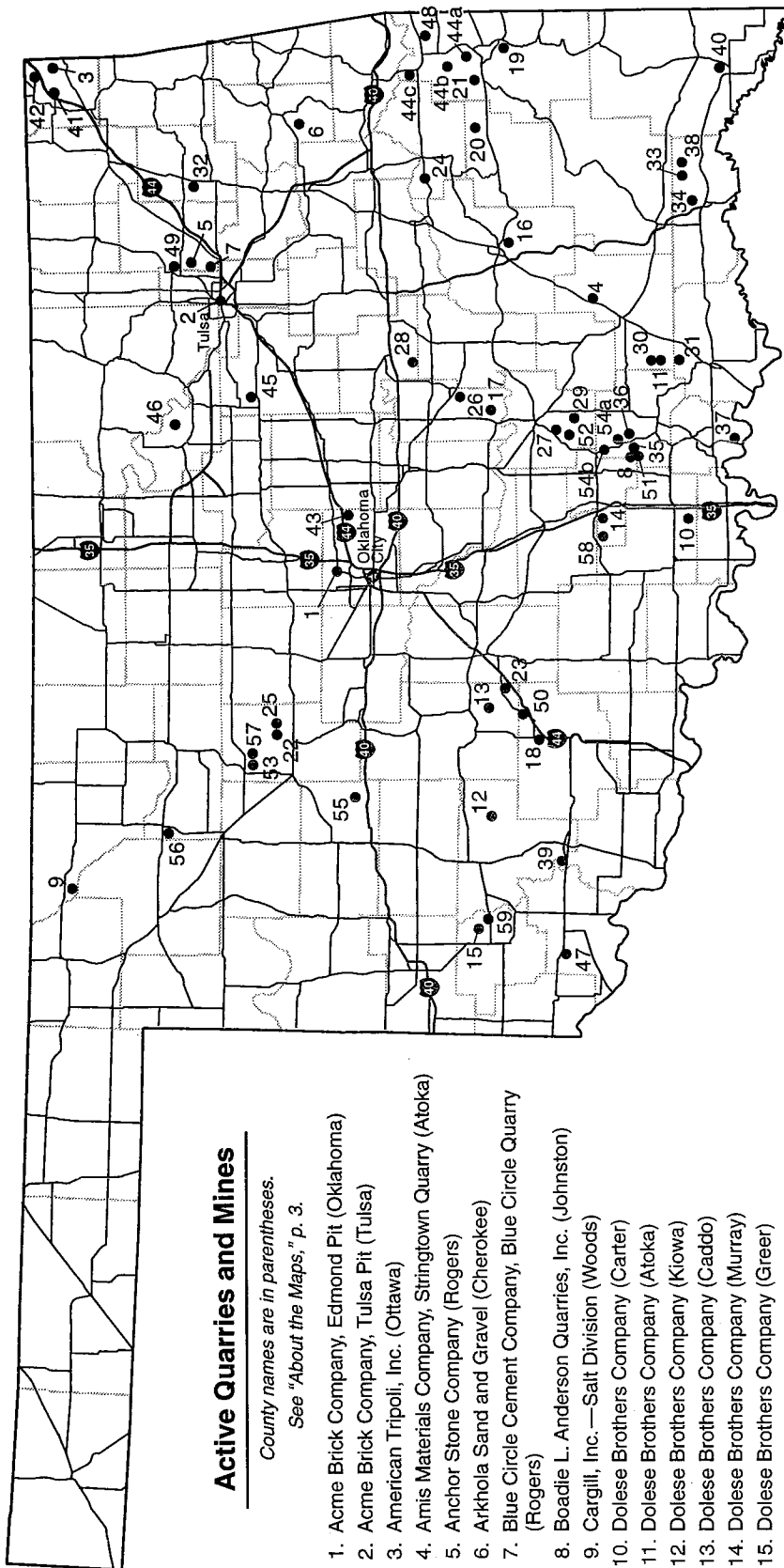
Step back to a time when eastern Oklahoma was covered by warm ocean waters. The fossils found along this trail were formed between 280 million and 345 million years ago. During the Mississippian Period, which began 245 million years ago, most of North America was covered by ocean. The Mississippian Period is often referred to as the "Age of Crinoids" because of the abundance of crinoids and blastoids found in the sedimentary rocks formed during this time. Both are abundant along the fossil trail.

The northern portion of the trail begins in Mississippian-Period rocks known as the Pitkin Formation, or "Archimedes limestone," due to the profuse numbers of the spiraled colonial animal known as Archimedes.

The southern portion of the fossil trail consists of Pennsylvanian-Period rocks and their corresponding species of fossils. The Pennsylvanian Period began 325 million years ago and ended 45 million years later. This was a time of mountain building in North America as well as a time when warm ocean waters disappeared from much of the continent.

The rocks found in most of the park are composed of red sandstone and reveal fossils of terrestrial and marine species. The ancient beaches mixed terrestrial driftwood with the skeletons of the ocean's organisms, as do beaches to this day. The disjunct portion of the fossil trail known as Atoka Beach reveals what was once a prehistoric beach. Impressions of the diamond-shaped scales from ancient trees can be found in the rocks of this area.

Cave formations such as columns, stalactites and large crystals (exposed to the elements) reveal a time when ocean-formed sedimentary rocks were lifted up into mountains by the colliding tectonic plates of the Earth's surface."



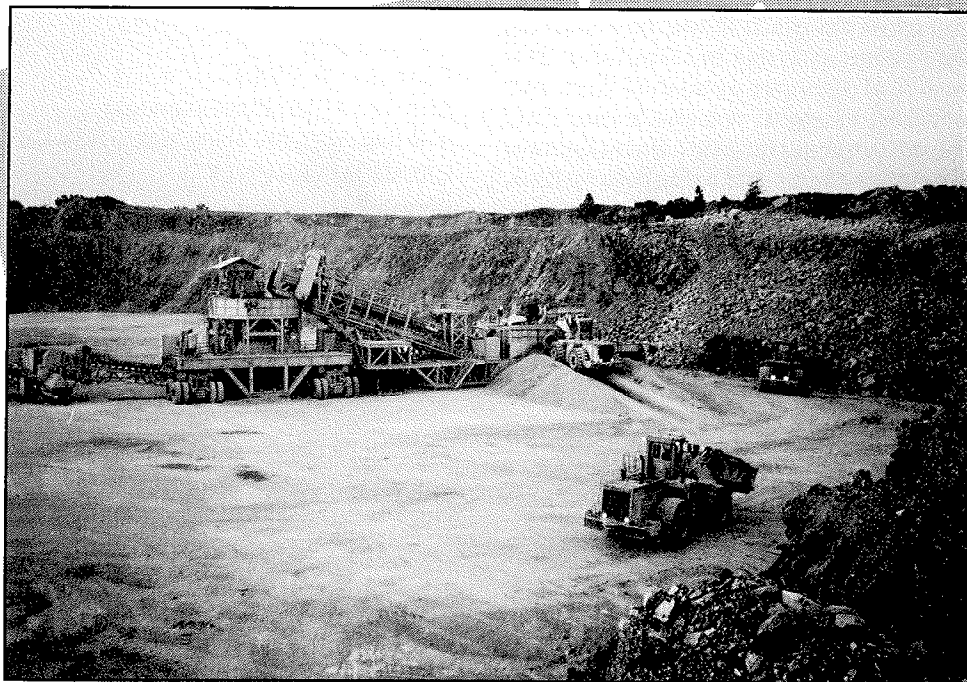
Active Quarries and Mines

County names are in parentheses.

See "About the Maps," p. 3.

1. Acme Brick Company, Edmond Pit (Oklahoma)
2. Acme Brick Company, Tulsa Pit (Tulsa)
3. American Tripoli, Inc. (Ottawa)
4. Amis Materials Company, Stringtown Quarry (Atoka)
5. Anchor Stone Company (Rogers)
6. Arkhola Sand and Gravel (Cherokee)
7. Blue Circle Cement Company, Blue Circle Quarry (Rogers)
8. Boadie L. Anderson Quarries, Inc. (Johnston)
9. Cargill, Inc. — Salt Division (Woods)
10. Dolese Brothers Company (Carter)
11. Dolese Brothers Company (Atoka)
12. Dolese Brothers Company (Kiowa)
13. Dolese Brothers Company (Caddo)
14. Dolese Brothers Company (Murray)
15. Dolese Brothers Company (Greer)
16. Dolese Brothers Company (Pittsburg)
17. Dolese Brothers Company (Seminole)
18. Dolese Brothers Company (Comanche)
19. Farrell-Cooper Mining Company (Le Flore)
20. Farrell-Cooper Mining Company (Latimer)
21. Farrell-Cooper Mining Company (Le Flore)
22. H. & B. Gypsum Company (Blaine)
23. Harrison Gypsum Company, Inc. (Caddo)
24. Haskell County Gravel Company, Inc. (Haskell)
25. Heartland Cement Company (Blaine)
26. Heiskill Gravel, Inc. (Seminole)
27. Holman, Inc. (Pontotoc)
28. Hope Minerals Company (Oktuskee)
29. Jennings Stone Company (Pontotoc)
30. Lattimore Materials Company (Atoka)
31. Lattimore Materials Company (Bryan)
32. Lone Star Industries (Mayes)
33. Meridian Aggregates Company (Choctaw)
34. Meridian Aggregates Company (Choctaw)
35. Meridian Aggregates Company (Johnston)
36. Meridian Aggregates Company (Johnston)
37. Meridian Aggregates Company (Marshall)
38. Meridian Aggregates Company (Choctaw)
39. Meridian Aggregates Company (Kiowa)
40. Meridian Aggregates Company (McCurtain)
41. Midwest Minerals, Inc. (Ottawa)
42. Nelson Brothers Quarries, Inc. (Ottawa)
43. Orange and Sons Trucking Company (Oklahoma)
- 44a. P & K Company Ltd. (Le Flore)
- 44b. P & K Company Ltd. (Le Flore)
- 44c. P & K Company Ltd. (Le Flore)
45. The Quapaw Company (Creek)
46. The Quapaw Company (Pawnee)
47. Republic Gypsum Company (Jackson)
48. Rock Producers, Inc. (Le Flore)
49. Standard Industries (Tulsa)
50. Temple-Inland Forest Products Corp. (Comanche)
51. UNIMIN Corporation (Johnston)
52. UNIMIN Corporation (Pontotoc)
53. United States Gypsum Company (Blaine)
- 54a. U.S. Silica Company (Johnston)
- 54b. U.S. Silica Company (Johnston)
55. Western Plains Material (Custer)
56. Western Plains Material (Major)
57. Western Plains Material (Blaine)
58. Western Rock Products, Inc. (Murray)
59. Willis-Oklahoma Red Granite, Inc. (Greer)

ACTIVE QUARRIES AND MINES



Richards Spur limestone quarry in Comanche County, operated by Dolese Brothers Company. (Photo courtesy Dolese Brothers Company.)

Some of the best places in Oklahoma to see geology are the active quarries and mines throughout the State. Most of the superintendents and plant managers are proud of their product and operations and are agreeable to showing visitors their quarries and mines. Many of the companies involved in the mining industry in Oklahoma recognize the value of earth science education and are willing to accommodate organized field trips; some also are willing to admit mineral and fossil collectors to their sites. However, quarrying and mining are businesses and the safety of company employees and visitors is of utmost concern; therefore, certain rules and regulations generally pertain to quarry visits:

1) All quarries and mines require that requests for visits be made in advance, preferably well in ad-

vance. None of the quarries listed allow visitors to see their operations or collect specimens if prior arrangements haven't been made. Quarries may be closed to visitors when certain operations, such as blasting, are taking place. If you'd like to visit a quarry, please be flexible in your timing.

- 2) The superintendent or other individual who leads any particular quarry tour is in charge. Please pay attention and follow instructions, and be courteous. Bear in mind that if your group visits a quarry and acts irresponsibly, the operator may not welcome your or other groups in the future.
- 3) Some quarries require visitors to complete liability forms. This is usually discussed when arrangements for a visit are being made.

The following list includes quarries and mines throughout Oklahoma that permit tours and/or visits by organized groups. It is based on the *Directory of Oklahoma Mining Industry, 1993*, by R. H. Arndt and Robert Springer (Oklahoma Geological Survey Special Publication 93-1), with updated information on names, phone numbers, etc. The list does not include the many sand and gravel operations throughout the State; very small quarries; inactive, abandoned, or reclaimed quarries; or quarries that do not allow visitors. It should be noted that there probably are some quarries in Oklahoma that opened after Arndt and Springer published their list; these also are not listed. I suggest you check your local phone book for recently opened quarries. If you know of a quarry or mine not listed here that welcomes visitors, please contact me at the OGS and it will be included in updated editions of this publication.

Although every attempt was made to make this list as current as possible, quarries and mines close and phone numbers change; therefore, it may not be entirely accurate. Similarly, owners change, as do state and federal rules and regulations, so quarries that are able to accommodate visitors now may not do so in the future.

Several comments should be made concerning this list. The county listing is based on the location of the quarry or mine and not the company address. Following the name and position of the contact person is the material being mined or quarried, the formation that material is coming from, and the geologic age of the formation. Following that information are the answers to three questions that the OGS asked with regard to how the quarry deals with requests from teachers or collectors for visits. These questions are:

- 1) Do you have a geologist or geological engineer on staff who would be willing to talk about your profession and/or operations with interested groups (students or scouts, for example) in your area?
- 2) Would you be willing to allow students or other organized groups to visit your mine and/or quarry as part of a (school-, scout-, etc.) sponsored field trip if prior arrangements are made? Please specify whether weekdays or weekends are preferable.
- 3) Would you be willing to open your quarry and/or mine to rock, mineral, and/or fossil collectors, if prior arrangements are made? Please specify whether weekdays or weekends are preferable.

A FINAL WORD OF CAUTION: Despite the best efforts of state and federal authorities, a large number of abandoned quarries and mines remain accessible throughout Oklahoma. Nearly all of these are on private land and, although inviting (especially for collectors), are *extremely* dangerous. **Avoid them.** You not only risk being cited for trespassing, you risk serious injury, or worse.

Companies that operate quarries and mines in Oklahoma are listed below in alphabetical order. Companies that have more than one mine or quarry are indicated by gray lines; these companies also may have additional contacts for information.

ACME BRICK COMPANY

1. Acme Brick Company

Edmond Pit
P.O. Box 5008
Edmond, OK 73083
Attn: Jim Miles, Plant Manager (405) 755-5010
also Rod Morgan, Sales Mgr., Okla. City (405) 525-7421

OKLAHOMA COUNTY

Clay and shale; terrace (Quaternary)
Yes (foreman); Yes; No

2. Acme Brick Company

Tulsa Pit
P.O. Box 582590
Tulsa, OK 74158
Attn: Dick Lamar, Plant Manager (918) 834-3384

TULSA COUNTY

Shale; Seminole Formation (Pennsylvanian)
No; Yes (minimum 16 years of age, M-F); No

3. AMERICAN TRIPOLI, INC.

Chester Cream No. 23 Mine
P.O. Box 489
Seneca, MO 64865
Attn: Bruce L. Anderson, Vice President
and General Manager (417) 776-2216

OTTAWA COUNTY

Tripoli; Boone Formation (Mississippian)
Yes; Yes (M-Th); No

4. AMIS MATERIALS COMPANY

Stringtown Quarry
Box 417
Atoka, OK 74525
Attn: Dude Muse, Quarry Superintendent (405) 346-7376

ATOKA COUNTY

Limestone; Bigfork Chert (Ordovician)
No; Possible (M-F); No

5. ANCHOR STONE COMPANY

Tulsa Rock Quarry
3122 N. Mingo Valley Expressway
Tulsa, OK 74116
Attn: Blake Tice, Superintendent (918) 272-1719

ROGERS COUNTY

Limestone; Oologah Limestone (Pennsylvanian)
No; Yes (M-F); No

6. ARKHOLA SAND AND GRAVEL

Roberts Quarry
R.R. 2, Box 247
Tahlequah, OK 74464
Attn: Robert Hutchins, Manager (918) 456-9356
CHEROKEE COUNTY
Limestone; Bloyd Formation (Pennsylvanian)
No; Yes (M-F); No

7. BLUE CIRCLE CEMENT COMPANY

Blue Circle Quarry
2609 N. 145th East Ave.
Tulsa, OK 74116
Attn: Doug Pardee, Operations Manager (918) 437-3902
ROGERS COUNTY
Limestone, clay, and shale; Oologah Limestone (Pennsylvanian)
Yes; Yes (M-F); No

8. BOADIE L. ANDERSON QUARRIES, INC.

Anderson Autumn Rose Quarry
P.O. Box 1648
Ada, OK 74820
Attn: Edwin R. Anderson, President (405) 436-2100
JOHNSTON COUNTY
Granite; Tishomingo/Troy Granites (Precambrian)
Yes (Manufacturing, video); Possible; No

9. CARGILL, INC. — SALT DIVISION

Cargill Salt Mine
P.O. Box 167
Freedom, OK 73842
Attn: Eric Augspurgen, Plant Manager (405) 621-3246
WOODS COUNTY
Salt; Flowerpot Shale (Permian)
No; Yes (M-F; weekends possible); No

DOLESE BROTHERS COMPANY

Note: For all Dolese Brothers Company quarries, in addition to the quarry superintendent, contact:

Andrew S. Lain, Assistant General Superintendent
Stone Operations
Dolese Brothers Company
P.O. Box 677
Oklahoma City, OK 73101-0677 (405) 235-2311
For all quarries: Yes (Mining Engineer); Yes (weekends);
Yes (weekends)

10. Dolese Brothers Company

Ardmore Quarry
7125 S. Plainview Road
Ardmore, OK 73401
Attn: Earl Coll, Superintendent (405) 226-8737
CARTER COUNTY
Limestone; Arbuckle Limestone (Cambrian to Ordovician)

11. Dolese Brothers Company

Coleman Quarry
R.R. 1, Box 35A
Coleman, OK 73432
Attn: Eddie Taylor, Superintendent (405) 937-4889
ATOKA COUNTY
Limestone; Arbuckle Limestone (Cambrian to Ordovician)

12. Dolese Brothers Company

Cooperton Quarry
R.R. 2, Box 156
Mountain View, OK 73062
Attn: Steve Laird, Superintendent (405) 639-2237
KIOWA COUNTY
Limestone; Arbuckle Limestone (Cambrian to Ordovician)

13. Dolese Brothers Company

Cyril Quarry
P.O. Box 169
Cyril, OK 73029
Attn: Bill Derby, Superintendent (405) 464-3168
CADDO COUNTY
Sandstone; Rush Springs Sandstone (Permian)

14. Dolese Brothers Company

Davis Quarry
R.R. 1, Box 16
Davis, OK 73030
Attn: Mervyn Collins, Superintendent (405) 369-3242
MURRAY COUNTY
Limestone; Arbuckle Limestone (Cambrian to Ordovician)

15. Dolese Brothers Company

Granite Quarry
P.O. Box 663
Granite, OK 73547
Attn: Steve Laird, Superintendent (405) 535-2107
GREER COUNTY
Stone; Wichita Granite (Cambrian)

16. Dolese Brothers Company

Hartshorne Quarry
Box 1009
Hartshorne, OK 74547
Attn: Richard Wilmeth, Superintendent (918) 297-2376
PITTSBURG COUNTY
Limestone; Wapanucka Limestone (Pennsylvanian)

17. Dolese Brothers Company

Konawa Quarry
R.R. 1, Box 361
Sasakwa, OK 74867
Attn: Roger Streetman (405) 941-3225
SEMINOLE COUNTY
Limestone; Belle City Limestone (Pennsylvanian)

18. Dolese Brothers Company

Richards Spur Quarry
 R.R. 1, Box 3800
 Elgin, OK 73538-5670
 Attn: Wayne Moran, Superintendent (405) 492-4771
 COMANCHE COUNTY
 Limestone; Arbuckle Limestone (Cambrian to Ordovician)

FARRELL-COOPER MINING COMPANY

Note: To arrange for a speaker from Farrell-Cooper Mining Company coal mines, contact:

Robert P. Cooper, Vice President
 Farrell-Cooper Mining Company
 P.O. Box 11050
 Fort Smith, AR 72917-1050 (501) 646-4366

For all mines: Yes; No; No

19. Farrell-Cooper Mining Company

Pine Mountain Mine
 HC 64, Box 3466
 Heavener, OK 74937
 Attn: Doug Russell, Superintendent (918) 653-4835
 LE FLORE COUNTY
 Coal; Hartshorne Coal, Hartshorne Formation (Pennsylvanian)

20. Farrell-Cooper Mining Company

Red Oak Mine
 Red Oak, OK 74563
 Attn: A. E. Smithson, Superintendent (918) 754-2801
 LATIMER COUNTY
 Coal; McAlester Coal, McAlester Formation (Pennsylvanian)

21. Farrell-Cooper Mining Company

Wister Mine
 Wister, OK 74966
 Attn: Joe Benson, Superintendent (918) 655-7260
 LE FLORE COUNTY
 Coal; Secor and Secor Rider Coals, Boggy Formation (Pennsylvanian)

22. H. & B. GYPSUM COMPANY

Howry Quarry
 P.O. Box 339
 Watonga, OK 73772
 Attn: J. C. Howry, Vice President (405) 623-2656
 BLAINE COUNTY
 Gypsum; Nescatunga Gypsum, Blaine Formation (Permian)
 No; Yes (weekends; M-F possible in some pits); Yes (weekends; M-F possible in some pits)

23. HARRISON GYPSUM COMPANY, INC.

Harrison Gypsum Pit and Plant
 P.O. Box 747
 Anadarko, OK 73005
 Attn: Anthony Little, Plant Manager (405) 588-3203
 CADDO COUNTY
 Gypsum; Cloud Chief Formation (Permian)
 No; Yes (weekends); Yes (weekends)

24. HASKELL COUNTY GRAVEL COMPANY, INC.

Haskell Pit and Plant
 P.O. Box 57
 Whitefield, OK 74472
 Attn: Charlie Turner, Owner (918) 799-5859
 HASKELL COUNTY
 Sandstone; Boggy Formation (Pennsylvanian)
 No; Yes (M-F); No

25. HEARTLAND CEMENT COMPANY

Heartland Cement Company Mine
 P.O. Box 407
 Watonga, OK 73772
 Attn: Danny Shrader, Superintendent (405) 623-5137
 BLAINE COUNTY
 Gypsum; Blaine Formation (Permian)
 No; Yes (M-F); No

26. HEISKILL GRAVEL, INC.

P.O. Box 637
 Okemah, OK 74859
 SEMINOLE COUNTY
 Attn: David Clonts, Foreman (405) 257-5323
 Limestone; Belle City Limestone(?) (Pennsylvanian)
 No; Yes (Sa); Yes (Sa)

27. HOLMAN, INC.

Lawrence Quarry
 P.O. Box 190
 Ada, OK 74820
 Attn: Larry Watts, Quarry Supervisor (405) 332-1512
 PONTOTOC COUNTY
 Limestone; Fernvale Limestone (Ordovician) and Viola Limestone (Ordovician)
 Yes; Yes (M-F); No

28. HOPE MINERALS COMPANY

Hope Minerals Mine
 R.R. 2, Box 122A
 Wetumka, OK 74883
 Attn: Dwight Simpson, Independent Contractor (405) 452-3529
 OKFUSKEE COUNTY
 Volcanic ash; terrace (Quaternary)
 Yes; Yes (weekends); No

29. JENNINGS STONE COMPANY

Jennings No. 1 Quarry

P.O. Box 194

Fittstown, OK 74842

Attn: Randy Jennings, President (405) 777-2880

PONTOTOC COUNTY

Limestone; Fernvale Limestone (Ordovician) and Viola Limestone (Ordovician)

For information about tours and collecting, contact Robert Neman, East Central University (see Chapter 7).

