

New Mexico Geological Society

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Front Matter

(Usually includes Dedication, President's Message, & Conference Organizer's Message.)

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Annual NMGS Fall Field Conference Guidebooks

Every fall since 1950, the New Mexico Geological Society (NMGS) has held an annual [Fall Field Conference](#) that explores some region of New Mexico (or surrounding states). Always well attended, these conferences provide a guidebook to participants. Besides detailed road logs, the guidebooks contain many well written, edited, and peer-reviewed geoscience papers. These books have set the national standard for geologic guidebooks and are an essential geologic reference for anyone working in or around New Mexico.

Free Downloads


NMGS has decided to make peer-reviewed papers from our Fall Field Conference guidebooks available for free download. This is in keeping with our mission of promoting interest, research, and cooperation regarding geology in New Mexico. However, guidebook sales represent a significant proportion of our operating budget. Therefore, only *research papers* are available for download. *Road logs*, *mini-papers*, and other selected content are available only in print for recent guidebooks.

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Guidebook
of
Monument Valley
and
Vicinity
Arizona and Utah

Edited by
H. L. JAMES



NEW MEXICO GEOLOGICAL SOCIETY
Twenty-fourth Field Conference
October 4-6, 1973

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PRESIDENT'S MESSAGE

Most presidents of the New Mexico Geological Society end their term of office in a state of shock that such a loosely run organization could function so well. I find myself in the same state of awe. Vice President Bill Hiss, working with John Shomaker and the officers of several other natural resources societies, put together an excellent symposium on the energy crisis for our annual meeting. Total time from decision to event was 31/2 months. Manuscripts from the symposium will be published as a New Mexico State Bureau of Mines and Mineral Resources circular.

The decision to go to Monument Valley with this year's field conference was made at a joint meeting of the old and new officers November 3, 1972. Total time from decision to event was 11 months; this is an unusually long time in the N.M.G.S., since we jumped the gun two months before taking office. The trip is a H. L. James creation; he proposed it, selected the committee chairmen, helped with the road logging, did the photography, and edited the guidebook. All this after having done the same thing for the very successful San Luis Basin trip only two years earlier! He had some outstanding lieutenants, however: Sid Ash—General Chairman, Don Baars—Road Log Chairman, Jack Ellingson—Caravan Chairman, J. L. Kunkler—Advertising Chairman, Bob Kelley—Registration Chairman and Martin Link—arrangements with the Navajo Tribe. In addition, Robert O'Sullivan and Bill Chenoweth made indispensable contributions to the road logs. Many of these people also contributed papers to the guidebook, as did a host of other authors. So the excellent guidebook in your hands and the three days of enjoyable geology, scenery and camaraderie are the product of many people giving unselfishly of their time and talents. Behind the scenes, however, is the "subsidy" of staff time and resources contributed year after year by the State Highway Department, the United States Geological Survey, the New Mexico Bureau of Mines and Mineral Resources, and the geology departments of the region. It is this "care" that provides the stability of the Society and has made possible twenty-four successive field conferences. On behalf of the Society, I wish to extend my sincere thanks to all concerned and a hearty welcome to Monument Valley '73.

Charles E. Chapin

FOREWORD

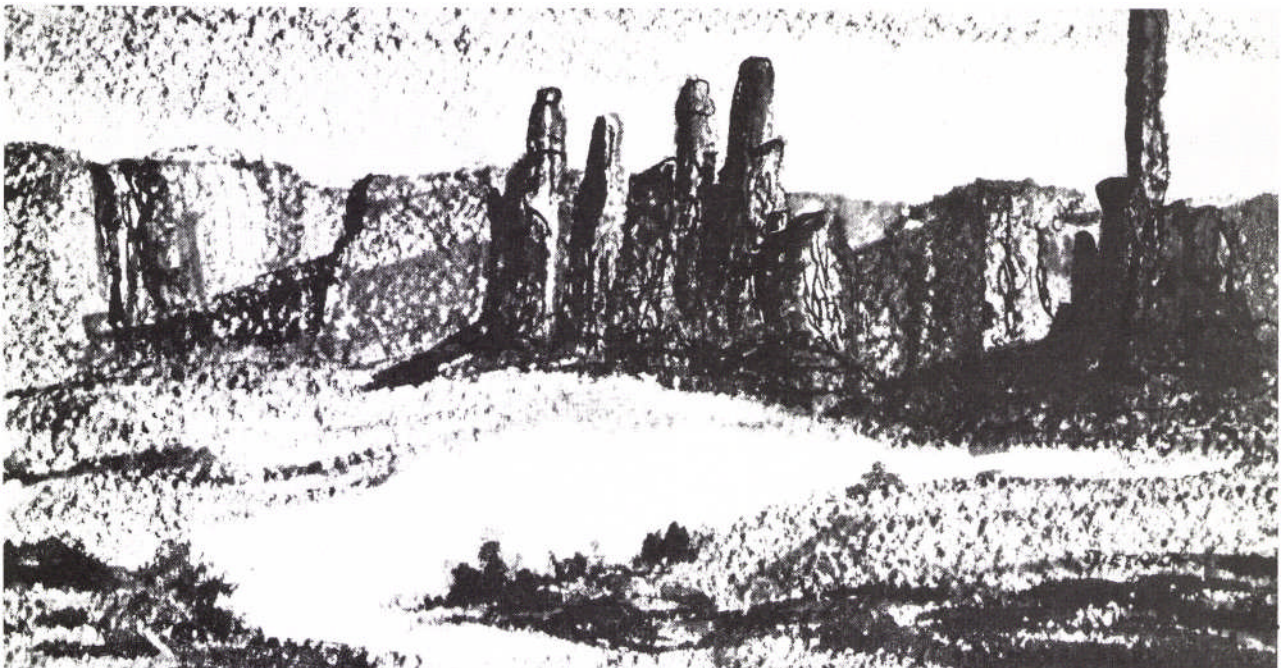
My first view of Monument Valley was in the light of a setting sun. The monuments and spires were tall, regal fingers of burnished sandstone, almost ghostly in appearance, and the shadows they cast were long, long shadows, so long they seemed to flow off the very edges of the earth. The scene was unreal, strange and unearthly. It would not have been surprising to the beholder to see a dinosaur or some other prehistoric monster come hobbling along scratching his back on the towering spires, but the only movement on that vast panorama of slick rock, sky, sand and silence was a shepherd and his flock moving slowly toward some hidden hogan.

The road to the valley from the south in those days was nothing more than wayward wagon tracks, every mile a slow mile, but every mile an interesting one, the road traversing the most beautiful part of the Navajo Reservation. Late afternoon on that first