LATTIMORE MATERIALS COMPANY**30. Lattimore Materials Company**

Coleman Quarry

P.O. Box 556

McKinney, TX 75069

Attn: Lee White, Plant Manager (405) 937-4273

ATOKA COUNTY

Limestone; Honey Creek Limestone (Cretaceous)

No; Yes (M-F); Yes (M-F)

31. Lattimore Materials Company

Kenefic Quarry

P.O. Box 556

McKinney, TX 75069

Attn: Lee White, Plant Manager (405) 367-2286

BRYAN COUNTY

Limestone; Goodland Limestone (Cretaceous)

No; Yes (M-F); Yes (M-F)

32. LONE STAR INDUSTRIES

Pryor Cement Plant

P.O. Box 68

Pryor, OK 74632

Attn: Richard Zimmer, Technical Manager (918) 825-1937

MAYES COUNTY

Limestone; Fayetteville Shale (Mississippian) and Hinds-ville Formation (Mississippian)

No; Possible (M-F); No

MERIDIAN AGGREGATES COMPANY*Note:* For all Meridian Aggregates Company quarries, you also may contact Cal Ray, Area Manager at (800) 444-3124.**33. Meridian Aggregates Company**

Bumpas Quarry (Apple Plant)

P.O. Box 206

Hugo, OK 74743

Attn: Jerry Rogers, Superintendent (405) 326-6662

CHOCTAW COUNTY

Sandstone; Jackfork Sandstone (Pennsylvanian)

No; Yes (weekends); No



Gypsum quarry at Fletcher, Comanche County, operated by Temple-Inland Products Corporation. (Photo by Kenneth S. Johnson.)

34. Meridian Aggregates Company

Custer Quarry (Hugo Plant)

P.O. Box 206

Hugo, OK 74743

Attn: Jay D. Greer, Superintendent (405) 326-2797

CHOCTAW COUNTY

Limestone; Goodland Limestone (Cretaceous)

No; Yes (weekends); No

35. Meridian Aggregates Company

Daube Quarry (Mill Creek Plant)

P.O. Box 288

Ravia, OK 73455

Attn: Monty Tolbert, Superintendent (405) 384-5758

JOHNSTON COUNTY

Dolomite; Royer Dolomite (Cambrian)

No; Yes (weekends); No

36. Meridian Aggregates Company

Mill Creek Quarry

Hwy. 1, 3½ miles south of Mill Creek

Mill Creek, OK 74856

Attn: Ed Snider, Plant Manager (405) 384-5246

JOHNSTON COUNTY

Granite; Tishomingo/Troy Granites (Precambrian)

No; Yes (weekends); Yes (weekends)

37. Meridian Aggregates Company

Rushing Quarry (Willis Plant)

P.O. Box 407

Gordonville, TX 76245

Attn: J. R. Glover, Superintendent (405) 564-2319

MARSHALL COUNTY

Limestone; Goodland Limestone (Cretaceous)

No; Yes (weekends); Yes (weekends)

38. Meridian Aggregates Company

Sawyer Plant

P.O. Box 206

Hugo, OK 74743

Attn: Jerry Rogers, Superintendent (405) 326-9671

CHOCTAW COUNTY

Limestone; Goodland Limestone (Cretaceous)

No; Yes (weekends); No

39. Meridian Aggregates Company

Snyder Quarry

1760 "Z" St.

Dallas, TX 75229

Attn: Alan Gadberry, Regional

Aggregates Manager (214) 569-2393

KIOWA COUNTY

Granite; Wichita Granite (Cambrian)

Yes (Mining Engineer); Yes (weekends); No

40. Meridian Aggregates Company

Williams Quarry (Idabel Plant)

P.O. Box 387

Idabel, OK 74745

Attn: Larry Raymond, Superintendent (405) 286-3290

McCURTAIN COUNTY

Limestone; Goodland Limestone (Cretaceous)

No; Yes (weekends); Yes (weekends)

41. MIDWEST MINERALS, INC.

Miami No. 31 Quarry

R.R. 1, Box 59A

Miami, OK 74354

Attn: Richard Atkinson, President
(main office, Pittsburg, Kansas) (316) 231-8120

OTTAWA COUNTY

Limestone; Hindsville Limestone (Mississippian)

Yes; Yes (M-F); Yes (M-F)

42. NELSON BROTHERS QUARRIES, INC.

Quapaw Quarry

R.R. 1, Box 162A

Quapaw, OK 74363

Attn: Dusty Nelson, Vice President (918) 674-2237

OTTAWA COUNTY

Limestone; Hindsville Limestone(?) (Mississippian)

No; Yes (weekends, possible M-F); Possible weekends

43. ORANGE AND SONS TRUCKING COMPANY

Lost Scott Quarry

R.R. 2, Box 118A

Spencer, OK 73084

Attn: Joe Willie Orange, Sr. (405) 769-4941

OKLAHOMA COUNTY

Clay and shale; Wellington Formation (Permian)

No; Yes (M-F); No

44a,b,c. P & K COMPANY LTD.

Pollyanna Nos. 6, 7, and 9

P.O. Box 550

Henryetta, OK 74437

Attn: G. Matthew Richardson, President (918) 652-2548

LE FLORE COUNTY (all 3 mines)

Mines 6 and 7: Coal; Boggy Formation (Pennsylvanian)

Mine 9: Coal; McAlester Formation (Pennsylvanian)

Yes; Yes (M-F); Yes (M-F)

THE QUAPAW COMPANY**45. The Quapaw Company, Badger Quarry**

Box 166

Drumright, OK 74030

Attn: Joe Brensing, Superintendent (918) 352-2533

CREEK COUNTY

Limestone; Lecompton Limestone (Pennsylvanian)

No; Yes (M-F); Yes (M-Sa)

46. The Quapaw Company, Brensing Quarry

R.R. 2, Box 35

Pawnee, OK 74058

Attn: Joe Brensing, Superintendent (918) 767-3231

PAWNEE COUNTY

Limestone; Brownsville Limestone (Permian?)

No; Yes (M-F); Yes (M-Sa)

47. REPUBLIC GYPSUM COMPANY

Republic Pit Nos. 1, 2

P.O. Drawer C

Duke, OK 73532

Attn: Gary Krebs, Plant Manager (405) 679-3391

JACKSON COUNTY (both pits)

Gypsum; Blaine Formation (Permian)

Yes; Yes (M-F); No

48. ROCK PRODUCERS, INC.

Rock Producers Quarry

P.O. Box 728

Pocola, OK 74902

Attn: Daryl Jackson, President (918) 647-3867

also Dale Dalton, Geologist (918) 469-3441

LE FLORE COUNTY

Sandstone; Hartshorne Formation (Pennsylvanian)

Yes; Yes (all week); Yes (all week)

49. STANDARD INDUSTRIES

East Quarry

P.O. Box 580670

Tulsa, OK 74158

Attn: Mearl Percy, President (918) 438-2020

TULSA COUNTY

Limestone; Oologah Limestone (Pennsylvanian)

No; Possible (M-F); No

50. TEMPLE-INLAND FOREST PRODUCTS CORPORATION

Temple-Inland Forest Products Corporation Quarry
P.O. Box 101
Fletcher, OK 73541
Attn: David Cain, Quarry Superintendent (405) 549-6475
COMANCHE COUNTY
Gypsum; Cloud Chief Formation (Permian)
No; Yes (Plant only, 18+ yrs., weekends); No

UNIMIN CORPORATION

51. UNIMIN Corporation, Mill Creek Plant
P.O. Box 87
Mill Creek, OK 74856
Attn: Mike Milliken, Plant Manager (405) 384-5271
JOHNSTON COUNTY
Dolomite; Royer Dolomite (Cambrian)
Yes; Yes (M-F); No

52. UNIMIN Corporation, Roff Plant
P.O. Box 159
Roff, OK 74865
PONTOTOC COUNTY
Attn: Dave J. Rush, Plant Manager (405) 456-7772
Sand; McLish Sandstone (Ordovician)
Yes; Yes (all week); No

53. UNITED STATES GYPSUM COMPANY

Southard Quarry
P.O. Box 100, Hwy. 51A
Southard, OK 73770-0100
Attn: William C. Weber, Plant Manager (405) 822-4451
BLAINE COUNTY
Gypsum; Shimer Gypsum and Nescatunga Gypsum,
Blaine Formation (Permian)
Yes; Yes (college students only) (all week); No

54a,b. U.S. SILICA COMPANY

No. 37 and 39 Mines
P.O. Box 36
Mill Creek, OK 74856
Attn: Ronald J. Hendrickson, Plant Mgr. (405) 384-5241
JOHNSTON COUNTY (both mines)
Sand; Oil Creek Sandstone (Ordovician)
No; Yes (weekends); Yes (weekends)

WESTERN PLAINS MATERIAL

Note: For all Western Plains Material quarries, contact:

R. D. Shore, Manager
Western Plains Material, Inc.
P.O. Box 979
Weatherford, OK 73096

R. D. Shore also may be contacted by leaving a message at one of the quarry office phone numbers listed below.

55. Western Plains Material

Jones Quarry
Weatherford, OK 73069
CUSTER COUNTY
Attn: R. D. Shore (405) 772-2592
Gypsum; Cloud Chief Formation (Permian)
No; Yes (M-F); Yes (M-F)

56. Western Plains Material

Morris Quarry
Mooreland, OK 73852
Attn: R. D. Shore (405) 697-3222
MAJOR COUNTY
Gypsum; Nescatunga Gypsum, Blaine Formation
(Permian)
No; Yes (M-F); Yes (M-F)

57. Western Plains Material

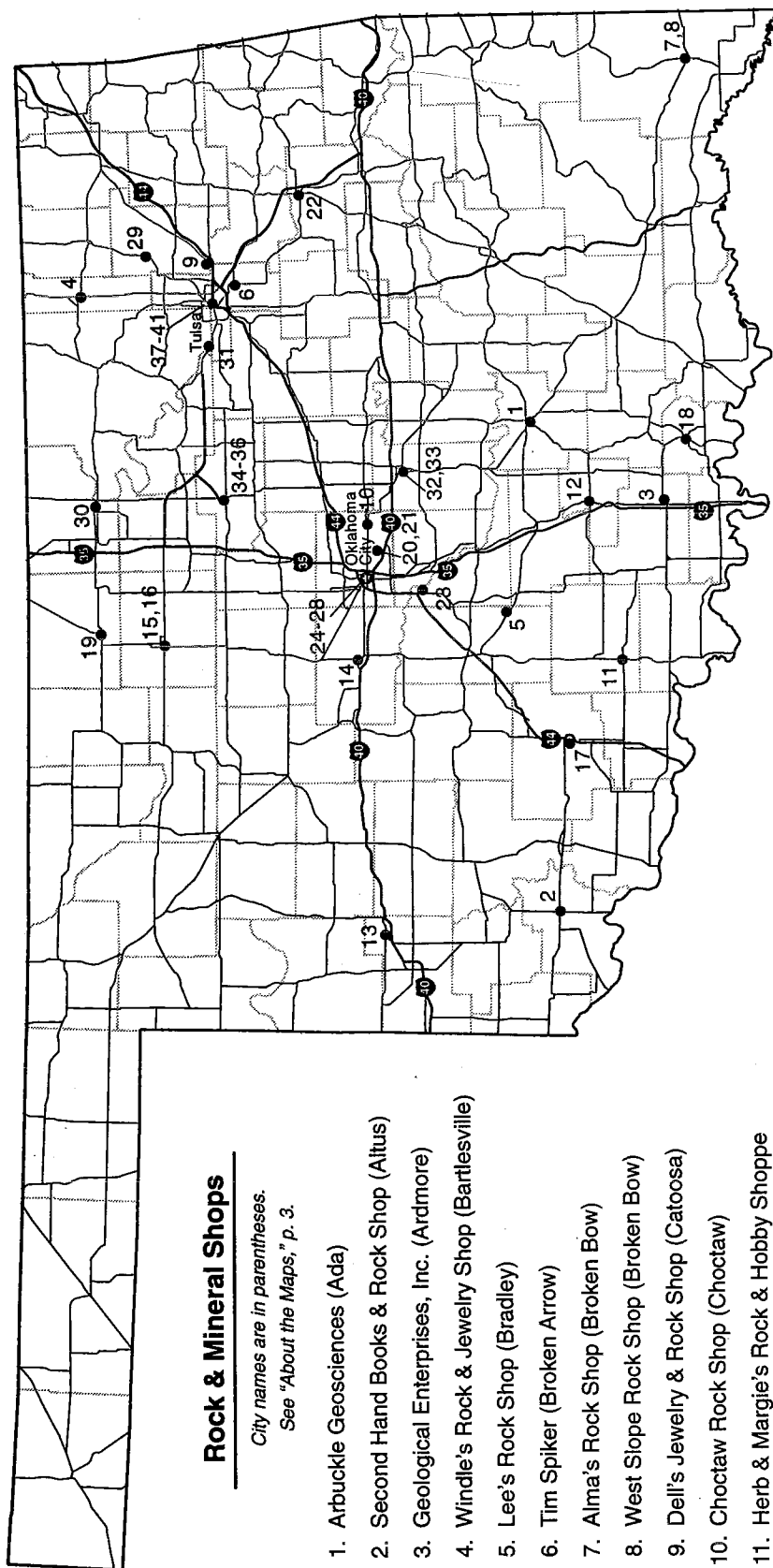
Velma Quarry
Southard, OK 73770
Attn: R. D. Shore (405) 822-3007
BLAINE COUNTY
Gypsum; Nescatunga Gypsum, Blaine Formation
(Permian)
No; Yes (M-F); Yes (M-F)

58. WESTERN ROCK PRODUCTS, INC.

Davis Quarry
P.O. Box 599
Davis, OK 73030
Attn: Butch Vores, Plant Manager (405) 369-3773
MURRAY COUNTY
Rhyolite; Carlton Rhyolite (Cambrian)
Yes; Yes (weekends); No

59. WILLIS-OKLAHOMA RED GRANITE, INC.

Willis Quarry
900 Quarry Dr.
P.O. Box 867
Granite, OK 73547
Attn: Karen Harrison or
Marla Scarborough (405) 535-2184
GREER COUNTY
Granite; Reformatory [Wichita] Granite (Cambrian)
No; Yes (M-Sa); Yes (M-Sa). (*Note:* Only the plant, not the quarry, is open to the public.)



Rock & Mineral Shops

City names are in parentheses.
See "About the Maps," p. 3.

1. Arbuckle Geosciences (Ada)
2. Second Hand Books & Rock Shop (Altus)
3. Geological Enterprises, Inc. (Ardmore)
4. Windle's Rock & Jewelry Shop (Bartlesville)
5. Lee's Rock Shop (Bradley)
6. Tim Spiker (Broken Arrow)
7. Alma's Rock Shop (Broken Bow)
8. West Slope Rock Shop (Broken Bow)
9. Dell's Jewelry & Rock Shop (Catoosa)
10. Choctaw Rock Shop (Choctaw)
11. Herb & Margie's Rock & Hobby Shoppe (Comanche)
12. Jay's Gem Shop (Davis)
13. Bob Harness (Elk City)
14. Muston Electric Co. & Rock Shop (El Reno)
15. Silver & Stone Creations (Enid)
16. John Worden (Enid)
17. Discoveries in Education (Lawton)
18. Unicorn Supplies Sales (Madill)
19. Glenn & Joan Smalley (Medford)
20. Nature's Treasures (Midwest City)
21. Crystal Formations (Midwest City)
22. Bid-A-Wee Lapidary (Muskogee)
23. Tuckers Rocks & Minerals (Newcastle)
24. A Rainbow's End (Oklahoma City)
25. Hughston Elijan (Oklahoma City)
26. Arrowhead Jewelry Supply (Oklahoma City)
27. Aizenman's, Inc. (Oklahoma City)
28. N-Ter-National Gems, Inc. (Oklahoma City)
29. Lakeview Specialties (Oologah)
30. Oklahoma Lapidary Supply (Ponca City)
31. Rexco (Sand Springs)
32. Gowder's Gems (Shawnee)
33. House of Ronan (Shawnee)
34. Countryside Studio (Stillwater)
35. H & H Minerals (Stillwater)
36. Oklahoma Meteorite Laboratory (Stillwater)
37. J. W. Day Manufacturing Co. & Rock Shop (Tulsa)
38. The Mineral Gallery (Tulsa)
39. Novel Idea (Tulsa)
40. Novel Idea (Tulsa)
41. Natural Wonders (Tulsa)

ROCK AND MINERAL SHOPS,

LAPIDARY EQUIPMENT SUPPLIERS, AND GUIDED TOURS



J. W. Day Manufacturing Company and Rock Shop, Tulsa. (Photo courtesy Ted E. Lane, Tulsa.)

There are many shops and businesses in Oklahoma that sell rock, mineral, and fossil specimens as well as lapidary equipment. These businesses range from very small and informal backyard operations to large, long-established businesses with millions of dollars in inventory. Some of these shops may also include small museums; similarly, some of the museums listed in Chapter 2 sell rock, mineral, and fossil specimens. There are also businesses that specialize in giving guided tours to collecting sites.

This list is based partly on "Rockshops and Dealers of Oklahoma," a booklet compiled some years ago by

George Findley of the Oklahoma Gem and Mineral Society. Some of the addresses shown are incomplete; this is how they appear in the booklet. In addition, this list does not include jewelry businesses that do not deal in collection specimens or lapidary equipment. Also keep in mind that some of these businesses may have different names and locations or may even have closed. And like the other lists in this resources guide, I suspect this list is incomplete and welcome any changes, additions, or deletions from users for updated editions.

The descriptions are those provided by the businesses themselves or what appear in published advertisements.

Shops are in alphabetical order by city.

1. ARBUCKLE GEOSCIENCES

Dr. Bob Neman

P.O. Box 641

Ada, OK 74820

PONTOTOC COUNTY

(405) 332-8000 or

(405) 436-1626

Provides geological field trips.

2. SECOND HAND BOOKS AND ROCK SHOP

Altus, OK

JACKSON COUNTY

3. GEOLOGICAL ENTERPRISES, INC.

P.O. Box 996

Ardmore, OK 73402

CARTER COUNTY

Wholesale, strictly mail order. *Visitors by appointment only.*

4. WINDLE'S ROCK AND JEWELRY SHOP

3500 S.E. Washington Blvd.

Bartlesville, OK 74006

WASHINGTON COUNTY

(918) 333-2814 or

(800) 540-0168

Goods and services include: lapidary tools and supplies for the hobbyist and professional; lapidary books and magazines; microscopes, optivisors, magnifiers, gauges, balances, etc.; cutting material for cabachon and faceting; custom cutting, cabachon, and faceting, slabbing; colored stones, diamond brokers; 14-karat gold and silver mountings; graduate gemologist; identification and appraisal; silver and gold smithing tools, supplies, and books; silver and gold smithing, custom jewelry, wax work and casting; stone setting and antique jewelry restoration; minerals, U.S. and foreign; mineral and fossil kits; mineral collecting tools, supplies, magazines, and books; fossils, fossil reproductions, and molds. *Tour buses and school groups by appointment.*

5. LEE'S ROCK SHOP

P.O. Box 71

Bradley, OK 73011

GRADY COUNTY

6. TIM SPIKER

1104 W. Oakridge

Broken Arrow, OK 74012

TULSA COUNTY

7. ALMA'S ROCK SHOP

Merle and Alma Edson

Route 2, Box 982

Broken Bow, OK 74728

McCURTAIN COUNTY

8. WEST SLOPE ROCK SHOP WITH OUACHITA MOUNTAIN TOURS

Route 4, Box 60

Broken Bow, OK 74728

(405) 494-6612

McCURTAIN COUNTY

Specializing in quartz, fossils, minerals. Also guided tours.

9. DELL'S JEWELRY AND ROCK SHOP

19932 E. Pine St.

Route 3, Box 457

Catoosa, OK 74015

(918) 266-2192

ROGERS COUNTY

Hand-crafted jewelry and silver; importer of fine coral, oxblood, white, black; specimens, all sizes; slab cutting; material by hundreds of pounds or tons. Shop includes a 6,000-square-foot museum with 65 lighted showcases full of rocks from all over the world. Rock shop has museum specimens for sale, a full line of equipment from all major dealers, silver supplies, cabs, faceted stones, cutting material, finished jewelry, and 50,000 slabs in stock.

10. CHOCTAW ROCK SHOP

2883 N. Triple XXX Road

Choctaw, OK 73020

OKLAHOMA COUNTY

11. HERB AND MARGIE'S ROCK AND HOBBY SHOPPE

Herbert Macy

Route 1, Box 29

Comanche, OK 73529

STEPHENS COUNTY

Some finished jewelry and crafts, lots of rough agate and petrified wood.

12. JAY'S GEM SHOP

320 E. Main

P.O. Box 66

Davis, OK 73060

MURRAY COUNTY

Handmade custom gold and silver jewelry; rocks, turquoise, and colored stones.

13. BOB HARNESS

112 S. Main

Elk City, OK 73644

BECKHAM COUNTY

14. MUSTON ELECTRIC COMPANY AND ROCK SHOP

Herb and Betty Muston

300 N. Bickford

El Reno, OK 73036

CANADIAN COUNTY

15. SILVER AND STONE CREATIONS

Frances and Gerald Johnson
Enid Flea Market
1821 S. Van Buren
Enid, OK 73073
GARFIELD COUNTY

Rocks and gemstones in the rough, slabs, cabachons, faceted stones, lapidary supplies, and new equipment. Finished jewelry. Custom work, designing to completion. Jewelry repair.

16. JOHN WORDEN

829 E. Birch
Enid, OK 73073
GARFIELD COUNTY

17. DISCOVERIES IN EDUCATION

5112 W. Gore Blvd.
Lawton, OK 73505
COMANCHE COUNTY

18. UNICORN SUPPLIES SALES

R. Dick Sanders
211 W. Lillie
Madill, OK 73446
MARSHALL COUNTY

19. GLENN AND JOAN SMALLEY

116 E. Pine
Medford, OK 73759
GRANT COUNTY

20. NATURE'S TREASURES

Lynda Mosley, Owner
6223 S.E. 15th St.
Midwest City, OK 73110
OKLAHOMA COUNTY

21. CRYSTAL FORMATIONS

Jacque Muncy
c/o Mail and Business Center
107 S. Sooner Road
Midwest City, OK 73110
OKLAHOMA COUNTY

22. BID-A-WEE LAPIDARY

B. A. and Millie Brucker
Route 6, Box 18
Muskogee, OK 74401
MUSKOGEE COUNTY

23. TUCKERS ROCKS AND MINERALS

P.O. Box 512
Newcastle, OK 73065
McCLAIN COUNTY

24. A RAINBOW'S END

3205 N.W. 23rd
Oklahoma City, OK 73107 (405) 947-5188
OKLAHOMA COUNTY

Handles mostly collector rocks, gems, and mineral specimens. Custom jewelry making in silver or gold. Carries over 200 different tumbled stones, including fossils and agate.

25. HUGHSTON ELIJAN

3224 N.W. 24th
Oklahoma City, OK 73107
OKLAHOMA COUNTY

26. ARROWHEAD JEWELRY SUPPLY

330 S.W. 28th
Oklahoma City, OK 73109
OKLAHOMA COUNTY

27. AIZENMAN'S, INC.

5609 S. Western Ave.
Oklahoma City, OK 73109
OKLAHOMA COUNTY

28. N-TER-NATIONAL GEMS, INC.

12504 Parkland Place
Oklahoma City, OK 73142 (405) 721-5672
OKLAHOMA COUNTY

Loose precious/semi-precious gemstones, some rough materials. Book "Decorate Me Gorgeous" by Margaret Ann Howard. *By appointment only.*

29. LAKEVIEW SPECIALTIES

Earl and Bonnie Powell
P.O. Box 427
Oologah, OK 74053
ROGERS COUNTY

30. OKLAHOMA LAPIDARY SUPPLY

c/o Lois Pepple
Route 1, Box 900
Ponca City, OK 74601
KAY COUNTY

31. REXCO

Arnold and Mary Buzzalini
P.O. Box 1217
Sand Springs, OK 74063
TULSA COUNTY

By appointment only.

32. GOWDER'S GEMS

Frank and Shirley Gowder
Shawnee, OK 74801
POTTAWATOMIE COUNTY

33. HOUSE OF RONAN

Shawnee, OK 74801
POTTAWATOMIE COUNTY

By appointment only.

34. COUNTRYSIDE STUDIO

Harold (Tom) Sanders
4421 S. Husband
Route 6, Box 5
Stillwater, OK 74074
PAYNE COUNTY

By appointment only.

35. H AND H MINERALS

John and Frances Humphrey
1102 S. Adams
Stillwater, OK 74074
PAYNE COUNTY

36. OKLAHOMA METEORITE LABORATORY

John R. Martin, Director
P.O. Box 1923
Stillwater, OK 74076
PAYNE COUNTY

Meteorite acquisitions and research; lectures available to schools and institutions of higher learning.

37. J. W. DAY MANUFACTURING COMPANY AND ROCK SHOP

Shirley McKenzie
1077 S. 107 E. Ave.
Tulsa, OK 74128
TULSA COUNTY

(405) 273-0094

(405) 372-2311

(918) 234-4901

Manufacturer and patent-holder of spring-loaded bola tie slide. Also casting operation with large variety of bola tips, cast motifs, and specialty items. Carry large selection of various bola cords, selling both retail and wholesale, volume discounts. Rock and mineral collection, many one-of-a-kind items. Rose rocks, completed jewelry items, tumblers and grits, and gift items. Special orders welcome. Rock swaps. (*Note: Tulsa Rock and Mineral Society, Chapter 10, may also be contacted about rock swaps.*)

38. THE MINERAL GALLERY

Victor and Gloria Meadors
3325 W. 74th St. South
Tulsa, OK 74132
TULSA COUNTY

Mineral specimens, fossils, geodes, Brazilian agate, cutting materials, polished and unpolished slabs, cabochons, faceted stones.

39. NOVEL IDEA

3356 E. 51st
Tulsa, OK 74135
TULSA COUNTY

40. NOVEL IDEA

7104 S. Sheridan
Tulsa, OK 74133
TULSA COUNTY

41. NATURAL WONDERS

Lee Seabolt
Woodland Hills Mall
7021 S. Memorial
Tulsa, OK 74133
TULSA COUNTY

(918) 250-2600

Large variety of polished and unpolished minerals and fossils.

GOVERNMENT AGENCIES

WITH EARTH SCIENCE RESPONSIBILITIES



Oklahoma State Capitol in Oklahoma City. Oklahoma's state capitol is the only one to have had producing oil wells on its grounds; the wells are no longer in operation. (Photo by Fred W. Marvel, courtesy Oklahoma Department of Tourism and Recreation.)

Local, State, and federal governmental agencies are excellent sources of information about Oklahoma's natural resources, including its geology. Some agencies, such as the Oklahoma Geological Survey, deal with the State's geology in a more direct way than others; however, agencies that deal mainly with conservation or environmental issues often are able to answer some questions of a geologic nature. Similarly, some agencies deal especially with hydrologic issues; these, too, sometimes are able to answer geologic questions. Most of the agencies listed here have employees interested in educational outreach and some have divisions or publications devoted to educational issues.

This list includes governmental agencies that employ geologists, geological engineers, hydrologists, soil

scientists, etc., and/or are involved in activities that are at least partly geological. Wherever possible, the name of a contact person who can answer questions about that organization's function, educational publications, and public outreach philosophy is included within each organization listing. It should be noted that the personnel and phone numbers listed here can change; an individual seeking further assistance can look in the phone book under "State Government" or "U.S. Government." It also should be noted that many of the addresses of the U.S. Natural Resources Conservation Service Field Offices are the same as the Oklahoma Conservation Commission Area District Offices.

Descriptions were provided by the agencies themselves in publications and/or letters. Direct quotes are shown in quotation marks.

Agencies are listed alphabetically within three categories: Local, State, and Federal.

LOCAL AGENCY

GARBER-WELLINGTON ASSOCIATION

6600 N. Harvey Place
Oklahoma City, OK 73116 (405) 848-8961
Attn: John Harrington
OKLAHOMA COUNTY

"The Garber-Wellington Association (GWA) is an association of the local government beneficiaries to the Garber-Wellington aquifer. The GWA serves as technical advisor to over 20 municipalities. Services range from water supply and water-well location to underground storage tank removal and site remediation. The GWA collects and maintains extensive information databases on the Garber-Wellington aquifer. These databases include monthly pumping rates, water levels, oil and gas well activity, water quality analyses, and well construction. The GWA also maintains a monitoring well system in the aquifer.

The overall goal for the GWA staff is to provide continuing coordination and assistance to local governments for their ground-water systems and research efforts. Specific objectives of the staff include the following:

- **Provide technical guidance.** GWA staff guides local government members in the management, maintenance, and expansion of their ground-water systems. This includes providing technical maps and analyses for well-site location, water-level surveys, and water-chemistry sampling.
- **Water quality monitoring.** For more than 10 years, GWA staff has conducted a comprehensive water quality and quantity monitoring program as an integral part of the GWA Water Management System. Municipal well-sampling programs are conducted to determine if changes in water quality and water characteristics have occurred. This database is the most comprehensive collection of technical data on the Garber-Wellington aquifer.
- **Public education.** Education continues through the Association of Central Oklahoma Governments' public participation program to help make the public aware of the hazards to their water supplies. Efforts to involve additional nonmunicipal aquifer users and the oil and gas industry also continue. GWA staff have conducted educational seminars on ground water at institutions as diverse as elementary schools to the University of Central Oklahoma and the University of Oklahoma.
- **Land use management.**
- **Legislative changes.**
- **Minimum well construction design criteria."**

STATE AGENCIES



OKLAHOMA CONSERVATION COMMISSION

2800 N. Lincoln Blvd., Suite 160
Oklahoma City, OK 73105 (405) 521-6797
Attn: Lisa Knauf, Education Coordinator
OKLAHOMA COUNTY

"If you live in Oklahoma, you live in a Conservation District. Your Conservation District is one of 89 that cover the State, promoting care for all renewable natural resources, especially soil and water. Each district has an office which serves as a source for providing information to local land users. The operation of the district office is designed to encourage proper care of the land and water through sound resource management decisions and long range planning.

District offices are staffed by a district secretary or program coordinator whose duties often include making the public aware of various programs and services available through this office. This individual also coordinates and schedules educational programs geared to teach adults and youngsters alike about conservation.

In the course of daily operations, your Conservation District can call on many individuals from state and federal agencies to provide the technical expertise necessary to ensure local conservation projects meet the needs they are designed to address. By law, the district is designated as the official State agency for cooperating and carrying on conservation operations with the Natural Resources Conservation Service (NRCS), a division of the U.S. Department of Agriculture. District Conservationists, assigned to Conservation District Offices, are employees of the NRCS."

Conservation District programs include a district operations program (soils information, erosion control, flood prevention and water development, conservation education), abandoned mine land reclamation, water quality program, pollution complaint tracking, and wetlands management.

Conservation District Educational Resources

"The Oklahoma Environmental Quality Act of 1993 designated the Oklahoma Conservation Commission to coordinate environmental education with all other State agencies in a statewide effort involving government, environmental advocates, the business community, private citizens, and students to educate the citizenry of Okla-

homa about the importance of the environment and our natural resources. In response, the Commission established the State Environmental Education Coordinating Committee with the goal of more efficiently serving the public by increased networking among agencies and reduced duplication of effort.

Conservation Districts can help by:

- locating community resources which can be utilized in your classroom
- taking an inventory of the school's natural resource sites
- developing conservation plans for school grounds
- providing teachers with a list of community conservation activities that classes could undertake
- conducting conservation tours for teachers, school administrators, government officials, planners, clergy, and others
- establishing outdoor classrooms
- sponsoring a conservation bookshelf in a school or public library
- assisting high schools and colleges with conservation career planning
- working with local colleges or universities in developing classes
- developing outdoor labs for teacher training
- promoting the use of Soil and Water Conservation Society conservation cartoon booklets among schools and organizations
- providing or securing mini-grants to schools or youth organizations for conservation education projects
- providing schools with conservation education curriculum guides or packets of conservation education information
- informing local teachers of conservation education workshops and award program opportunities in the State.

Educator Workshops/Programs

- Project Learning Tree
- Project WILD
- Sammy Soil Saver
- National Association of Conservation Districts/ICI Americas Corporation Awards Program
- Video and slide programs
- Oklahoma Association of Conservation Districts Youth Contests."

Area Conservation District Offices

Note that many of these addresses are the same as the U.S. Natural Resources Conservation Service field offices listed later in this chapter. *Offices are listed in alphabetical order.*

ADAIR COUNTY CONSERVATION DISTRICT
102 W. Pine
Stilwell, OK 74960-2652 (918) 696-7612

ALFALFA COUNTY CONSERVATION DISTRICT
401 W. Cherokee Ave.
Cherokee, OK 73728-3908 (405) 596-3402

ARBUCKLE CONSERVATION DISTRICT
Federal Building, Room 109
Ardmore, OK 73401-7012 (405) 223-5865
CARTER COUNTY

ARKANSAS RIVER-KAY COUNTY CONSERVATION DISTRICT
115 S. Maple
Newkirk, OK 74647-4026 (405) 362-2438

ATOKA COUNTY CONSERVATION DISTRICT
200 S. Mississippi
Atoka, OK 74525-2272 (405) 889-5615

BEAVER COUNTY CONSERVATION DISTRICT
P.O. Box 146
Beaver, OK 73932-0146 (405) 625-3813

BLAINE COUNTY CONSERVATION DISTRICT
221 E. Main
Watonga, OK 73772-3832 (405) 623-4740

BRYAN COUNTY CONSERVATION DISTRICT
2704 N.W. First St., Suite A
Durant, OK 74701-2507 (405) 924-5464

CANEY VALLEY CONSERVATION DISTRICT
205 E. 12th St.
Dewey, OK 74029-1643 (918) 534-3392
WASHINGTON COUNTY

CENTRAL NORTH CANADIAN RIVER CONSERVATION DISTRICT
129 E. Main
Geary, OK 73040-2420 (405) 884-2919
BLAINE COUNTY

CHECOTAH CONSERVATION DISTRICT
P.O. Box 160
Checotah, OK 74426-0160 (918) 473-6217
McINTOSH COUNTY

CHEROKEE COUNTY CONSERVATION DISTRICT
1009 S. Muskogee Ave.
Tahlequah, OK 74464-4733 (918) 456-1919

CIMARRON COUNTY CONSERVATION DISTRICT
P.O. Box 1086
Boise City, OK 73933-1086 (405) 544-3048

CIMARRON VALLEY CONSERVATION DISTRICT
P.O. Box 387
Okeene, OK 73763-0387 (405) 822-3325
BLAINE COUNTY

Area Conservation District Offices (cont'd.)

CLEVELAND COUNTY CONSERVATION DISTRICT
60 E. Robinson, Suite B
Norman, OK 73071-6670 (405) 364-7319

COAL COUNTY CONSERVATION DISTRICT
6 E. Lafayette, Suite C
Coalgate, OK 74538-3415 (405) 927-3414

COMANCHE COUNTY CONSERVATION DISTRICT
Federal Building, Room 303
Lawton, OK 73501-4628 (405) 353-0532

COTTON COUNTY CONSERVATION DISTRICT
229 N. Broadway
Walters, OK 73572-1225 (405) 875-2323

CRAIG COUNTY CONSERVATION DISTRICT
120 E. Illinois
Vinita, OK 74301-3232 (918) 256-5647

CREEK COUNTY CONSERVATION DISTRICT
128 E. Third St.
Bristow, OK 74010-3448 (918) 367-2113

CUSTER COUNTY CONSERVATION DISTRICT
P.O. Box 576
Clinton, OK 73601-3838 (405) 323-4875

DEER CREEK CONSERVATION DISTRICT
P.O. Box 431
Weatherford, OK 73096-0431 (405) 772-7670
CUSTER COUNTY

DELAWARE COUNTY CONSERVATION DISTRICT
P.O. Box 467
Jay, OK 74346-0467 (918) 253-4517

DEWEY COUNTY CONSERVATION DISTRICT
P.O. Box 36
Taloga, OK 73667-0036 (405) 328-5366

EAST CANADIAN COUNTY CONSERVATION DISTRICT
1625 E. U.S. Highway 66
El Reno, OK 73036-5769 (405) 262-7388

EAST WOODS COUNTY CONSERVATION DISTRICT
1016-C Sixth St.
Alva, OK 73717-3114 (405) 327-0218

ELLIS COUNTY CONSERVATION DISTRICT
Route 1, Box 41
Shattuck, OK 73858-9723 (405) 938-2314

GARFIELD COUNTY CONSERVATION DISTRICT
2309 N. 10th, Suite C
Enid, OK 73701-7880 (405) 237-4338

GARVIN COUNTY CONSERVATION DISTRICT
310 S. Chickasaw
Pauls Valley, OK 73075-4218 (405) 238-7233

GRADY COUNTY CONSERVATION DISTRICT
828 Choctaw Ave.
Chickasha, OK 73018-2310 (405) 224-0523

GRANT COUNTY CONSERVATION DISTRICT
Route 1, Box 234
Medford, OK 73759-2418 (405) 395-2146

GREER COUNTY CONSERVATION DISTRICT
P.O. Box 443
Mangum, OK 73554-0443 (405) 782-3581

HARMON COUNTY CONSERVATION DISTRICT
324 N. Main St.
Hollis, OK 73550-3037 (405) 688-3674

HARPER COUNTY CONSERVATION DISTRICT
P.O. Box 353
Buffalo, OK 73834-0353 (405) 735-2418

HASKELL COUNTY CONSERVATION DISTRICT
105 S.E. Third St.
Stigler, OK 74462-2405 (918) 967-8608

HUGHES COUNTY CONSERVATION DISTRICT
419 E. Highway
Holdenville, OK 74848-4057 (405) 379-2570

JACKSON COUNTY CONSERVATION DISTRICT
P.O. Box 711
Altus, OK 73522-0711 (405) 482-4807

JEFFERSON COUNTY CONSERVATION DISTRICT
Route 2, Box 119
Waurika, OK 73573-9622 (405) 228-2760

JOHNSTON COUNTY CONSERVATION DISTRICT
Route 1, Box 93
Tishomingo, OK 73460-9801 (405) 371-3481

KIAMICHI CONSERVATION DISTRICT
207 N. Fourth St.
Hugo, OK 74743-3809 (405) 326-7331
CHOCTAW COUNTY

KINGFISHER COUNTY CONSERVATION DISTRICT
1515 S. Seventh, Suite 3
Kingfisher, OK 73750-2324 (405) 375-5373

KIOWA COUNTY CONSERVATION DISTRICT
802 W. 11th St.
Hobart, OK 73651-5402 (405) 726-3786

KONAWA CONSERVATION DISTRICT
107 S. Broadway
Konawa, OK 74849-2243 (405) 925-3117
SEMINOLE COUNTY

LATIMER COUNTY CONSERVATION DISTRICT
P.O. Box 487
Wilburton, OK 74578-0487 (918) 465-2181

LE FLORE COUNTY CONSERVATION DISTRICT
P.O. Box 547
Poteau, OK 74953-0547 (918) 647-2992

LINCOLN COUNTY CONSERVATION DISTRICT
710 Manvel
Chandler, OK 74834-2843 (405) 258-1405

LITTLE RIVER CONSERVATION DISTRICT
201 N. Central, Room 124
Idabel, OK 74745-3831 (405) 286-7645
McCURTAIN COUNTY

LOGAN COUNTY CONSERVATION DISTRICT
2227 Iron Mound Dr., Suite B
Guthrie, OK 73044-4757 (405) 282-2363

LOVE COUNTY CONSERVATION DISTRICT
1008 Memorial Dr., Suite C
Marietta, OK 73448-1602 (405) 276-3867

MAJOR COUNTY CONSERVATION DISTRICT
225 N. Main St.
Fairview, OK 73737-4884 (405) 227-2217

MARSHALL COUNTY CONSERVATION DISTRICT
800 Cedar Dr.
Madill, OK 73446-1062 (405) 795-3644

MAYES COUNTY CONSERVATION DISTRICT
P.O. Box 36
Pryor, OK 74362-0036 (918) 825-0004

MOUNTAIN VIEW CONSERVATION DISTRICT
P.O. Box 369
Mountain View, OK 73062-0369 (405) 347-2220
KIOWA COUNTY

MURRAY COUNTY CONSERVATION DISTRICT
1117 W. Second St.
Sulphur, OK 73086-3821 (405) 622-2724

MUSKOGEE COUNTY CONSERVATION DISTRICT
125 S. Main, Room 3D14
Muskogee, OK 74401-7041 (918) 687-3478

McCLAIN COUNTY CONSERVATION DISTRICT
501 N. Fourth St.
Purcell, OK 73080-3415 (405) 527-3452

McINTOSH COUNTY CONSERVATION DISTRICT
P.O. Box 351
Eufaula, OK 74432-0351 (918) 689-2301

NOBLE COUNTY CONSERVATION DISTRICT
Route 1, Box 241
Perry, OK 73077-9801 (405) 336-2003

NORTH CADDO COUNTY CONSERVATION DISTRICT
P.O. Box 698
Hinton, OK 73047-0698 (405) 542-3205

NORTH FORK OF RED RIVER CONSERVATION DISTRICT *(two addresses)*

802C N.E. Highway 66
Sayre, OK 73662-9380 (405) 928-9950
BECKHAM COUNTY

and

P.O. Box 69
Sentinel, OK 73664-0069 (405) 393-4320
WASHITA COUNTY

NOWATA COUNTY CONSERVATION DISTRICT
123 S. Ash
Nowata, OK 74048-4624 (918) 273-0333

OKFUSKEE COUNTY CONSERVATION DISTRICT
Route 3, Box 18-A
Okemah, OK 74859-9403 (918) 623-1932

OKLAHOMA COUNTY CONSERVATION DISTRICT
1000 W. Wilshire, Suite 223-A
Oklahoma City, OK 73116-7026 (405) 848-1933

OKMULGEE COUNTY CONSERVATION DISTRICT
719 E. Eighth St., Suite C
Okmulgee, OK 74447-5508 (918) 756-8111

OSAGE COUNTY CONSERVATION DISTRICT
P.O. Box 937
Pawhuska, OK 74056-0937 (918) 287-3290

OTTAWA COUNTY CONSERVATION DISTRICT
630 E. Steve Owens Blvd., Suite 3
Miami, OK 74354-7808 (918) 542-6423

PAWNEE COUNTY CONSERVATION DISTRICT
500 Harrison St., Room 100
Pawnee, OK 74058-2568 (918) 762-2398

PAYNE COUNTY CONSERVATION DISTRICT
800 E. Sixth St., Room 5
Stillwater, OK 74074-3705 (405) 372-7201

PITTSBURG COUNTY CONSERVATION DISTRICT
Room 311, Federal Building
McAlester, OK 74501-5057 (918) 423-3990

PONTOTOC COUNTY CONSERVATION DISTRICT
1310 Craddock Road
Ada, OK 74820-8442 (405) 332-7979

PUSHMATAHA COUNTY CONSERVATION DISTRICT
P.O. Box 310
Antlers, OK 74523-0310 (405) 298-3668

ROGERS COUNTY CONSERVATION DISTRICT
Room 103, Federal Building
Claremore, OK 74017-7816 (918) 341-4147

SEMINOLE COUNTY CONSERVATION DISTRICT
P.O. Box 806
Wewoka, OK 74884-0806 (405) 257-5578

Area Conservation District Offices (cont'd.)

SEQUOYAH COUNTY CONSERVATION DISTRICT
101 McGee Dr.
Sallisaw, OK 74955-6577 (918) 775-3045

SHAWNEE CONSERVATION DISTRICT
201 N. Bell, Room 109
Shawnee, OK 74801-6940 (405) 275-5220
POTTAWATOMIE COUNTY

SOUTH CADDO COUNTY CONSERVATION DISTRICT
Route 1, Box 17-A
Anadarko, OK 73005-2904 (405) 247-3747

STEPHENS COUNTY CONSERVATION DISTRICT
Route 1, Box 2-A
Duncan, OK 73533-9701 (405) 255-5798

TALIHINA CONSERVATION DISTRICT
P.O. Box 429
Talihina, OK 74571-0429 (918) 567-2956
LE FLORE COUNTY

TEXAS COUNTY CONSERVATION DISTRICT
HCR 4, Box 120
Guymon, OK 73942-9804 (405) 338-8873

TILLMAN COUNTY CONSERVATION DISTRICT
P.O. Box 576
Frederick, OK 73542-0576 (405) 335-3630

TULSA COUNTY CONSERVATION DISTRICT
4116 E. 15th St.
Tulsa, OK 74112-6198 (918) 744-1595

UPPER WASHITA CONSERVATION DISTRICT
P.O. Box 410
Cheyenne, OK 73628-0410 (405) 497-3413
ROGER MILLS COUNTY

VALLIANT CONSERVATION DISTRICT
P.O. Box 480
Valliant, OK 74764-0480 (405) 933-4704
McCURTAIN COUNTY

WAGONER COUNTY CONSERVATION DISTRICT
1312 S.W. Third St.
Wagoner, OK 74467-5518 (918) 485-4010

WASHITA COUNTY CONSERVATION DISTRICT
507 E. Normal St.
Cordell, OK 73632-6054 (405) 832-3719

WEST CADDO COUNTY CONSERVATION DISTRICT
P.O. Box 96
Fort Cobb, OK 73038-0096 (405) 643-5102

WESTERN KAY COUNTY CONSERVATION DISTRICT
118 S. First St.
Blackwell, OK 74631-2830 (405) 363-5075

WOODS COUNTY CONSERVATION DISTRICT
P.O. Box 153
Freedom, OK 73842-0153 (405) 621-3557

WOODWARD COUNTY CONSERVATION DISTRICT
2411 Williams Ave., Suite 115
Woodward, OK 73801-5727 (405) 256-5320

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OKLAHOMA CORPORATION COMMISSION

Oil and Gas Conservation Division
Jim Thorpe Building
2101 Lincoln Blvd.
Oklahoma City, OK 73105 (405) 521-4180
Attn: Patrick Petree, Public Information Officer
OKLAHOMA COUNTY

"The Corporation Commission was established when Oklahoma became a state in 1907. Article 9 of the Oklahoma Constitution empowered and directed the Commission to regulate and supervise the activities of private businesses whose services are considered by the Legislature to be essential to the public welfare.

The businesses regulated by the Commission and the types of regulation administered have changed through the years as technology has advanced and goods and services considered essential to the public welfare have changed.

The Commission presently regulates public utilities, except those under municipal or federal jurisdiction or exempt from regulation; oil and gas drilling, production and environmental protection; motor fuel quality and containment; gas and hazardous liquid pipeline safety procedures; commercial motor carrier transport, and some aspects of intrastate railroad operations and services.

The Commission also administers and enforces federal programs for underground injection control (in connection with oil and gas enhanced recovery programs and disposal of certain oil and gas drilling waste fluids) and remediation of soil and ground water pollution caused by leaking underground storage tanks.

Consumer Services

The Consumer Services Division is the Corporation Commission's liaison with the public on matters of regulatory requirements. The division provides information, assists in resolving complaints, and conducts educational programs. The division also provides support for the Pollution Response Team, the Technical Evaluation Department, and the Mineral Owners Escrow Account.

To increase public understanding of the Commission's regulatory function and responsibilities, the Consumer Services Division...in FY94...made on-site presentations to several state and county mineral owners groups, and the Pollution Response Team personnel made 21 presentations, mostly to industry and school groups. The school presentations demonstrated environmental pollution causes and corrective actions.

Many of the school presentations were tutorial, designed to teach selected students and faculty members how to present the demonstrations for other groups within their school systems."



OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY

1000 N.E. 10th St.
Oklahoma City, OK 73117 (405) 271-8056
Attn: Ellen Bussert, Director of
Public Information and Education
OKLAHOMA COUNTY

The following description of the functions of the Oklahoma Department of Environmental Quality is from the pamphlet "Oklahoma Environmental Education Resources — Draft," available from the DEQ:

"The Department of Environmental Quality (DEQ) is dedicated to providing quality service to the people of Oklahoma through comprehensive environmental protection and management programs. As a part of its mission, the DEQ places a high priority on providing citizens with rapid response to environmental concerns and quality public information. It also works to build and implement innovative and effective programs to promote pollution prevention, waste reduction and recycling. Additionally, the DEQ strives to provide fair, consistent and effective compliance with environmental laws. The DEQ has the responsibility to oversee air quality, water quality and waste management in the State of Oklahoma. The DEQ has many resources available to the public."

Write to DEQ for a list of resources.

OKLAHOMA DEPARTMENT OF MINES

4040 N. Lincoln Blvd., Suite 107
Oklahoma City, OK 73105 (405) 521-3859, ext. 31
Attn: Melanie Harnsberry, Records Specialist
OKLAHOMA COUNTY

"Oklahoma is well-known as an oil state; but non-petroleum resources represent a vast source of future wealth in the State. Among the State's leading mineral resources are cement, coal, granite, gypsum, helium, sand, limestone, and gravel. Of somewhat lesser value is the production of silver, bentonite, salt, volcanic ash, glass sand, and tripoli. Several of the State's resources are untapped; these include copper, manganese, titanium, uranium and vanadium. Over 40,000,000 tons of minerals are mined each year in Oklahoma.

History of Oklahoma's Mineral Industry

Oklahoma's mineral industry was flourishing well before statehood. Records indicate commercial coal mining began near McAlester in 1872. Oklahoma's tremendous lead and zinc reserves in Ottawa County were discovered in 1904 and mined until 1970. Development of these and other minerals brought an influx of miners to the State. The miners and their families often lived near the mine site in mining camps under difficult conditions. During the early days, most coal was mined from underground mines; loss of life from explosions, rock falls or electrocution was common in this type of mine. Today the vast majority of mining in Oklahoma is accomplished by surface methods.

The Office of the Chief Mine Inspector was created to protect the health and safety of all coal miners in the State. The Chief Mine Inspector's duties grew over the years to include: the permitting of all minerals mined in the State, inspection of all mines for health and safety, and enforcement of regulations.

Oklahoma Mining Commission

In 1986, the position of the Chief Mine Inspector was abolished and replaced with the Director of the Department of Mines, who is in charge of managing the Department. The Director is appointed by the Mining Commission, a nine-member board that represents a wide variety of business and conservation interests. The Mining Commission is the chief policy maker for the Department. The Commission is actively involved in the activities and promotion of the Oklahoma mineral industry.

Oklahoma Miner Training Institute

Recognizing the need for safe working conditions, the Department established the Oklahoma Miner Training Institute to provide training for persons employed in the mining industry. Located in Wilburton, at Eastern Oklahoma State College, OMTI teaches classes in first aid, new miner training, blasting and electrical safety to approximately 2,000 miners each year. As a result of these efforts, mine-related accidents have declined drastically."

Oklahoma Department of Mines Field Offices

KREBS FIELD OFFICE
P.O. Box 279
Krebs, OK 74554
PITTSBURG COUNTY

POTEAU FIELD OFFICE
P.O. Box 182
Poteau, OK 74953
LE FLORE COUNTY

WAGONER FIELD OFFICE
Route 4, Box 208AA
Wagoner, OK 74467
WAGONER COUNTY



OKLAHOMA GEOLOGICAL SURVEY

Sarkeys Energy Center

100 E. Boyd St., Room N-131

Norman, OK 73019-0628

(405) 325-3031

Attn: Connie G. Smith, Promotion and Information
Specialist

CLEVELAND COUNTY, TULSA COUNTY

The Oklahoma Geological Survey (OGS), a State research and public-service agency, was provided for in the Oklahoma Constitution and began operation on July 25, 1908, under an enabling act of the First Legislature. The OGS is responsible for investigating the geology and mineral resources of the State and for preparing and publishing bulletins, reports, and maps describing these investigations.

The research activities of the OGS can be grouped into the following categories: geologic mapping, water-resources studies, mineral- and energy-resources investigations, geophysical research, environmental-geology studies, and basin research. The Survey also is involved in public information and assistance, acquisition of mineral-production data, and maintenance of a state repository of well cores and samples. Some of these activities, including water-resources studies and data acquisition, are conducted on a cooperative basis with federal agencies.

The Survey's main office is located in Sarkeys Energy Center (northeast corner, basement level) on the campus of the University of Oklahoma.

The OGS Core and Sample Library, located on OU's south campus (2725 S. Jenkins), contains cores from more than 3,400 wells and samples from more than 30,000 wells, which are available to the public for examination. Phone: (405) 325-4386.

The OGS Log Library, located at 1425 George Ave. in Norman, maintains Oklahoma Corporation Commission well records. Phone: (405) 447-3118.

The OGS Geophysical Observatory, located near Leonard in southeastern Tulsa County, monitors Oklahoma earthquakes, as well as those occurring worldwide. Another principal area of research involves seismic methods of verifying nuclear-disarmament treaties. The Observatory records ground motion from six seismometers in an underground vault and three seismometers in a 770-meter-deep borehole. To supplement the system in detecting and locating Oklahoma earthquakes, the OGS has 11 remote seismographs throughout Oklahoma. Group tours can be arranged by calling the Observatory at (918) 366-4152.

The Laurence S. Youngblood Energy Library, located in Sarkeys Energy Center, Room R-220, is one of the most complete in the country. The library contains thousands of cataloged volumes, map sheets, and Oklahoma well-completion cards (also see Chapter 2).

In addition to its publications, the OGS provides an extensive collection of open-file information. This material is mostly in the form of well records and a number of unpublished reports and maps that can be inspected at the Survey's offices. Also available for inspection are earlier, out-of-print reports and maps. Single photocopies of publications no longer in print are available at cost.

See Chapter 12 for a list of nontechnical OGS literature.

Public Information and Assistance

The basic mission of the Survey involves research and public service. While scientific investigations are the cornerstone of the Survey's work, translating this technical information for the public also is a vital OGS activity. This is especially important to those formulating public policy, recruiting industry, or communicating information about Oklahoma's natural environment.

The OGS responds to a multitude of requests from within and outside the State for information about local and regional aspects of Oklahoma's geology and natural resources. These are received in the form of letters, phone calls, or personal visits.

In addition, the staff presents scientific and public lectures, conducts field trips, attends conferences and exhibits, testifies before various state and federal boards and agencies, and participates in a number of professional organizations.

OGS Geologic Staff

Tom L. Bingham, Geologist

Jock A. Campbell, Petroleum Geologist

Brian J. Cardott, Geologist

James R. Chaplin, Geologist

Robert O. Fay, Geologist

LeRoy A. Hemish, Coal Geologist

Kenneth S. Johnson, Associate Director

James E. Lawson, Jr., Chief Geophysicist (Leonard, Okla.)

Kenneth V. Luza, Engineering Geologist

Charles J. Mankin, Director

Neil H. Suneson, Stratigrapher/Geologist

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OKLAHOMA WATER RESOURCES BOARD

P.O. Box 150

Oklahoma City, OK 73101-0150

(405) 525-4700

Attn: Mary Whitlow

OKLAHOMA COUNTY

"The Oklahoma Water Resources Board (OWRB) is headquartered in Oklahoma City with field offices in Tulsa, McAlester, Woodward, and Lawton to assist water users and manage OWRB programs throughout the State. The Board promulgates Oklahoma Water Quality Stan-

dards, manages a dam safety program, administers stream water and ground-water rights, conducts studies of stream waters and ground-water basins, negotiates agreements with the federal government for water resources development and storage and distribution of water, develops and updates the State water plan, licenses water well and monitoring-well drillers and pump installers, administers the Financial Assistance Program and Wastewater Facility Construction Revolving Loan Program, assists in interstate stream compacts, and administers the federal flood insurance program in Oklahoma."

The divisions of the OWRB with geological and public information responsibilities are:

- *Administration Division.* Provides support for the agency in accounting, mapping, drafting and graphics, photography, public information, library services, data processing and personnel management.
- *Water Management Division.* Cooperates in hydrologic studies to determine quantity and quality of water available in Oklahoma's 49 stream systems and 23 major ground-water basins.
- *Water Quality Programs Division.* Administers the EPA Clean Lakes Program, participates in the EPA Lakes Water Quality Assessment and oversees more than 450 citizen volunteers participating in Oklahoma Water Watch, a volunteer program that monitors water quality and collects data at 33 lake and river sites."

A publications list is available on request.

Oklahoma Water Resources Board Field Offices

LAWTON FIELD OFFICE

P.O. Box 886

Lawton, OK 73502

(405) 248-7762

COMANCHE COUNTY

McALESTER FIELD OFFICE

321 S. Third St., Suite 5

McAlester, OK 74501

(918) 426-5435

PITTSBURG COUNTY

TULSA FIELD OFFICE

440 S. Houston, Room No. 2

Tulsa, OK 74127

(918) 581-2924

TULSA COUNTY

WOODWARD FIELD OFFICE

2411 Williams Ave., Suite 116

Woodward, OK 73801

(405) 256-1014

WOODWARD COUNTY

FEDERAL AGENCIES

KERR ENVIRONMENTAL RESEARCH LABORATORY

P.O. Box 1189

Ada, OK 74821

(405) 332-8800

Attn: William Lyon, ManTech Environmental

PONTOTOC COUNTY

"The Robert S. Kerr Environmental Research Laboratory (RSKERL) serves as the Environmental Protection Agency's center for ground-water research, focusing its efforts on investigations related to the transport and transformation of contaminants in the subsurface, the development of methods and techniques directed toward the protection and restoration of ground-water quality, and evaluating the applicability and limitations of using natural soil and subsurface processes for the treatment of hazardous wastes. Other active areas of research include: site characterization to assist in decisions concerning risk assessment and remediation; underground injection control; and wellhead protection.

The Laboratory has a long history of conducting basic and applied research related to the use of soil and subsurface media for waste treatment, and the protection of surface and ground water. In addition to its research on ground-water quality protection and restoration, RSKERL has historically been at the vanguard in developing and demonstrating cost-effective treatment technologies for municipal, industrial, and agricultural wastes.

RSKERL carries out its research responsibilities through in-house projects as well as cooperative efforts with other EPA laboratories, universities, national research laboratories, state organizations, and a number of other federal agencies, including the Department of Defense."

RSKERL also maintains a list of individuals in the Ada area who have served as earth science resources people for schools and other organizations.

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U.S. BUREAU OF LAND MANAGEMENT

Geological Engineering and Mining Services

Tulsa District Office

9522-H E. 47th Place

Tulsa, OK 74145-7223

(918) 621-4115

Attn: Gary Stuckey, Supervisory Geologist

TULSA COUNTY

"The Bureau of Land Management (BLM) is an agency of the U.S. Department of the Interior. The goal of the BLM is 'to manage public lands and resources under the concept of multiple-use and environmental protection for the benefit of the American people.' Management of public lands, and both the federal and Indian mineral estate is the responsibility of the Tulsa District Office and its satellite office in Moore, Oklahoma.

In managing the varied resources in the District, the BLM must consider a combination of uses that will meet the long-term needs of future generations for both renewable and nonrenewable resources. These resources include recreation, range, woodland, minerals, watershed, fish and wildlife habitat, wilderness, and natural, scenic, scientific, and cultural values. The primary emphasis of the Tulsa District is the minerals program.

The Bureau is responsible for the leasing and management of federal lands for mineral development and for assisting the Bureau of Indian Affairs in the management of

Indian mineral leases. While primary emphasis is on oil and gas, there are also leases on solid minerals such as coal, sand and gravel, asphalt, chat, and limestone. The Bureau monitors operations on these mineral leases to ensure that production is efficient, accurately reported, and in compliance with approved plans. The health of the land is an important concern and the Bureau works with operators, other federal agencies, and state agencies to minimize the impacts of mineral extraction.

The Bureau provides information on federal mineral interests to any interested party. Personnel from the Tulsa District also participate in outreach efforts with industry and Native Americans to explain Bureau programs and responsibilities. Through the Outside Education Committee of the Tulsa Geological Society, Bureau geologists provide demonstrations and presentations on the science of geology as well."

For information, interested parties may contact the District Manager at (918) 621-4100 or the Assistant District Manager in Moore, Oklahoma.

Bureau of Land Management Satellite Office

BUREAU OF LAND MANAGEMENT

221 N. Service Road

Moore, OK 73160-4946

(405) 794-9624

CLEVELAND COUNTY

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**US Army Corps
of Engineers**

Tulsa District

U.S. DEPARTMENT OF THE ARMY

Tulsa District, Corps of Engineers

P.O. Box 61

Tulsa, OK 74121-0061

(918) 669-7366

Attn: Barbara Cravens, Public Affairs Specialist

TULSA COUNTY

For speakers from the Corps on particular subjects, contact Mary Beth Hudson, Tulsa office, at (918) 669-7366.

"Since 1982, the Tulsa District of the U.S. Army Corps of Engineers has been a leader in installation support for its military customers. Prior to 1982, the district's emphasis had been in the civil works arena focusing on planning, designing, and constructing major water resources projects in the three-state area of southern Kansas, Oklahoma, and northern Texas. The Tulsa District is comprised of 1,115 civilian employees and nine Army officers performing what has been recognized as a pattern of excellence in three primary missions—civil works, military construction, and environmental restoration.

In 1989, the Tulsa District became the design center for all hazardous and toxic waste remediation work for the five-state area which encompasses Oklahoma, Arkansas,

Texas, New Mexico, and Louisiana. We perform investigations, studies, and design for all remedial action within the Southwestern Division.

Today's Corps of Engineers carries out missions in three broad areas: military construction and engineering support to military installations; reimbursable support to other federal agencies (such as the Environmental Protection Agency's 'Superfund' program); and the Civil Works mission, centered around navigation, flood control and... a growing role in environmental restoration.

What We Can Do...

Planning

- Master planning for installation
- Environmental compliance
- Geographic information system
- Cultural and archeological resources, studies, and protection
- Environmental permitting
- Flood-plain management services
- Community-relations planning
- Water quality investigations
- Hazardous, toxic, and radiological waste support
- Solid waste management and compliance
- NEPA [National Environmental Protection Act] documentation

Engineering

- Geotechnical investigations and analysis
- Hydraulic and hydrologic studies

Operations

- Environmental compliance and assistance
- Environmental regulations guidance operations
- Section 404 permitting
- Land management
- Fish and wildlife management."

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SALT PLAINS NATIONAL WILDLIFE REFUGE

U.S. Fish and Wildlife Service

Route 1, Box 76

Jet, OK 73749

(405) 626-4794

ALFALFA COUNTY

Selenite crystal digging. See "Great Salt Plains State Park" listing, Chapter 3.

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U.S. GEOLOGICAL SURVEY

Water Resources Division

202 N.W. 66th, Building 7

Oklahoma City, OK 73116

(405) 843-7570

Attn: Mark Savoca

OKLAHOMA COUNTY

U.S. Geological Survey Programs in Oklahoma

"The U.S. Geological Survey (USGS) provides maps, reports, and information to help others meet their needs to manage, develop, and protect America's water, energy, mineral, and land resources. We help find natural resources needed to build tomorrow, and supply scientific understanding needed to help minimize or mitigate the effects of natural hazards and environmental damage caused by human activities. The results of our efforts touch the daily lives of almost every American.

Major USGS programs in Oklahoma are studies on oil and gas resources, coal resources, flooding, surface- and ground-water management, and water contamination. The USGS is also involved in a national mapping program and distributing satellite earth observation data.

Geologic, ground- and surface-water, and water-quality data collected by the USGS have been used by other federal, state, tribal, and local agencies and individuals for a variety of purposes. USGS methodology, computer programs, and data are used widely by others."

See Chapter 13 for offices to contact for USGS publications.

USGS Water Resources Division Field Offices

TULSA FIELD OFFICE

10205-D E. 61st St.

P.O. Box 470044-74147

Tulsa, OK 74133

(918) 254-6651

TULSA COUNTY

WOODWARD FIELD OFFICE

P.O. Box 623

Woodward, OK 73802

(405) 256-7636

WOODWARD COUNTY

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U.S. NATURAL RESOURCES CONSERVATION SERVICE

100 USDA, Suite 203

Stillwater, OK 74074

(405) 742-1243

Attn: Dwain Phillips

PAYNE COUNTY

"The Natural Resources Conservation Service (NRCS), formerly the Soil Conservation Service, is an agency of the U.S. Department of Agriculture. Agency field offices work through local conservation districts; the field offices are subunits of area and state offices. The NRCS provides technical assistance, and, in some cases, financial help, to landowners concerned with erosion and flood control, pasture and grassland management, urban erosion problems, water quality, reclamation of abandoned mined land, rural development, and other resource problems. The agency employs a variety of technical specialists such as conservationists, soil and plant scientists, engineers, water and flood specialists, biologists, agronomists, foresters, range conservationists, and erosion and sediment experts.

The goal of the NRCS is to "work hand-in-hand with the American people to conserve natural resources on private lands;...[to] help land users and communities approach conservation planning and implementation with

an understanding of how natural resources relate to each other...and how [human] activities affect those resources.

Programs Administered by the NRCS

The NRCS administers the Small Watershed Program, Great Plains Conservation Program, Rural Abandoned Mine Program, Resource Conservation and Development, Soil Survey Program, Wetlands Reserve Program, and Forestry Incentives Programs.

Environmental Education

[NRCS] provides assistance in environmental education by working with national educational associations, state and local departments of education, colleges and universities, youth and volunteer organizations and groups, and national, state, and local resource conservation organizations.

[NRCS] conservationists help educators plan outdoor classrooms for environmental studies. They assist teachers and students who are studying environmental problems, such as nonpoint-source pollution in a local stream. They help teachers find ways to incorporate conservation in subject areas throughout the school curriculum; for example, in courses of geography, mathematics, economics, political science, and history.

To help teachers establish environmental education programs, [NRCS] participates in workshops and seminars, and assists such organizations as the General Federation of Women's Clubs, Boy Scouts, Girl Scouts, 4-H Clubs, and Future Farmers of America in preparing environmental education programs and community improvement projects. [NRCS] also provides onsite technical assistance in developing and maintaining camp properties.

[NRCS] works with textbook writers and producers of audiovisual materials to incorporate fundamental environmental principles into educational products."

Local NRCS Offices

Many of these Natural Resources Conservation Service addresses are the same as those of the Oklahoma Conservation Commission District Offices listed earlier in this chapter. *The offices listed here are alphabetized by city.*

1310 Craddock Road

Ada, OK 74820

(405) 332-3154

PONTOTOC COUNTY

101 S. Hudson

Altus, OK 73522

(405) 482-4807

JACKSON COUNTY

1016-C Sixth

Alva, OK 73717

(405) 327-3138

WOODS COUNTY

800 N. First

Anadarko, OK 73005

(405) 247-3622

CADDO COUNTY

510 N. Highway 271

Antlers, OK 74523

(405) 298-2598

PUSHMATAHA COUNTY

Local NRCS Offices (cont'd.)

Federal Building Ardmore, OK 73401 CARTER COUNTY	(405) 223-7277	205 E. 12th St. Dewey, OK 74029 WASHINGTON COUNTY	(918) 534-2720
200 S. Mississippi Atoka, OK 74525 ATOKA COUNTY	(405) 889-2388	2001 S. 13th St. Duncan, OK 73533 STEPHENS COUNTY	(405) 255-2168
322 Douglas Beaver, OK 73932 BEAVER COUNTY	(405) 625-4231	2704 N. First St. Durant, OK 74701 BRYAN COUNTY	(405) 924-1564
118 S. First Blackwell, OK 74631 KAY COUNTY	(405) 363-4164	1625 E. Highway 66 El Reno, OK 73036 CANADIAN COUNTY	(405) 262-1958
210 S. Cimarron Boise City, OK 73933 CIMARRON COUNTY	(405) 544-2812	2309 N. 10th St. Enid, OK 73701 GARFIELD COUNTY	(405) 237-4338
128 E. Third Bristow, OK 74010 CREEK COUNTY	(918) 367-2113	Birkes Road Eufaula, OK 74432 McINTOSH COUNTY	(918) 689-2301
No. 2 Miles Addition Buffalo, OK 73834 HARPER COUNTY	(405) 735-2023	225 N. Main Fairview, OK 73737 MAJOR COUNTY	(405) 227-4884
710 Manvel Chandler, OK 74834 LINCOLN COUNTY	(405) 258-1405	Highway 9 North Fort Cobb, OK 73038 CADDO COUNTY	(405) 643-2391
407 W. Cherokee Cherokee, OK 73728 ALFALFA COUNTY	(405) 596-3402	1120 S. Main Frederick, OK 73542 TILLMAN COUNTY	(405) 335-3921
321 W. Broadway Cheyenne, OK 73628 ROGER MILLS COUNTY	(405) 497-2272	1302 Fourth Freedom, OK 73842 WOODS COUNTY	(405) 621-3251
828 Choctaw Chickasha, OK 73018 GRADY COUNTY	(405) 224-2172	129 E. Main Geary, OK 73040 BLAINE COUNTY	(405) 884-2383
120 S. Missouri Claremore, OK 74017 ROGERS COUNTY	(918) 341-0536	2227 Iron Mountain Dr. Guthrie, OK 73044 LOGAN COUNTY	(405) 282-1650
1508 Neptune Dr. Clinton, OK 73601 CUSTER COUNTY	(405) 323-1602	601 S.E. Fifth Guymon, OK 73942 TEXAS COUNTY	(405) 338-6818
6 E. Lafayette Coalgate, OK 74538 COAL COUNTY	(405) 927-2182	201 E. Main Hinton, OK 73047 CADDO COUNTY	(405) 542-3204
507 E. Normal Cordell, OK 73632 WASHITA COUNTY	(405) 832-2549	802 W. 11th Hobart, OK 73651 KIOWA COUNTY	(405) 726-3786

419 E. Highway Holdenville, OK 74848 HUGHES COUNTY	(405) 379-3561	125 S. Main, Federal Building Muskogee, OK 74401 MUSKOGEE COUNTY	(918) 682-0151
324 N. Main Hollis, OK 73550 HARMON COUNTY	(405) 688-3456	115 S. Maple Newkirk, OK 74647 KAY COUNTY	(405) 362-3362
207 N. Fourth, Federal Building Hugo, OK 74743 CHOCTAW COUNTY	(405) 326-2562	603 E. Robinson, Suite B Norman, OK 73071 CLEVELAND COUNTY	(405) 321-7766
201 N. Central, Federal Building Idabel, OK 74745 MCCURTAIN COUNTY	(405) 286-5342	123 S. Ash Nowata, OK 74048 NOWATA COUNTY	(918) 273-0333
Whitehead and Delaware Streets Jay, OK 74346 DELAWARE COUNTY	(918) 253-4517	218 N. Fifth St. Okeene, OK 73763 BLAINE COUNTY	(405) 822-3255
1515 S. Seventh Kingfisher, OK 73750 KINGFISHER COUNTY	(405) 375-3247	401 S. Division St. Okemah, OK 74859 OKFUSKEE COUNTY	(918) 623-0077
Fifth and E Streets Federal Building Lawton, OK 73501 COMANCHE COUNTY	(405) 353-1564	1000 W. Wilshire Oklahoma City, OK 73116 OKLAHOMA COUNTY	(405) 843-5031
800 Cedar Dr. Madill, OK 73446 MARSHALL COUNTY	(405) 795-3148	719 E. Eighth Okmulgee, OK 74447 OKMULGEE COUNTY	(918) 756-2416
2302 N. Louis Tittle Ave. Mangum, OK 73554 GREER COUNTY	(405) 782-3566	310 S. Chickasaw Pauls Valley, OK 73075 GARVIN COUNTY	(405) 238-6767
1008 Memorial Dr. Marietta, OK 73448 LOVE COUNTY	(405) 276-3201	1000 W. Main Pawhuska, OK 74056 OSAGE COUNTY	(918) 287-3755
301 Carl Albert Parkway McAlester, OK 74501 PITTSBURG COUNTY	(918) 423-5641	500 Harrison, Room 100 Pawnee, OK 74058 PAWNEE COUNTY	(918) 762-2398
121 E. Kretchmar Medford, OK 73759 GRANT COUNTY	(405) 395-2340	1302 Fifth St. Perry, OK 73077 NOBLE COUNTY	(405) 336-5597
630 E. Steve Owens Blvd. Miami, OK 74354 OTTAWA COUNTY	(918) 542-4771	3111B N. Broadway Poteau, OK 74953 LE FLORE COUNTY	(918) 647-2992
318 Main Mountain View, OK 73062 KIOWA COUNTY	(405) 347-2220	Agricultural Center at Fairgrounds Pryor, OK 74362 MAYES COUNTY	(918) 825-3392

Local NRCS Offices (cont'd.)

501 N. Fourth
Purcell, OK 73080 (405) 527-3241
McCLAIN COUNTY

101 McGee Dr.
Sallisaw, OK 74955 (918) 775-6577
SEQUOYAH COUNTY

802 N.E. Highway 66
Sayre, OK 73662 (405) 928-2564
BECKHAM COUNTY

401 E. Main
Sentinel, OK 73664 (405) 393-4321
WASHITA COUNTY

Carr Street
Shattuck, OK 73858 (405) 938-2314
ELLIS COUNTY

201 N. Bell
Shawnee, OK 74801 (405) 273-3428
POTTAWATOMIE COUNTY

105 S.E. Third
Stigler, OK 74462 (918) 967-2488
HASKELL COUNTY

800 E. Sixth St.
Stillwater, OK 74074 (405) 372-7071
PAYNE COUNTY

102 W. Pine
Stilwell, OK 74960 (918) 696-7612
ADAIR COUNTY

1117 W. Second
Sulphur, OK 73086 (405) 622-3913
MURRAY COUNTY

1009 S. Muskogee Ave.
Tahlequah, OK 74464 (918) 456-1942
CHEROKEE COUNTY

North Dallas Street
Talihina, OK 74571 (918) 567-2380
LE FLORE COUNTY

South Broadway and Riggs Streets
Taloga, OK 73667 (405) 328-5321
DEWEY COUNTY

1005 E. Main
Tishomingo, OK 73460 (405) 371-2270
JOHNSTON COUNTY

4116 E. 15th
Tulsa, OK 74112 (918) 744-0283
TULSA COUNTY

Federal Building, Room 209
Vinita, OK 74301 (918) 256-5647
CRAIG COUNTY

1312 S.W. Third
Wagoner, OK 74467 (918) 485-4770
WAGONER COUNTY

229 N. Broadway
Walters, OK 73572 (405) 875-3334
COTTON COUNTY

221 E. Main
Watonga, OK 73772 (405) 623-5440
BLAINE COUNTY

Route 2, Box 119
Waurika, OK 73573 (405) 228-2111
JEFFERSON COUNTY

300 S. Broadway
Weatherford, OK 73096 (405) 772-2320
CUSTER COUNTY

1400 Indian Road
Wewoka, OK 74884 (405) 257-3766
SEMINOLE COUNTY

207 E. Main
Wilburton, OK 74587 (918) 465-2181
LATIMER COUNTY

2411 Williams Ave.
Woodward, OK 73801 (405) 256-5320
WOODWARD COUNTY

NRCS Area Offices

1750 N. Sioux St.
Claremore, OK 74017 (918) 341-3222
ROGERS COUNTY

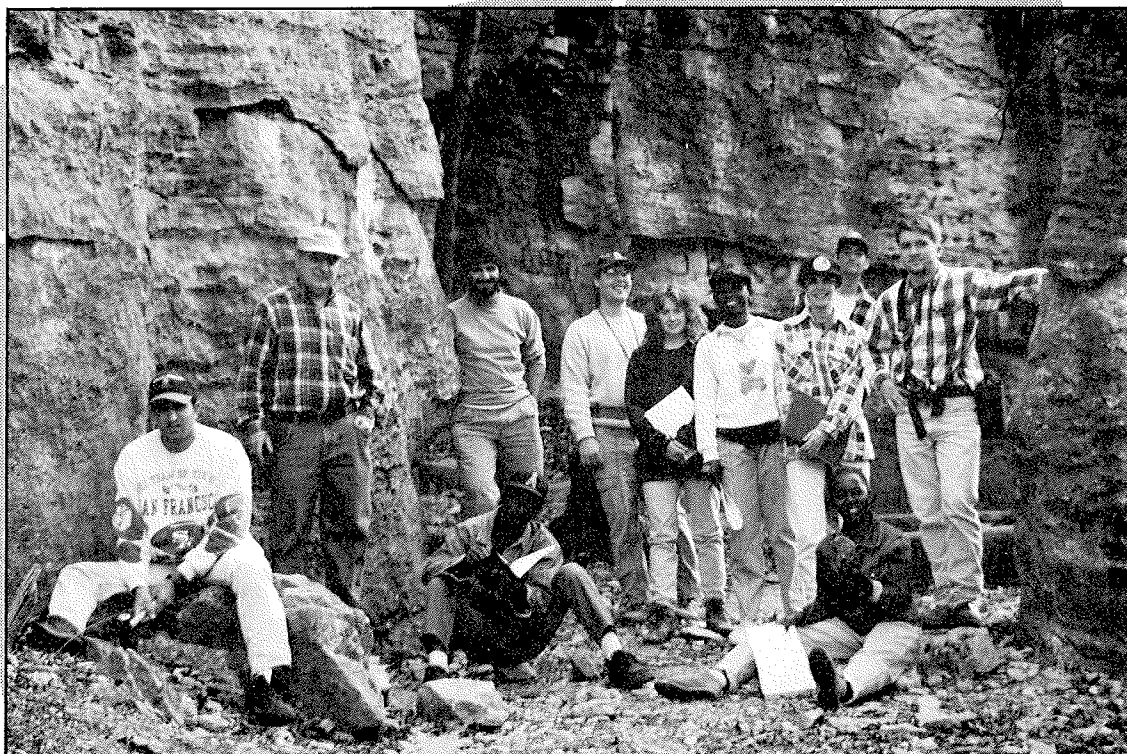
517 Prairie Chief
Clinton, OK 73601 (405) 323-3733
CUSTER COUNTY

First National Center
McAlester, OK 74501 (918) 423-8730
PITTSBURG COUNTY

502 14th St.
Perry, OK 73077 (405) 336-5515
NOBLE COUNTY

4900 Oklahoma Ave.
Woodward, OK 73801 (405) 256-7611
WOODWARD COUNTY

COLLEGES AND UNIVERSITIES



Dr. Zuhair Al-Shaieb (standing, far left), head of the School of Geology at Oklahoma State University, with a geology class at Chandler Park, west of Sand Springs, Oklahoma. (Photo courtesy School of Geology, Oklahoma State University.)

Two comprehensive State universities and one private university in Oklahoma have large geology faculties. Although the primary function of the universities is research and college-level education, many faculty members are interested in earth science education at the primary and secondary level. Many of the faculty visit local schools, are science-fair project advisors and judges, members of local scouting organizations, etc. Some also are involved professionally in earth science education, and some are avid mineral and fossil collectors. The names of the faculty members at the comprehensive universities and their research specialties (in *italics*) are given on the following pages.

There are also a number of smaller state and private colleges and universities throughout Oklahoma. Most

do not have geology departments, but do have faculty who have geological expertise and teach courses in physical science, geography, or related fields. The individuals at the smaller institutions listed here have volunteered to act as local sources of geological information; in many cases, these individuals are especially knowledgeable about that part of the State where they live and work.

Also listed are colleges and universities that may have a staff member with geological expertise who is not named here. I welcome any additions to the list of individuals who are willing to act as local sources of geologic information. If you are near a college that does not have an individual listed, I suggest you call the general number for the college and ask if anyone on the staff can answer questions of a geological nature.

COMPREHENSIVE STATE AND PRIVATE UNIVERSITIES

UNIVERSITY OF OKLAHOMA

School of Geology and Geophysics

Sarkeys Energy Center

100 E. Boyd St., Room 810

Norman, OK 73019-0628

(405) 325-3253

CLEVELAND COUNTY

Faculty:

Judson L. Ahern—*geomechanics, thermal and mechanical modeling of the lithosphere, origin of sedimentary basins, crustal geophysics*

Richard L. Cifelli (also Associate Curator of the Oklahoma Museum of Natural History and Associate Professor of Zoology)—*paleobiology, systematics, evolution of mammals*

David Deming—*terrestrial heat flow, thermal history of sedimentary basins, fluid flow in the continental crust, climate change*

Thomas A. Dewers—*theoretical and experimental inorganic geochemistry*

R. Douglas Elmore—*paleomagnetism and diagenesis, sedimentology, depositional systems*

Michael H. Engel—*organic and stable isotope geochemistry of fossil systems*

James M. Forgotson, Jr.—*petroleum geology, stratigraphy, basin analysis, petroleum reservoir characterization*

M. Charles Gilbert, Director—*igneous and metamorphic petrology, experimental geochemistry, rift magmatism*

Charles W. Harper, Jr.—*invertebrate paleontology, paleoecology, quantitative biostratigraphy*

Claren M. Kidd—*librarian, Laurence S. Youngblood Library* (see Chapter 2; also see the Oklahoma Geological Survey entry in Chapter 6)

David London—*experimental geochemistry, igneous and metamorphic petrology, economic geology*

R. Paul Philp—*organic geochemistry, petroleum geochemistry, biomarkers*

John D. Pigott—*2-D and 3-D reflection geophysics, basin analysis, sedimentary geochemistry*

Ze'ev Reches—*deformation process of the upper crust, faulting, fracturing, folding*

Gerilynn Soreghan—*process stratigraphy, basin analysis, stratigraphy/sedimentology, paleoclimatology, tectonics*

David W. Stearns—*mechanical behavior of shallowly buried layered rocks, fractured reservoirs*

Barry L. Weaver—*igneous petrology, geochemistry of trace and rare earth elements, chemical evolution of the crust-mantle system*

Alan J. Witten—*imaging and target detection using acoustic and electromagnetic waves, magnetic and electric fields, eddy currents*

Roger A. Young—*exploration geophysics, environmental geophysics, crustal studies*

OKLAHOMA STATE UNIVERSITY

School of Geology

105 Noble Research Center

Stillwater, OK 74078-0451

(405) 744-6358

PAYNE COUNTY

Faculty:

Zuhair Al-Shaieb, Head—*sedimentary petrology and geochemistry, reservoir characterization*

Darwin R. Boardman—*event stratigraphy, paleontology*

Ibrahim Cemen—*structural geology, tectonics*

Arthur W. Cleaves—*physical stratigraphy, subsurface geology, terrigenous clastic facies analysis*

William J. Focht—*environmental geology*

Arthur W. Hounslow—*low-temperature geochemistry, mineralogy*

Vernon P. Scott—*earth science education*

Gary F. Stewart—*structural geomorphology, application of wireline logs in subsurface geology*

John D. Vitek—*geomorphology*

UNIVERSITY OF TULSA

Department of Geosciences

Tulsa, OK 74104

(918) 631-2517

TULSA COUNTY

Faculty:

Colin Barker, Chair—*organic geochemistry, geochemistry applied to the occurrence of ultra-deep gas, pyrolysis and anomalous subsurface pressures*

Steven J. Bellovich—*physical geography, areas of environmental impact, land use and hazard perception*

Duryodhan Epili—*exploration geophysics*

Janet A. Haggerty—*marine geology, sedimentology and petrology of carbonate rocks, marine biology and ecology of modern carbonate environments*

Dennis R. Kerr—*sedimentology, reservoir characterization of fluvial and fluvial-dominated deltaic deposits, applications of artificial intelligence to reservoir characterization, integrated assessment of eolian depositional architecture*

Christopher L. Liner—*exploration geophysics, reservoir characterization utilizing geology, geophysics, and*

petroleum engineering, shallow geophysics using non-invasive geophysical methods

Peter J. Michael — *igneous petrology, crustal fluids, geochemistry of plume sources, global mid-ocean ridge system*

James Bryan Tapp — *structural geology, geomechanics, application of finite element method to geologic problems, science education*

REGIONAL STATE UNIVERSITIES

EAST CENTRAL UNIVERSITY

East 14th

Ada, OK 74820-6899

(405) 332-8000

Attn:

- Frederick D. Busche, Chair, Department of Cartography and Geography, ext. 398
- Victor Murray, Department of Cartography and Geography, ext. 630
- Robert Neman, Chair, Department of Chemistry, ext. 447

PONTOTOC COUNTY

NORTHEASTERN STATE UNIVERSITY

Department of Geology

Science Building

Tahlequah, OK 74464-2399

(918) 458-2094

Attn: John Simms, Assistant Professor

CHEROKEE COUNTY

NORTHWESTERN OKLAHOMA STATE UNIVERSITY

600 Oklahoma Blvd.

Alva, OK 73717-2749

(405) 327-1700

WOODS COUNTY

SOUTHEASTERN OKLAHOMA STATE UNIVERSITY

First and University Boulevard

Station A

Durant, OK 74701-0609

(405) 924-0121

BRYAN COUNTY

SOUTHWESTERN OKLAHOMA STATE UNIVERSITY

Biology Department

100 N. Campus Dr.

Weatherford, OK 73096-3098

(405) 774-3228

Attn: Henry Kirkland, Jr.

CUSTER COUNTY

UNIVERSITY OF CENTRAL OKLAHOMA

100 N. University Dr.

Edmond, OK 73034-0170

(405) 341-2980

OKLAHOMA COUNTY

SENIOR STATE UNIVERSITIES

CAMERON UNIVERSITY

Department of Physical Science

2800 W. Gore

Lawton, OK 73505-6377

(405) 581-2886

Attn: Kurtis J. Koll

COMANCHE COUNTY

LANGSTON UNIVERSITY

Box 907

Langston, OK 73050-0907

(405) 466-2231

LOGAN COUNTY

OKLAHOMA PANHANDLE STATE UNIVERSITY

Department of Earth Science

Goodwell, OK 73939

(405) 349-2611

Attn: W. Patrick Seward, Assistant Professor

TEXAS COUNTY

UNIVERSITY OF SCIENCE AND ARTS OF OKLAHOMA

200 S. 18th

Chickasha, OK 73018-5358

(405) 224-3140

GRADY COUNTY

STATE JUNIOR COLLEGES

CARL ALBERT JUNIOR COLLEGE

1507 S. McKenna

Poteau, OK 74953-5208

(918) 647-1200

LE FLORE COUNTY

CONNORS STATE COLLEGE

1000 College Road

Warner, OK 74469-0389

(918) 463-2931

MUSKOGEE COUNTY

EASTERN OKLAHOMA STATE COLLEGE

Physical Sciences Department

1301 W. Main

Wilburton, OK 74578-4999

(918) 465-2361

Attn: Terry Haynes

LATIMER COUNTY

MURRAY STATE COLLEGE

Division of Science

1 Campus St.

Tishomingo, OK 73460-3130

(405) 371-2371

Attn: Bruce G. Stewart, Chair

JOHNSTON COUNTY

NORTHEASTERN OKLAHOMA A&M COLLEGE

Physical Science Department

Miami, OK 74354-6499

(918) 542-8441

Attn: Sam Wells

OTTAWA COUNTY

TULSA JUNIOR COLLEGE, SOUTHEAST CAMPUS

Science and Mathematics Division

10300 E. 81st St.

Tulsa, OK 74133-4513

(918) 631-7742

Attn: Raymond Brady, Chair

TULSA COUNTY

NORTHERN OKLAHOMA COLLEGE

1220 E. Grand

Tonkawa, OK 74653-0310

(405) 628-6200

KAY COUNTY

WESTERN OKLAHOMA STATE COLLEGEDivisions of Science, Mathematics, Physical Education,
and Social Sciences

2801 N. Main St.

Altus, OK 73521-1397

(405) 477-2000

Attn: Jim Burbank, Director, ext. 257

JACKSON COUNTY

OKLAHOMA CITY COMMUNITY COLLEGE

Science and Mathematics Division

7777 S. May Ave.

Oklahoma City, OK 73159-4499

(405) 682-1611

Attn: Gary Houlette, ext. 7272

OKLAHOMA COUNTY

**PRIVATE UNIVERSITIES
AND SENIOR COLLEGES****REDLANDS JUNIOR COLLEGE**

Box 370

El Reno, OK 73036-0370

(405) 262-2552

CANADIAN COUNTY

OKLAHOMA BAPTIST UNIVERSITY

500 W. University Dr.

Shawnee, OK 74801

(405) 275-2850

POTTAWATOMIE COUNTY

ROGERS STATE COLLEGE

Will Rogers and College Hill

Claremore, OK 74017-2099

(918) 341-7510

ROGERS COUNTY

**OKLAHOMA CHRISTIAN UNIVERSITY OF SCIENCE
AND ARTS**

Box 11000

Oklahoma City, OK 73136-1100

(405) 425-5000

OKLAHOMA COUNTY

ROSE STATE COLLEGE

6420 S.E. 15th St.

Midwest City, OK 73110

(405) 733-7311

OKLAHOMA COUNTY

OKLAHOMA CITY UNIVERSITY

2501 N. Blackwelder Ave.

Oklahoma City, OK 73601

(405) 521-5000

OKLAHOMA COUNTY

SEMINOLE JUNIOR COLLEGE

2701 State St.

Box 351

Seminole, OK 74818

(405) 382-9950

SEMINOLE COUNTY

ORAL ROBERTS UNIVERSITY

Engineering and Physics Department

7777 S. Lewis Ave.

Tulsa, OK 74171

(918) 495-6933

Attn: Nathan Meleen

TULSA COUNTY

TULSA JUNIOR COLLEGE, METRO CAMPUS

909 S. Boston Ave.

Tulsa, OK 74119-2095

(918) 631-7246

Attn: Claude E. Bolze, Assistant Professor of Geology,
Metro Campus

TULSA COUNTY

PHILLIPS UNIVERSITY

Division of Natural and Mathematical Sciences

P.O. Box 2000, University Station

Enid, OK 73702

(405) 237-4433

Attn: Lyman Williams, Geology Professor, ext. 340

GARFIELD COUNTY

OIL AND GAS COMPANIES

Since 1897, when the Nellie Johnstone No. 1 well struck oil near Bartlesville, Oklahoma has been known as an oil-producing state. In the nearly 100 years since that first commercial oil well was drilled, Oklahoma has produced nearly 14 billion barrels of oil and 65 trillion cubic feet of natural gas from about 400,000 wells.¹ In December 1994, about 23,000 people in Oklahoma were employed by the petroleum industry and production tax revenue paid to the State totaled about \$400 million. Despite the recent downturn in the petroleum industry, oil and gas remain an important source of livelihood for thousands of Oklahomans.

Oil and gas companies have proven to be among the State's leading corporate citizens. Many of Oklahoma's premier museums and educational centers are the legacy of oilmen, and 16 of Oklahoma's 20 largest charitable foundations are directly related to oilmen and their families.¹ For years, Oklahoma petroleum geologists have donated time and resources to Oklahoma's schoolteachers and children. In some cases, assisting local schools is company policy; in others, individuals take it upon themselves to volunteer their services.

The following list includes only a fraction of Oklahoma geologists and companies who will work with teachers and classes in an effort to further earth science education in Oklahoma. Petroleum geologists are employed as private consultants, independents, and company geologists throughout the State. Teachers who are not located in one of the cities listed here should check their local Yellow Pages under "Oil and Gas Exploration and Development" and ask the geologists listed if they are available to answer questions or visit with classes. A word of caution: the geologists listed here, as well as others who would be willing to volunteer their time, are working geologists. Some may only be able to answer questions over the phone; some may be able to visit classrooms; others may be willing to take groups on field trips on the weekend. Almost all, however, are excited about their profession and enjoy sharing their enthusiasm with interested students.

I invite any independent petroleum geologists or oil and gas companies who are not on this list to send me their names if they would like to help earth science teachers and students understand the geology of Oklahoma and/or petroleum geology. An expanded list in future editions of this publication will be another example of the commitment of Oklahoma's oil and gas

companies to the State and local communities in which they operate.

Companies are listed in alphabetical order under the names of the cities in which they are located.

BARTLESVILLE (WASHINGTON COUNTY)

Phillips Petroleum Company

(Include building name and room number)

Bartlesville, OK 74004 (all phone nos. (918) 661-...)

Ben Powell, 237 Geoscience Building—*mineralogy, petrology, Wichita Mountains, extraterrestrial geology, general geology*, ext. 9664

David L. Brumbaugh, 570 Plaza Office Building—*fossils*, ext. 6519

Dennis P. Logan, 254 Geoscience Building—*general geology*, ext. 8325

Daniel L. Pearson, 153 Geoscience Building—*fossils*, ext. 6244

Gary M. Hoover, 1110G Plaza Office Building—*general geophysics*, ext. 9702

Douglas W. Rhett, 132 Geoscience Building—*general geology, mineralogy, rock mechanics*, ext. 9516

Tom R. Moore, 270 Geoscience Building—*petroleum geology, sedimentology, field trips*, ext. 3476

- Each February, Phillips Petroleum Company sponsors Green Country Science Teachers' Workshop, which spotlights innovative techniques and materials for science education. For information, call (918) 661-7032.

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MOORE (CLEVELAND COUNTY)

Outback Petroleum

325 N. I-35 Service Rd.

Moore, OK 73160

(405) 793-1782

Jerry McCaskill

• • • •

OKLAHOMA CITY (OKLAHOMA COUNTY)

AnSon Corporation

P.O. Box 24060

Oklahoma City, OK 73124

(405) 528-0525

Hal Hawthorne

Chesapeake Operating Company

P.O. Box 18496

Oklahoma City, OK 73154

(405) 848-8800

Mark Lester, ext. 13

Duane Heckelsberg, ext. 21

Steve Lane, ext. 12

Kerr-McGee Corporation

Kerr-McGee Center

P.O. Box 25861

Oklahoma City, OK 73125 (all phone nos. (405) 270-....)

Tom Miller, ext. 3845

Sherman Formhals, ext. 3850

Ken Loeber, ext. 3848

Kathy Bridges, ext. 3868

Marathon Oil Company

7301 N.W. Expressway

P.O. Box 689

Oklahoma City, OK 73101 (all phone nos. (405) 720-....)

Rich McLean—*structure, tectonics, seismic modeling and interpretation*, ext. 5647Bill Coffey—*fossil collecting and mineral collecting*, ext. 5547George Granata—*sedimentology, basin evolution*, ext. 5646John Spaid—*sedimentology, experiments for earth science and geology for elementary, middle school, and high school*, ext. 5639Tom Sharp—*seismic data in oil exploration*, ext. 5644Robert Schmicker—*seismic exploration, structural geology*, ext. 5637**Mustang Fuel Corporation**

2000 Classen Blvd., Suite 800 E.

Oklahoma City, OK 73106 (405) 557-9576

Jack Clay

Sonat Exploration Company

14000 Quail Springs Parkway, Suite 100

Oklahoma City, OK 73134 (all phone nos. (405) 749-....)

Michael Lynch-Blosse, *Director, Exploration and Development*, ext. 5306Jim Langford, *Senior Staff Geologist*, ext. 5381Rick Mittler, *Senior Geologist*, ext. 5383Doug Johnson, *Senior Geologist*, ext. 5335Cole Hinds, *Senior Geologist*, ext. 5365**Southwestern Energy**

5600 N. May, Suite 200

Oklahoma City, OK 73112 (405) 843-5539

Greg Cwayna

Dale Shipley

Steve Narr

Pat Williams

• • • •

TULSA (TULSA COUNTY)**Amoco E & P Technology Center**

P.O. Box 3385

Tulsa, OK 74102 (918) 660-3662

Eric Bandursky

MASERA Corporation

P.O. Box 702708

Tulsa, OK 74170-2708 (918) 496-7777

Rick Fritz

Medallion Production Company

7130 S. Lewis, Suite 700

Tulsa, OK 74136 (all phone nos. (918) 491-....)

Manny Redifer, *Staff Geologist*, ext. 4122Brad Magill, *Senior Geologist*, ext. 4121Mark Saylor, *Staff Geologist*, ext. 4118Gene Daley, *Senior Vice President, Exploration*, ext. 4119**Oneok Exploration Company**

100 W. Fifth St.

Tulsa, OK 74102 (918) 588-7700

Ken Jones

Samson International

2 W. Second St.

Tulsa, OK 74103 (918) 583-1791

Phil Byrd

Nancy Campbell

Robert McKenna

Kevin Brown

George Grunau

Jack Wilson

Robert Ahlborn

Victor Lahti

Don Kentner

Tide West Oil Company

6666 S. Sheridan Road, Suite 250

Tulsa, OK 74133 (918) 488-8962

Robert W. Von Rhee

Debra E. Nally

David G. Tschopp

Unit Petroleum Company

P.O. Box 702500

Tulsa, OK 74170-2500 (918) 493-7700

John Feamter

Daniel Willingham

Edward Heald

Vintage Petroleum, Inc.

4200 One Williams Center

Tulsa, OK 74172 (918) 592-0101

Kevin Morris, *Geologist*Lee Burgess, *Geologist*Tom Butler, *Geologist*Joe Gold, *Geologist*Jeff Tassone, *Exploration Manager*

REFERENCE

1. Oil and Gas and Oklahoma: A State of Change, 1995, Commemorative newspaper supplement produced by the Nigh Institute of State Government at the University of Central Oklahoma and the Edmond Evening Sun, April, 28 p.

PROFESSIONAL GEOLOGICAL ORGANIZATIONS

There are three professional geological societies and one professional geophysical society in Oklahoma. Geologists from industry, academia, and government are members of these organizations.

Although organized slightly differently, each of the societies has an active outside education committee and/or commitment, and each is willing to work with earth science educators to bring programs and personnel to local schools.

The following list includes geologists and individuals who are willing to serve as principal or initial contacts for those seeking information or help with regard to earth science education. Persons listed may answer questions or arrange a visit themselves, or they may refer you to others in the society whose abilities more closely match your needs.

The names and addresses of professional organizations are followed by the names, addresses, and phone numbers of contact persons within the organization.



ARDMORE GEOLOGICAL SOCIETY

Box 1552

Ardmore, OK 73402

CARTER COUNTY

Robert W. Allen

Ardmore Geological Society

P.O. Box 581

Ardmore, OK 73402 (405) 223-9367

Bryan Sralla

Ardmore Geological Society

P.O. Box 581

Ardmore, OK 73402 (405) 223-9367

Chuck Price

Ardmore Production and Exploration Company

P.O. Box 1988

Ardmore, OK 73402 (405) 223-2292

Tom Olson

Quinton-Little Company

P.O. Box 1509

Ardmore, OK 73402 (405) 226-7600



GEOPHYSICAL SOCIETY OF OKLAHOMA CITY

Oklahoma City Section, Society of Exploration

Geophysicists

P.O. Box 12163

Oklahoma City, OK 73157

OKLAHOMA COUNTY

Richard E. Schneider

Geophysical Society of Oklahoma City

P.O. Box 620224

Oklahoma City, OK 73162 (405) 842-1082



OKLAHOMA CITY GEOLOGICAL SOCIETY

227-B Park Ave.

Oklahoma City, OK 73102-4405 (405) 236-8086

OKLAHOMA COUNTY

Principal contacts:

Carol Jones

Oklahoma City Geological Society

227-B Park Ave.

Oklahoma City, OK 73102 (405) 236-8086

Kathy Lippert

Applied Environmental Services

3408 French Park Dr., Suite C

Edmond, OK 73034 (405) 348-5332

**TULSA GEOLOGICAL SOCIETY**

P.O. Box 4508

Tulsa, OK 74159-0508

TULSA COUNTY

(918) 582-4762

Principal contact:**Malcolm J. Bratton**

Coordinator for Outside Education

Tulsa Geological Society

c/o Oneok Exploration Company

100 W. Fifth St.

P.O. Box 871

Tulsa, OK 74102-0871

(918) 588-7735

Secondary contact:**Frank Gagliardi, President**

Tulsa Geological Society

c/o Hawkins Energy Corporation

400 S. Boston, Suite 800

Tulsa, OK 74103

(918) 587-5815

Other TGS contacts:**John F. Harris**

2617 E. Second St.

Tulsa, OK 74104

(918) 592-5542

Alan Bennison

Pratt Tower, Suite 401

125 W. 15th St.

Tulsa, OK 74119

(918) 587-0091

Gary J. Rowell

Enercon Services Inc.

10820 E. 45th St., Suite 100

Tulsa, OK 74146

(918) 665-7693

Richard C. Norman

Box 81

Jenks, OK 74037

(918) 299-9435

Craig Ferris

Gravimetrics, Inc.

1437 S. Main, Suite 202

Tulsa, OK 74119-3698

(918) 585-3333

Rick Erickson

P.O. Box 690955

Tulsa, OK 74169

(918) 438-2326

Richard Jaeger

3515 E. 88th

Tulsa, OK 74169

(918) 491-2200

ROCK, MINERAL, AND FOSSIL CLUBS



Vending area at the Rocky Mountain Federation of Mineralogical Societies Show, hosted by the Oklahoma Mineral and Gem Society, June 1995. (Photo courtesy Paul Cinnamon, President, Oklahoma Mineral and Gem Society.)

There are 11 amateur rock, mineral, and fossil clubs in Oklahoma, and one in northwest Arkansas that has a significant number of Oklahoma members. The interests of individual members vary in each club, but include jewelry making, specimen collecting and displaying, and scientific study. Most of the clubs have an active education-outreach committee and nearly all the members are enthusiastic about sharing their interests with others, including children. The amateur clubs are an excellent source of information about Oklahoma rocks, minerals, fossils, and collecting, as well as the lapidary arts.

The 11 clubs are listed here in alphabetical order by city. Descriptions of the clubs' activities are pro-

vided, where available. The names, addresses, and phone numbers are based on listings in the 1995 Directory of the Rocky Mountain Federation of Mineralogical Societies. In some cases, the address shown is that of the club; in others, the address and phone number is that of one of the officers (marked with an asterisk). It should be noted that club officers change from year to year and, depending on how soon after the publication of this book you contact the club, you may be referred to another individual. Every effort will be made to include updated information in future editions of this resources guide, and I welcome notes of any changes in personnel from the clubs themselves.

Clubs are listed in alphabetical order by city.

ADA HARDROCK AND FOSSIL CLUB

923 E. 34th St.*

Ada, OK 74820

*Doug Kreis, President (405) 436-1655

PONTOTOC COUNTY

OSAGE HILLS GEM AND MINERAL SOCIETY

P.O. Box 561

Bartlesville, OK 74005

Dave Kennedy, President (918) 333-9709

WASHINGTON COUNTY

ENID GEM AND MINERAL SOCIETY

2614 W. Oklahoma*

Enid, OK 73703

George Salwaechter, President unlisted

John Worden, Field Trip Chairman (405) 233-6996

Gordon McDowell, Treasurer (405) 596-2368

*Frances Johnson, Editor (405) 233-1852

GARFIELD COUNTY

The Enid Gem and Mineral Society supplies speakers to civic clubs and school classrooms throughout north-west Oklahoma and answers inquiries about field trips to the area. The club has members from 8 to 10 counties surrounding Enid. Members assist Leonardo's (a science and art learning center) and the Midgley Museum, which has a large mineral collection. They also prepare displays for local libraries. The society sponsors a junior club for school-aged members.

MCCURTAIN COUNTY GEM AND MINERAL CLUB

406 S.E. Ave. E*

Idabel, OK 74745

Cefis Hall, President (405) 494-6612

*Sid Love, Treasurer

MCCURTAIN COUNTY

Club members present programs dealing with the earth sciences for school children and civic groups and conduct field trips for private and public schools. The club maintains a fossil and mineral display case for public viewing at the Idabel Public Library and buys and donates books on fossils and minerals to area libraries.

MOUNT SCOTT GEM AND MINERAL SOCIETY

44 N.W. 29th St.*

Lawton, OK 73505

*Richard Robinson, President (405) 355-9081

COMANCHE COUNTY

OKLAHOMA MINERAL AND GEM SOCIETY

P.O. Box 25632

Oklahoma City, OK 73105

Paul Cinnamon, President

(405) 751-4967

OKLAHOMA COUNTY

The Oklahoma Mineral and Gem Society has an active education committee. Ongoing activities include periodic displays at most of the Oklahoma City metro-area libraries; working demonstrations at the Spring Fair and Oklahoma State Fair; quarterly working demonstrations at Oklahoma City's Omniplex; and schoolroom presentations, upon request.

SHAWNEE GEM AND MINERAL SOCIETY

10 Donna Lane*

Shawnee, OK 74801-5614

Willogene Morris, President (405) 386-2314

*Nancy Hicks, Treasurer

*Bob Hicks, Field Trips

POTTAWATOMIE COUNTY

N.W. ARKANSAS GEM AND MINERAL SOCIETY

415 W. Twin Springs

Siloam Springs, AR 72761

John Moose, President (501) 524-4027

DELAWARE COUNTY (closest Oklahoma county)

STILLWATER MINERAL AND GEM SOCIETY

1116 S. Gray*

Stillwater, OK 74074

John Osborne, President (405) 377-4288

*Dan Lingelbach, Treasurer

*Ruby Lingelbach, Editor

PAYNE COUNTY

TAHLEQUAH ROCK AND MINERAL SOCIETY

P.O. Box 932

Tahlequah, OK 74465

Betty Ruth Adams, President (918) 456-5827

CHEROKEE COUNTY

TULSA ROCK AND MINERAL SOCIETY

P.O. Box 2292

Tulsa, OK 74101

Wayne Mouser, President

For a list of current club executives and meeting times, contact:

Tulsa Central Library

400 Civic Center

Tulsa, OK 74103 (918) 596-7977

TULSA COUNTY

The society maintains a list of speakers who from time to time give talks to children in public schools on earth science subjects. One member of the society assists on field trips.

CONTINUING EDUCATION COURSES

IN GEOLOGY AND EARTH SCIENCES



Oral Roberts University summer field course, Sunset Crater National Monument, Arizona. (Photo courtesy Nathan Meleen, Professor of Earth Science and Geography, Oral Roberts University.)

Evening, weekend, and summer educational courses in geology and earth science are offered by organizations throughout Oklahoma. Included are a variety of types of courses, from traditional classroom courses to telecourses to those that are held entirely in the field. Some are formal college-level courses for adults majoring in geology, others are designed for science teachers who are fulfilling earth science requirements, and others are “fun” courses meant for the general public.

The following list probably is incomplete; users of this book with knowledge of earth science courses not included here are encouraged to contact me at the OGS so that I can update future editions of this publication. Also, it should be noted that courses listed here may not be offered every year or they may cease to be given. Course descriptions are excerpted from letters to the OGS and published brochures and books. Those wishing to attend any of these courses should request more information from the individuals or organizations listed.

Listings are in alphabetical order by sponsoring organization.

MURRAY STATE COLLEGE

Community Services Office

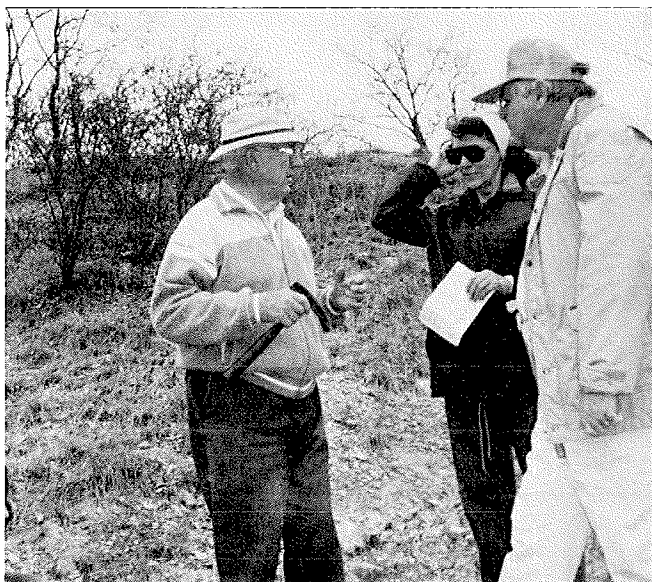
1 Campus St.

Tishomingo, OK 73460 (405) 371-2371, ext. 148-146

Attn: Mary Galloway

JOHNSTON COUNTY

Geology of the Arbuckle Mountains. Murray State College Community Services Office schedules a Saturday geological tour during the fall and spring semesters. Geologist Bob Allen leads these expeditions to the Arbuckle Mountains and surrounding territory. There is informal instruction in the field, and the course is designed for the lay public and interested teachers and students. Participants should bring a brown bag lunch and camera and wear comfortable walking shoes. Transportation and drinks are provided.



Geologist Bob Allen and participants of "Geology of the Arbuckle Mountains" tour, sponsored by Murray State College. (Photo courtesy Murray State College.)

NORTHEASTERN STATE UNIVERSITY

College of Natural Science and Mathematics

Tahlequah, OK 74464-2399 (918) 456-5511, ext. 3817

Attn: John Simms, Assistant Professor of Geology

CHEROKEE COUNTY

NSU offers a variety of evening, weekend, and summer courses:

SCI 4123 — *Earth Science*. A summer course designed to fulfill the earth science requirement for science education majors. A survey of basic concepts in geology, as-

tronomy, and meteorology. Where appropriate, emphasis will be placed on contemporary environmental and societal concerns in these three areas. Laboratory includes mineral and rock identification, astronomical observation techniques, and the use of weather instruments in forecasting.

GEOL 3113 — *Geology of the Economic Nonmetallic Minerals* (offered every summer, also evenings in spring in even-numbered years). A study of the sources, origin, methods of obtaining, and use of the mineral fuels, glass, abrasives, building stones, gemstones, and other non-metallic products of the earth.

Vertebrate Paleontology (weekend course offered even-numbered years). Survey of the important fossil vertebrate groups, including fishes, amphibians, reptiles, birds, and mammals. Morphological and faunal changes through time. Identification, preparation, and field trips.

Invertebrate Paleontology (weekend course offered odd-numbered years). Survey of important fossil invertebrate groups, including corals, trilobites, mollusks, brachiopods, bryozoans, and echinoderms. Identification of common Oklahoma fossils. Paleoecology. Evolutionary changes in faunas and within groups. Laboratory and field trips.

OKLAHOMA CITY COMMUNITY COLLEGE

7777 South May Ave.

Oklahoma City, OK 73159 (405) 682-1611, ext. 7272

Attn: Gary Houlette, Science and Mathematics

OKLAHOMA COUNTY

OCCC offers evening courses and telecourses in geology, physical geology, and earth science. The college also has a geology library that includes videotapes that can be borrowed.

OKLAHOMA PANHANDLE STATE UNIVERSITY

P.O. Box 430

Goodwell, OK 73939-0430

(405) 349-2611

Attn: W. Patrick Seward, Assistant Professor,

Earth Science

TEXAS COUNTY

OPSU offers two summer courses and an evening course:

BIO 4100 or EASC 4100 — *Organic Evolution*. Three-week, team-taught course intended primarily for secondary-level science teachers, but open. First half covers the history of evolutionary thought, faunal succession, and natural selection. Second half covers the mechanisms, on a cellular or subcellular level, of mutation, selection, and population genetics. Course is transmitted simultaneously to surrounding communities via interactive television (ITV).

EASC/BIO 4100 — *Teaching About Dinosaurs*. Three weeks long, designed for primary- and secondary-level teachers, but open. Includes the history of dinosaur exploration, classification, fossilization, origin, major groups, and extinction theories. Course is transmitted simultaneously via ITV network.

Rock and Mineral Identification for Fun (evening course). Non-credit course directed toward the community for people with little or no science background. Class discusses 30 common minerals and examines samples of the three rock groups. Emphasis is placed on rocks and minerals found locally, and students are encouraged to bring in personal collections.

OKLAHOMA STATE UNIVERSITY

Philosophy Department

226 Hanner Hall

Stillwater, OK 74078

(405) 744-9230

Attn: Doren Recker

PAYNE COUNTY

OSU offers an 11-day short course in paleontology and earth science for middle school and high school science teachers: *Ancient Life in Oklahoma: Paleontology as a Theme for Interdisciplinary Science Teaching*.

The program is an intensive introductory course in paleontology and earth science, meant to offer instruction for teaching earth science and/or evolutionary biology to those with little or no background, and a refresher course or source of new classroom ideas for more experienced teachers in these areas. Participants will receive instruction in collecting, cleaning, and identifying marine invertebrate fossils, and in identifying and explaining important geological formations in Oklahoma. Participants also will receive instruction in basic evolutionary theory, the history of life, the basic biology of representative phyla, and introductory paleoecology.

Related discussion topics include methodological and theoretical issues related to reconstructing the past (including current reconstructions of dinosaurs), controversies concerning "scientific method," mechanism of geologic change, radiometric dating, sampling strategies, and causes of mass extinctions. Lab activities will include exercises for checking current estimates of dinosaur weights and speeds, estimating the epicenters of earthquakes, and relative dating techniques. Computer exercises will include comparing data to projected estimates of dinosaur speeds, and morphometric analyses used to help in species identification. All of the course activities and materials are geared toward preparing lecture-discussions, fieldwork, and lab and computer activities for use in the classroom.

ORAL ROBERTS UNIVERSITY

Engineering and Physics Department

Tulsa, OK 74171

(918) 495-6933

Attn: Nathan Meleen, Professor of Earth Science and Geography

TULSA COUNTY

ORU offers two summer courses in geology:

BIO 270 — *Natural History of the Southwest*/GEO 270, PSC 270 — *Physical Geography of the Southwest*. This summer field course is designed to introduce students to

the Colorado Plateau and adjoining areas of Arizona, Utah, Colorado, and New Mexico, which encompass a rich diversity of landforms and ecosystems. This course integrates study of biological, geological, geographical, and archeological phenomena found in the field. Note: Because it is a field course, lecture and laboratory components are intermixed; though listed as separate biology, geography, and physical science courses, it is conducted in a combined manner through team teaching.

PSC/GEO 201 — *Principles of Earth Science* (lecture and lab). This course is designed to expose the student to the great ideas within the various disciplines concerned with the Earth as a system and Earth-space relationships. The major disciplines involved are geology, meteorology, physical geography, and oceanography.

TULSA JUNIOR COLLEGE, METRO CAMPUS

909 S. Boston Ave.

Tulsa, OK 74119-2095

(918) 631-7246

Attn: Claude E. Bolze, Assistant Professor of Geology

TULSA COUNTY

TJC offers two evening courses and a telecourse:

GEL 1014 — *Physical Geology* (evening).

GEL 1024 — *Historical Geology* (evening).

GEL 1014 — *Physical Geology* (telecourse).

U.S. DEPARTMENT OF ENERGY AND BDM-OKLAHOMA, INC.

P.O. Box 2565

Bartlesville, OK 74005

(918) 337-4508

Attn: Judy Kokesh

WASHINGTON COUNTY

Oil and Gas Exploration: An Earth Science Module for Grades 7-12, and a teacher training workshop for the module are offered:

The "Oil and Gas Exploration" Module: This module is one of several earth science modules developed by the Denver Earth Science Project at the Colorado School of Mines. A five-week curriculum, it is designed to be integrated into an existing earth science or geology course. It addresses various aspects of petroleum exploration, integrating geography, mathematics, and problem-solving skills with traditional geologic concepts. Through the use of real data from the geoscience industry and federal agencies — seismic profiles, electric logs, maps, and oil samples — earth science and the study of serious problems facing the planet become relevant to students. It has been field tested and has been used by teachers in the Denver area since 1990.

The Teacher Training Workshop: The intensive short course (three days in the classroom, fourth day in the field) is designed to give middle school and senior high school earth science teachers the background to teach the "Oil and Gas Exploration" module. Teachers actively participate in hands-on activities that their students will experience in the classroom. Invited profes-

sionals in oil and gas exploration and production provide geological background that is relevant to the petroleum industry. The workshop also includes a field trip to a drilling rig, petroleum research facility, or refinery.

UNIVERSITY OF OKLAHOMA

College of Geosciences

Sarkeys Energy Center, Room 710

100 E. Boyd St.

Norman, OK 73019

(405) 325-3101

CLEVELAND COUNTY

Summer Institute in Science and Math for Oklahoma Teachers — *Exploring the Geosciences: Earth, Atmosphere and Environment:*

“Exploring the Geosciences: Earth, Atmosphere and Environment” is a one-week program for middle school and high school earth science and social science teachers. Participants will be given the opportunity to gain expertise in three geosciences disciplines — geology, meteorology, and geography — through laboratory, classroom, and field experience focused on the Oklahoma environment.

The geography section will focus on physical geography and will include sessions on aerial-photo interpretation, map and compass skills, and hydrology. The geology portion will link field study and sample collection with laboratory examination of fossils, rock structure, and earth history. The meteorology section will use experiments, observations, and lectures to understand weather prediction and severe storms.

ARTICLES AND BOOKS

ABOUT OKLAHOMA GEOLOGY, ROCKS, MINERALS, FOSSILS, AND COLLECTING

While a large amount of *technical* information about the geology of Oklahoma is accessed easily through university libraries throughout the State, unfortunately, there are far fewer popular publications that can be understood by the nongeologist.

The following list of popular articles and books about Oklahoma geology is divided into five parts. The first (and largest) is a list of articles published in several magazines and journals devoted to “rockhounding” and collecting. Also listed is the current address of the publisher and libraries in Oklahoma where back issues of the journal can be found. (Some back issues may be available from members of the gem and mineral clubs in Oklahoma. See Chapter 10 for a list of current club addresses.) The second part lists published, privately published, and unpublished books on different aspects of Oklahoma geology. Some of these are difficult to find, but may be available at university libraries or larger public libraries. The third part lists a few popular books on the Oklahoma oil and gas industry and petroleum geology. The fourth part lists two recent publications (one a draft version) that are conservation-education resource guides. The fifth part lists popular literature available from the Oklahoma Geological Survey. Two publications are particularly noteworthy: “Geology and Mineral Resources of Oklahoma,” a pamphlet by K. S. Johnson, and *Geology and Earth Resources of Oklahoma — An Atlas of Maps and Cross Sections* (Educational Publication 1), by K. S. Johnson.

Educational and popular literature on the geology of the states adjacent to Oklahoma is available from each state’s geological survey. Their addresses and phone numbers are listed in the last section of this chapter.

This list of nontechnical literature probably is far from complete. I welcome any suggestions for additions to the articles and books listed here. If you have read a particularly good article or book that deals with any aspect of Oklahoma geology, please let me know about it, and I will include it in the next edition of this resources guide.

ROCKHOUND LITERATURE

JEWELRY MAKING, GEMS AND MINERALS (formerly *Gems and Minerals and The Mineralogist*)

GEMAC Corporation
c/o Jewelers Bench
Box 226
Cortaro, AZ 85652-0226

Gems and Minerals and *Jewelry Making, Gems and Minerals* are available at the following libraries:

- Southwestern Oklahoma State University, Weatherford: 1978 to 1982.
- University of Central Oklahoma, Edmond: microfilm only, 1972 to June 1986.

The Mineralogist is available at the following libraries:

- Phillips University, Enid: 1940 (v. 8) to 1954 (v. 22).
- Laurence S. Youngblood Energy Library, University of Oklahoma, Norman: incomplete, July 1937 (v. 5) to 1945 (v. 13).

Articles in *Gems and Minerals*:

- “When a Mountain Range Wears Out,” by R. C. Rowe (1970, no. 378, p. 28).
- “Petrified Wood in Oklahoma,” by H. Lovell (1980, no. 514, p. 40).

Articles in *Jewelry Making, Gems and Minerals*:

- “The Great Salt Plains; Oklahoma Style,” by H. Lovell (1983, no. 551, p. 58).
- “Tigereye, a Gem Fancier’s Delight,” by M. A. Howard (1984, no. 555, p. 8, 32).
- “Hourglass Crystals in a National Natural Landmark,” by F. V. Johnson (1984, no. 558, p. 16).
- “Dolomite Pyramids,” by F. V. Johnson (1984, no. 559, p. 32).

Articles in *The Mineralogist*:

- “Castellated Dolomites’ from Major County, Oklahoma,” by C. A. Merritt (1936, v. 21, no. 9, p. 604).
- “Collecting Oklahoma Aragonite,” by M. Kennedy (March 1944, v. 12, no. 3, p. 67).

- "Some Oklahoma Gem Trails," by F. T. Reed (1947, v. 15, no. 2, p. 64).
 "Prospecting the Permian of Oklahoma," by M. Kennedy (May 1947, v. 15, no. 5, p. 231).

LAPIDARY JOURNAL

160 Chestnut Ave.
 Devon, PA 19333-1328

Lapidary Journal is available at the following library:

- Tulsa Central Library: June 1951 to present.

Articles in *Lapidary Journal*:

- "Oklahoma" (April 1962, p. 154).
 "Pearl Hunting in Oklahoma — A Search With a History" (August 1962, p. 480).
 "Gem Cutting Materials of Arkansas, Missouri, and Oklahoma" (April 1963, p. 112).
 "Oklahoma's Unique Rock Picture (Henryetta)" (May 1963, p. 290).
 "Oklahoma's Selenite Crystals" (June 1963, p. 350).
 "Something About Septaria," by M. Kennedy (1964, v. 18, no. 1, p. 102).
 "Petrified Wood of Oklahoma," by M. Kennedy (August 1964, v. 18, no. 5, p. 558).
 "Cycads of the Cimarron," by M. Kennedy (January 1965, v. 18, no. 10, p. 1136).
 "Oklahoma's Forest of Stone, Part 1" (June 1966, p. 404).
 "The Remarkable Lake Murray, Oklahoma Hexahedrite Meteorite Which Fell 20,000 Years Ago" (June 1966, p. 446).
 "Giant Selenite Clusters, Probably the Last of the Big Ones" (November 1966, p. 958).
 "Oklahoma's Forest of Stone, Part 2" (December 1966, p. 1082).
 "The Heart of Geode Land (Warsaw Formation)" (October 1967, p. 943).
 "New Oklahoma-Kansas Industry Glitters Brightly (Mother of Pearl Industry)" (March 1968, p. 1420).
 "Cycads, Agates, and 'Things' in Oklahoma's Panhandle" (October 1968, p. 898).
 "The Petrified Rose, Oklahoma's Official State Rock" (January 1970, p. 1416).
 "Mineral Collecting 150 Feet Down Under Picher, Oklahoma (Tongaha Lead and Zinc Mine)" (February 1970, p. 1520).
 "A Summer of Prospecting (Salt Plains)" (January 1971, p. 1370).
 "Rainbow Wood in Oklahoma" (July 1971, p. 601).
 "A Strange Phenomenon (Phosphorescent and Fluorescent Geodes)" (April 1972, p. 102).
 "Oklahoma Hills (Major County)" (January 1974, p. 1488).
 "Oklahoma Revisited" (November 1974, p. 1250).
 "Collecting in Kay County, Oklahoma" (April 1975, p. 356).
 "Collection Localities in Oklahoma" (September 1975, p. 1202).

- "The Red Barite Roses of Oklahoma," by J. M. Towner (November 1975, v. 29, no. 8, p. 1575).
 "We Met Some Gems in Oklahoma," by L. E. Zarin (June 1976, v. 30, no. 3, p. 736).
 "Memories of Tri-State Mining Days," by M. Kennedy (1976, v. 30, no. 1, p. 14).
 "Oklahoma Rose Rocks" (December 1977, p. 2000).
 "Freshwater Pearls (Verdigris River)" (April 1981, p. 76).
 "Underground at Tri-State," by G. Blair (v. 35, no. 4, p. 834).
 "The Southwest in Winter" (January 1982, p. 2088).
 "A Modern Miracle (Blackwell Zinc Smelter, Zincite)" (March 1983, p. 1974).
 "The Rockhound Express (Garvin County)" (June 1983, p. 524).
 "A Club Can Make a Difference (Salt Plains)" (October 1983, p. 1068).
 "Handful of Crystals (Pushmataha County)" (September 1984, p. 828).
 "Minerals of the Tri-State," by W. Kennicutt (1984, v. 37, no. 12, p. 1684).
 "Collecting Oklahoma's Barite Roses" (February 1985, p. 1468).
 "Coaxing Man's Treasures from the Earth (Atoka County)" (September 1985, p. 38).
 "Miniature Roses" (July 1986, p. 17).
 "Prowling Pontotoc County Pits," by V. Morrison (April 1988, v. 42, no. 1, p. 21).
 "More Than Quartz and Pine Trees (McCurain County)," by V. Morrison (May 1989, v. 43, no. 2, p. 39).
 "Hourglass Gypsum," by R. Forester (1993, v. 47, no. 6, p. 69).

THE MINERALOGICAL RECORD

P.O. Box 35565
 Tucson, AZ 85740

The Mineralogical Record is available at the following library:

- Laurence S. Youngblood Energy Library, University of Oklahoma, Norman: 1970 (v. 1) to present.

Articles in *The Mineralogical Record*:

- "Selenite Locality, Salt Plains National Wildlife Refuge, Alfalfa County, Oklahoma," by C. Francis (1976, v. 7, no. 4, p. 159).
 "Brochantite and Other Minerals from the Paoli, Oklahoma, Area," by J. Lobell (1986, v. 17, no. 6, p. 371).

ROCK AND GEM

Miller Magazines, Inc.
 4880 Market St.
 Ventura, CA 93003-2888

Rock and Gem is available at the following library:

- Southwestern Oklahoma State University, Weatherford: 1973 (v. 3), 1976 (v. 6), 1987 (v. 17).

Articles in *Rock and Gem*:

- "Selenite in Oklahoma," by F. A. Bartonek (July 1974).
 "Field Trip; Oklahoma Barite Roses," by S. Hudson (February 1983, v. 13, no. 2, p. 52).
 "Trilobites," by B. Jones (1985, v. 15, no. 10, p. 16).
 "Selenite," by G. Blair (1989, v. 19, no. 9, p. 44).
 "Ozark Quartz," by R. L. Massey (1990, v. 20, no. 5, p. 70).
 "Salt Plains National Wildlife Refuge," by P. J. Callinicos (December 1993, v. 23, no. 12, p. 64).

ROCKS AND MINERALS

Heldref Publications
 1319 18th St. N.W.
 Washington, DC 20036-1802

Rocks and Minerals is available at the following library:

- Laurence S. Youngblood Energy Library, University of Oklahoma, Norman: 1926 (v. 1) to present.

Articles in *Rocks and Minerals*:

- "Mineral Provinces of Oklahoma," by O. F. Evans (1936, v. 11, no. 6, p. 86).
 "The Mines and Minerals of the Tri-State District," by E. J. Palmer (1939, v. 14, no. 2, p. 35).
 "Sand Barite in Oklahoma," by R. V. Sever (1945, v. 20, no. 6, p. 263).
 "Announcement of Organization of Oklahoma Mineral and Gem Society" (1946, v. 21, no. 10, p. 676).
 "White Mound, a Devonian Fossil Locality," by A. A. Graffham (1953, v. 28, no. 9-10, p. 496).
 "Rock Crossing," by A. A. Graffham (1954, v. 29, no. 7-8, p. 391).
 "The Nancy Jane Mine," by A. A. Graffham (1954, v. 29, no. 11-12, p. 575).
 "Oklahoma Zircon Locality," by W. Busch (1956, v. 31, no. 2-3, p. 118).
 "A Petrified Apple," by P. Carpenter (1961, v. 36, no. 7-8, p. 386).
 "Alligator Ironstones in Oklahoma," by M. Kennedy (1962, v. 37, no. 5-6, p. 26).
 "Oklahoma's Glass Mountains," by M. Kennedy (1963, v. 38, no. 5-6, p. 229).
 "Unusual 'Minerals' of Oklahoma," by M. Kennedy (1964, v. 39, no. 9-10, p. 453).
 "Oklahoma Mud Cracks" (1965, v. 40, no. 1, p. 24).
 "Flint Hills Fossils," by M. Kennedy (1966, v. 41, no. 1, p. 15).
 "Collecting Zinc, Lead, and Other Minerals in the Picher, Oklahoma Area," by G. E. Gregory (1969, v. 44, no. 8, p. 587).
 "Devil's Den in Southern Oklahoma," by F. S. Braun (1970, v. 45, no. 4, p. 227).
 "Sand-Barite Rosette, Oklahoma's Official State Rock," (1974, v. 49, no. 10, p. 591).
 "Selenite Crystals on Salt Plains National Wildlife Refuge," by D. Davidonis (1974, v. 49, no. 11, p. 686).

**OTHER NONTECHNICAL LITERATURE
 ON GEOLOGICAL SUBJECTS
 (EXCLUDING OIL)**

- A Rockhound's Guide to the Gems and Minerals of Oklahoma*, by E. L. Gilmore, 1963, privately published.
Roman Nose: A History of the Park, by M. C. Weber, 1994, published by Oakhaven Books: Southard, Oklahoma. (Part 3 discusses the geology of the park.)
A Survey of the Paleontological Resources of Southeastern Oklahoma, by C. R. Robison, 1978, unpublished report to the Bureau of Land Management. (Available in the Laurence S. Youngblood Library, Sarkeys Energy Center, University of Oklahoma.)
 "A Guide for Invertebrate Fossil Collecting in Southern Oklahoma," by R. D. Alexander and R. J. Alexander, 1951, published in *The Compass of Sigma Gamma Epsilon*, v. 28, p. 206.
Fossil Collecting in the Ardmore Area, by B. W. James, 1977, published by the Ardmore Geological Society.
Oklahoma, A Guide to the Sooner State, by K. Ruth, 1957, published by the University of Oklahoma Press: Norman, Oklahoma. (Brief discussion of geology.)
Man and the Oklahoma Panhandle, by B. Jackson, J. Carlisle, and I. Colwell, 1982, published by Mennonite Press: North Newton, Kansas. (Brief discussion of geology.)
The Ouachita Mountains: A Guide for Fisherman, Hunters, and Travelers, by M. D. Rafferty, 1991, published by University of Oklahoma Press: Norman, Oklahoma. (Brief discussion of geology.)

**LITERATURE ON OKLAHOMA
 OIL AND GAS**

- Oil in Oklahoma*, by R. Gregory, 1976, published by Leake Industries: Muskogee, Oklahoma.
Then Came Oil, The Story of the Last Frontier, by C. B. Glasscock, 1938, published by Bobbs-Merrill Company: New York.
Oil and Gas Development in Oklahoma, 1891-1984, by R. A. Northcutt. (Available from R. A. Northcutt, Oklahoma Geological Survey, Norman, Oklahoma.)
The Oklahoma Petroleum Industry, by K. A. Franks, 1980, published for the Oklahoma Heritage Association by the University of Oklahoma Press: Norman.
Early Oklahoma Oil, A Photographic History, 1859-1936, by K. A. Franks, P. F. Lambert, and C. N. Tyson, 1981, published by Texas A&M University Press: College Station.
Landman's Handbook on Petroleum Exploration, by S. Takken, 1978, published by the Institute for Energy Development: Fort Worth, Texas.
How to (Try to) Find an Oil Field, by D. M. Curtis, P. W. Dickerson, D. M. Gray, H. M. Klein, and E. W. Moody, 1981, published by PennWell Books: Tulsa, Oklahoma.

PUBLICATIONS OF INTEREST TO EDUCATORS

Oklahoma Natural Resources Information Directory, by the Oklahoma Conservation Commission (1993–1994). Available from Oklahoma Conservation Commission, 2800 N. Lincoln Blvd., Suite 160, Oklahoma City, OK 73105-4210, phone (405) 521-6797.

Oklahoma Environmental Education Resources (Draft), by the Department of Environmental Quality (1995). Available from Department of Environmental Quality, Public Information and Education, 1000 N.E. 10th St., Oklahoma City, OK 73117-1299, phone (405) 521-4180.

EDUCATIONAL AND POPULAR LITERATURE OFFERED BY THE OGS

Free Literature:

- “Rose Rocks in Oklahoma” (pamphlet).
- “The Petroleum Industry in Oklahoma” (pamphlet), by the Oklahoma Mid-Continent Oil and Gas Association.
- “Geology and Mineral Resources of Oklahoma,” by K. S. Johnson.
- “Oklahoma Earthquakes,” by K. V. Luza and J. E. Lawson, Jr.
- “Geology of Oklahoma — A Summary,” by W. E. Ham.
- “Information Regarding Mineral/Rock/Fossil Collecting in Oklahoma,” by J. R. Chaplin.
- “Index to Topographic Maps of Oklahoma,” by the U.S. Geological Survey.

Guidebooks:

GB 9—*Guide to Roman Nose State Park, Blaine County, Oklahoma*, by R. O. Fay, 1959 (\$2.00).

GB 10—*Common Minerals, Rocks, and Fossils of Oklahoma*, by W. E. Ham and N. M. Curtis, Jr., 1960 (photocopy, \$3.00).

GB 11—*Guide to Beavers Bend State Park*, by W. D. Pitt and others, 1963 (\$2.00).

GB 15—*Guide to Alabaster Cavern and Woodward County, Oklahoma*, by A. J. Myers, A. M. Gibson, B. P. Glass, and C. R. Patrick, 1969 (\$1.00).

GB 22—*Guide to Robbers Cave State Park*, by A. J. Myers, D. T. Russell, G. J. Goodman, and C. A. Lawson, 1986 (\$5.00).

GB 26—*Geology of the Arbuckle Mountains Along Interstate 35, Carter and Murray Counties, Oklahoma*, by R. O. Fay, 1989 (\$6.00).

GB 28—*Geology of the Wister State Park Area, Le Flore County, Oklahoma*, by L. A. Hemish, 1993 (\$5.00).

Educational Publications:

EP 1—*Geology and Earth Resources of Oklahoma—An Atlas of Maps and Cross Sections*, by K. S. Johnson and others, 1972 (\$2.00).

EP 2—*Introduction, Guidelines, and Geologic History of Oklahoma*. Book I of *Guidebook for Geologic Field Trips in Oklahoma*, by K. S. Johnson, 1972 (\$2.00).

EP 3—*Northwest Oklahoma*. Book II of *Guidebook for Geologic Field Trips in Oklahoma*, by K. S. Johnson, 1972 (\$2.00).

EP 4—*Guidebook for Geologic Field Trips in North-Central Oklahoma*, by J. D. Naff, 1981 (\$3.00).

Other Publications:

- *Catalog of One Hundred Minerals, Rocks, and Fossils from Oklahoma*, by W. E. Ham, 1942 (photocopy, \$4.60).
- *Oklahoma Geology Notes* (bimonthly publication) (\$6.00/year, \$1.50/issue).
- Geocalendar 1996: “Oklahoma Dinosaur Days—*Acrocanthosaurus*” (poster and 4-page pamphlet, \$4.00).
- U.S. Geological Survey topographic maps of Oklahoma quadrangles (\$3.25 per map sheet).

See the back of this book for an OGS publications order form. For a free catalog of OGS publications, contact: Publication Sales, Oklahoma Geological Survey, Sarkeys Energy Center, 100 E. Boyd St., Room N-131, Norman, OK 73019-0628; (405) 325-3031 or (800) 330-3996; fax (405) 325-7069.

AGENCIES IN NEARBY STATES OFFERING POPULAR LITERATURE

Write or call for a publications list:

Arkansas Geological Commission

Vardelle Parham Geology Center
3815 W. Roosevelt Road
Little Rock, AR 72204 (501) 296-1877

Colorado Geological Survey

Department of Natural Resources
1313 Sherman St., Room 715
Denver, CO 80203 (303) 866-2461

Kansas Geological Survey

1930 Constant Ave.
West Campus
University of Kansas
Lawrence, KS 66047 (913) 864-3965

Missouri Department of Natural Resources

Division of Geology and Land Survey
Box 250
111 Fairgrounds Road
Rolla, MO 65401 (314) 368-2100

New Mexico Bureau of Mines and Mineral Resources

Campus Station
Socorro, NM 87801 (505) 835-5420

Texas Bureau of Economic Geology

Box X
University of Texas
University Station
Austin, TX 78713-7508 (512) 471-1534

SOURCES FOR EARTH SCIENCE EDUCATIONAL MATERIALS THAT ARE FREE OR LOW-COST

Unlike the previous chapters, which included mainly Oklahoma organizations, this chapter lists federal, state, and private agencies, foundations, companies, etc., from outside Oklahoma that recognize the value of earth science education and will provide a variety of free or low-cost educational and teaching material to educators. I strongly encourage Oklahoma teachers to write to these organizations, preferably on school letterhead, and request a list of materials that are available. Publications that may be of particular interest to earth science educators are shown in italics.

It should be noted that some of the material is designed to influence public opinion about current environmental or conservation issues. However, that does not, in general, diminish the educational value of the materials. Also, because there is a high demand for some of this material and because some of these foundations have limited financial resources, some materials may not always be available.

Listings are in alphabetical order by organization name.

AMERICAN COAL FOUNDATION

1130 17th St. N.W., Suite 220
Washington, DC 20036-4604

AMERICAN GAS ASSOCIATION

Educational Programs
1515 Wilson Blvd.
Arlington, VA 22209



AMERICAN GEOLOGICAL INSTITUTE

National Center for Earth Science Education
4220 King St.
Alexandria, VA 22302-1507

- *Adventures in Geology* (grades 7–9, 10–12, post-secondary)

- *Careers in the Geosciences*
- *Earth Science Content Guidelines, Grades K–12*
- *Earth Science Investigations* (grades 8–12)
- *Minerals — Foundations of Society* (grades 7–9, 10–12, post-secondary)

AMERICAN GEOPHYSICAL UNION

2000 Florida Ave. N.W.
Washington, DC 20009

- AGU slide sets
- *Geophysical Information for Teachers (GIFT)* (workshop publication)
- *Put Yourself in the Picture: Careers in Geophysics* (booklet and poster)
- *Seismic Sleuths: An Earthquake Package for Teachers* (grades 7–12)
- *Earth Science Education Resource Directory*

AMERICAN MINING CONGRESS

1920 N St. N.W.
Washington, DC 20036-1662

AMERICAN PETROLEUM INSTITUTE

Public Relations Department
1220 L St. N.W.
Washington, DC 20005

- *The Ecosystem of Oil*
- *Petroleum Products in the Home* (fact sheet)
- *New Transportation Fuels* (fact sheet)
- *Facts and Figures About Oil* (fact sheet)
- *Are We Really Running Out of Oil?* (fact sheet)

AMERICAN WATER RESOURCES ASSOCIATION

950 Herndon Parkway, Suite 300
Herndon, VA 22070-5528

- Posters and booklets on various water issues

ANTARCTICA PROJECT

P.O. Box 76920
Washington, DC 20013

ASPEN GLOBAL CHANGE INSTITUTE

Education Coordinator
100 E. Francis
Aspen, CO 81611-1424

BP AMERICA

Corporate Communications
200 Public Square (40-H)
Cleveland, OH 44114-2375

Teacher support materials, such as:

- *Oil and Chemicals for 8–12 year olds*
- *Children and Energy*
- *Ozone in the Atmosphere*
- *Exciting Science and Engineering*

CALIFORNIA DEPARTMENT OF CONSERVATION

Division of Oil, Gas, and Geothermal Resources
801 K St.

20th Floor, MS-20

Scramento, CA 95814-3530

- *Geothermal in California* (booklet)
- *Oil and Gas in California* (booklet)

CALIFORNIA ENERGY EXTENSION SERVICE

Governor's Office of Planning and Research
1400 10th St., Room 209
Sacramento, CA 95814

**CALIFORNIA MINERAL EDUCATION
FOUNDATION**

9647 Folsom Blvd., No. 148
Sacramento, CA 95827

COLORADO SCHOOL OF MINES

Teacher Enhancement Program
Office of Special Programs and Continuing Education
Golden, CO 80401

Teaching modules:

- *Energy: A Closer Look at Oil and Gas* (grades 4–6)
- *Paleontology and Dinosaurs* (grades 7–10)
- *Ground Water Studies* (grades 7–9)
- *Oil and Gas Exploration* (grades 7–12)
- *Sharing Science: Linking Students with Scientists and Engineers. A Survival Guide for Teachers*

**COUNCIL FOR ELEMENTARY SCIENCE
INTERNATIONAL**

212 Townsend Hall
University of Missouri
Columbia, MO 65211

- *Water, Stones, and Fossils Bones* (earth science activities book)

DENVER EARTH SCIENCE PROJECT

Office of Special Programs and Continuing Education
Colorado School of Mines
Golden, CO 80401

- *Earthline* newsletter
- COSM Teacher Enhancement Program

ENERGY SOURCE EDUCATION COUNCIL

Program Distribution Office
5505 E. Carson St., Suite 250
Lakewood, CA 90713

ENTERPRISE FOR EDUCATION

1316 Third St., Suite 103
Santa Monica, CA 90401

EXXON COMPANY, U.S.A.

Public Affairs
P.O. Box 2180
Houston, TX 77252-2180

FEDERAL EMERGENCY MANAGEMENT AGENCY

FEMA SL-NT Earthquake Program
500 C St. S.W.
Washington, DC 20472

Teaching curricula:

- *Seismic Sleuths* (grades 7–12)
- *Earthquakes: Tremor Troop* (grades K–6)
- School earthquake safety and educational programs, including videos and workshops

**GEOLOGICAL SOCIETY OF AMERICA**

Coordinator for Educational Programs
P.O. Box 9140
Boulder, CO 80301-9140

- Information on SAGE (Science Awareness Through Geoscience Education) program
- Earth and Space Science Activities and Resources list
- Earth Science Activity Packet (grades K–6 and 7–12)
- Career Packet
- *The Dynamic Earth* (textbook) (1st edition)
- *The Earth Has a History* (video)

GEOHERMAL EDUCATION OFFICE

664 Hilary Drive
Tiburon, CA 94920

- *About Geothermal Energy* (booklet)

- *An Underground Adventure* (video)
- *Steam Press* (*Journal of Geothermal Education*)

ILLINOIS DEPARTMENT OF ENERGY AND NATURAL RESOURCES

Office of Coal Development and Marketing
325 W. Adams, Room 300
Springfield, IL 62704-1892

- *Coal is Cool* (education resource kit) (grades K–2)
- Education resource kit on coal (grades 5–6)
- *Dinosaurs and Power Plants* (grades 5–8); includes 15-page student handout, teacher lesson plan/activity guide, teacher supplement (graphics)
- *Power from Coal* (activity book) (grades 6–9)
- *Let's Learn About Coal* (activity book) (grades 3–6)
- *What Everyone Should Know About Coal* (booklet) (grades 4–12)
- *Following the Clean Coal Path* (poster) (grades 5–12)
- *Kids, Coal and Energy* (newsletter) (grades 4–7)
- List of additional coal educational materials

KSAM PROGRAM

Southeast Missouri State University
One University Plaza
Cape Girardeau, MO 63701-4799

(Note: KSAM = K–6 Science and Math Enhancement)

- *Earth Science Activities for the Elementary Classroom: A Process Approach*
- *Earth Science in the Elementary Classroom*

LAWRENCE HALL OF SCIENCE

University of California
Berkeley, CA 94720

- *River Cutters* unit (grades 6–9) of *Great Explorations in Math and Sciences (GEMS)* teaching units

MINERAL INFORMATION INSTITUTE

475 17th St., Suite 510
Denver, CO 80202

NATIONAL ACADEMY OF SCIENCES

National Research Council
Commission on Geosciences, Environment, and Resources
2101 Constitution Ave. N.W.
Washington, DC 20418

- Reports of the Board on Earth Sciences and Resources

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Central Operation of Resources for Educators (CORE)
Lorain County Joint Vocational School
15181 Route 58 S.
Oberlin, OH 44074

NATIONAL ASSOCIATION OF CONSERVATION DISTRICTS

408 E. Main
P.O. Box 855
League City, TX 77574-0855

- *Land for Life* (poster)
- *Water and Me* (coloring book) (grades K–2)
- *Amazing Soil Stories* (comic-book format) (grades 4–5)
- *Conserving Soil* (grades 6–9)
- *Lines on the Land* (16 lesson plans, video) (grades 6–8)
- *Living in Harmony* (coloring book) (grades K–3)
- *One Green Tree* (comic book) (grades 4–6)
- *Show You Care* (activity book) (grades K–2)

NATIONAL ASSOCIATION OF GEOLOGY TEACHERS

Robert Christman, Geology Department
Western Washington University
Bellingham, WA 98225-9080

NATIONAL CENTER FOR SCIENCE EDUCATION

P.O. Box 9477
Berkeley, CA 94709-0477

- *How Scientists Know About Evolution* (video)
- Various pamphlets on evolution
- Books on teaching science and evolution

NATIONAL EARTH SCIENCE TEACHERS ASSOCIATION

P.O. Box 53213
Washington, DC 20009

NATIONAL ENERGY FOUNDATION

Resources for Education
National Office
5225 Wiley Post Way, Suite 170
Salt Lake City, UT 84116

- Materials catalog, includes descriptions of: posters; *Energists* (8-page, newspaper-format publications); frameworks, guides, and glossaries; lesson plans; kits
- Posters on mining and minerals
- *The Mining Industry and Minerals* (newspaper-format publication)
- *Understanding Petroleum Exploration and Production* packet; includes student activities booklet, teacher's guide, posters, *Petroleum Exploration: Continuing Need* (booklet)

NATIONAL ENERGY INFORMATION CENTER

Forrestal Building, IF-048, EI-231
1000 Independence Ave. S.W.
Washington, DC 20585

- *Energy Education Resources: Kindergarten Through 12th Grade*

NATIONAL GEOGRAPHIC SOCIETY

Educational Services
1145 17th St. N.W.
Washington, DC 20036

- 1994 National Geography Awareness Week materials; includes posters on wilderness and federal lands, *Geography: Keeping Wilderness in Sight* (teacher's handbook)

NATIONAL SCIENCE FOUNDATION

Statewide Systemic Initiatives in Science, Math, and Engineering
4201 Wilson Blvd., Suite 875
Arlington, VA 22230

- *Statewide Systemic Initiatives in Science, Mathematics, and Engineering* 1993–1994 (booklet)
- *Foundation for the Future: The Systemic Cornerstone* (booklet)

NATIONAL SCIENCE RESOURCES CENTER

Arts and Industries Building, Room 1210
Smithsonian Institution
Washington, DC 20560

NATIONAL SCIENCE TEACHERS ASSOCIATION

Publications
1840 Wilson Blvd.
Arlington, VA 22201

- *How to Teach with Topographic Maps* (grades 5–10)
- *Ten-Minute Field Trips* (grades K–8)
- *Earth: The Water Planet* (grades 6–10)
- Several books on dinosaurs
- *Water, Stones, and Fossil Bones* (grades K–8)
- Wide variety of publications on all kinds of sciences

NEVADA MINING ASSOCIATION

5250 S. Virginia St., Suite 220
Reno, NV 89502

NORTHWEST MINING ASSOCIATION

414 Peyton Building
Spokane, WA 99201

- *Rocks-to-Products* kit
- *Mighty Minerals* (book) (grades 3–4)
- Variety of fact sheets on mining and minerals
- Reprints of materials to be used as handouts
- Mineral-area maps of U.S.
- Variety of posters
- *Classroom Activities—Guidelines for Mineral-Related Activities*
- List of contact sources for educational materials
- List of educational materials available through other sources

PHILLIPS PETROLEUM COMPANY

Public Relations
16 A2 Phillips Building
Bartlesville, OK 74004

- Energy booklets
- *From Wells to Products* (wall chart)
- Videos
- *Your Tomorrow with Petrochemicals* (booklet)

SHELL OIL COMPANY

External Affairs
P.O. Box 2463
Houston, TX 77252-2463

- *Oil* (booklet)

SMITHSONIAN INSTITUTION

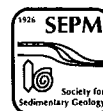
Office of Elementary and Secondary Education
Arts and Industries Building
Room 1163, MRC 402
Washington, DC 20560

- *Smithsonian Resource Guide for Teachers*

SOCIETY FOR MINING, METALLURGY, AND EXPLORATION FOUNDATION FOR PUBLIC INFORMATION AND EDUCATION, INC.

8307 Shaffer Parkway
Littleton, CO 80127

- *SME Minerals and Mining Information Packet*
- *Teacher Training Packet—Elementary*
- *Teacher Training Packet—High School*
- Article reprints: environmental issues
- Back copies of *GEM Facts*
- Variety of videos and posters on mining and minerals
- *Common Ground Educational Package* (grades 3–5, 6–8, and 9–12)
- *Mighty Minerals* (teaching unit) (grade 4)
- *Mined It!* (fairy tale about metals and minerals)
- *Out of the Rock* (comprehensive mineral resource and mining education program) (grades K–8)
- *Discover Mining!* (DOS computer disk on economics of exploration and mining; includes three games)
- *Coal Country* (Macintosh or DOS interactive program)
- *What Are Minerals?* (sheet)

**SOCIETY FOR SEDIMENTARY GEOLOGY (SEPM)**

1731 E. 71st St.
Tulsa, OK 74136

- *On The Rocks: Earth Science Activities for Grades 1–8*
- *Hands on Geology: K–12 Activities and Resources*
- *A Sedimentary Geologists' Guide to Helping K–12 Earth Science Teachers*

U.S. DEPARTMENT OF EDUCATION

ERIC / CSME
1929 Kenny Road
Columbus, OH 43210-1080

Information brochures on:

- ERIC (Educational Resources Information Center)—nationwide information system; world's largest education-related data base
- CSME (Clearinghouse for Science, Mathematics, and Environmental Education)—responds to requests for information and generally facilitates improved teaching, learning, etc.



U.S. DEPARTMENT OF ENERGY

NATIONAL ENERGY INFORMATION CENTER, EI-231

Energy Information Administration
1000 Independence Ave. S.W., Room 1F-048
Washington, DC 20585

OFFICE OF FOSSIL ENERGY COMMUNICATIONS

Mail Stop FE-5, Room 4G085
1000 Independence Ave. S.W.
Washington, DC 20585

OFFICE OF SCIENCE EDUCATION AND TECHNICAL INFORMATION, ST-50

1000 Independence Ave. S.W., Room 3F-061
Washington, DC 20585

PITTSBURGH ENERGY TECHNOLOGY CENTER

Education Outreach
P.O. Box 10940, Mail Stop 141-L
Pittsburgh, PA 15236

- *Coal: Energy for Home and Community* (55-page set of transparencies) (grade 4)



U.S. DEPARTMENT OF THE INTERIOR

BUREAU OF LAND MANAGEMENT

1849 C St. N.W.
Washington, DC 20240

- Variety of brochures on the BLM
- *Public Land Statistics 1993*

MINERALS MANAGEMENT SERVICE

1849 C St. N.W.
Washington, DC 20240

U.S. BUREAU OF MINES*

810 Seventh St. N.W.
Washington, DC 20241

- Rock videos catalog
- *Mined It!* (fairly tale about metals and minerals)
- *A Golden Opportunity for Science* (booklet on gold)
- Variety of posters on mining and minerals
- *The Mini Page—Rocks and Minerals from Mother Earth* (sheet)
- *The Mining Industry and Minerals* (newspaper-format publication)
- Variety of information sheets on mining and minerals
- Variety of brochures on zinc

U.S. BUREAU OF MINES*

Building 20
Denver Federal Center
Denver, CO 80225-0086

- Public outreach and education materials on minerals and mining
- Variety of videos from BM and other sources (for loan)
- Variety of handouts from other sources
- Rock videos (for loan)
- *Out of the Rock* (mineral resource and mining education program) (grades K-8)
- *Classroom Project in Minerals Education—Growing Salt Crystals*
- *Extraction of a Metal from Ore* (article)
- *Sources for More Information* (from Mineral Information Institute)
- List of educational materials available through other sources

**Note: Due to pending Congressional action, the status of the Bureau of Mines is uncertain. These publications may no longer be available.*



U.S. GEOLOGICAL SURVEY

Branch of Publications
National Mapping Division
508 National Center
Reston, VA 22092

- *Global Change* (teacher guide)
- *What Do Maps Show?* (activity sheets, teacher background, etc.)
- *Exploring Maps* (teaching guide, posters, etc.)
- *USGS Maps* (booklet)
- *Catalog of Cartographic Data* (brochure)

U.S. GEOLOGICAL SURVEY

Earth Science Information Center
National Center, Room 3128
12201 Sunrise Valley Drive
Reston, VA 22092

- *U.S. Geological Survey Sales Publications That Are Especially Useful to Teachers* (booklet)
- *Educational Resources Available from the U.S. Geological Survey* (booklet)
- *What's Under Your Feet?* (activity book)
- *Exploring Maps* packet; includes location, navigation, information, and exploration components, teaching guide, posters
- *Planetary Maps, Map Projections* (posters)
- *Helping Your Child Learn Geography* (booklet)
- *Using Maps in Genealogy* (booklet)
- *Elevations and Distances in the U.S.* (booklet)
- *Topographic Mapping* (booklet)
- *Maps of the World* (booklet)
- *Finding Your Way with Map and Compass* (leaflet)
- *Maps of the United States* (leaflet)
- *Teacher's Packet of Geologic Materials*
- *Selected Packets of Geologic Teaching Aids*
- *What Do Maps Show?* (packet)
- *Global Change* (packet)
- Posters on ground water, water, and wetlands

U.S. GEOLOGICAL SURVEY

Information Services
Box 25286, Federal Center
Denver, CO 80225

- *Satellite Image Atlas of Glaciers of the World* (fact sheet 94-009)

- *Debris-Flow Hazards in the San Francisco Bay Region* (fact sheet 112-95)
- *Sea Level Change: Lessons from the Geologic Record* (fact sheet 117-95)

U.S. ENVIRONMENTAL PROTECTION AGENCY

Information Access Branch
Public Information Center, 3404
401 M St. S.W.
Washington, DC 20460

- *Citizen's Guide to Pesticides*
- *What You Can Do to Reduce Air Pollution*
- *The Consumer's Handbook for Reducing Solid Waste*
- *The Superfund Emergency Response Program*
- *Earth Notes* (for educators, published quarterly) (grades K-6)
- Miscellaneous information sheets on global change, lead, ground water, acid rain, Gulf of Mexico program
- Student activity sheets for drinking water projects

WOMEN IN MINING EDUCATION

1801 Broadway, Suite 400
Denver, CO 80202

WOODS HOLE OCEANOGRAPHIC INSTITUTION

Education Specialist
Sea Grant Program
Woods Hole, MA 02543

- *All About Oceanography: A Fun-Filled Activity Book*
- Field Guide Set
- Oceanography reading lists for young students

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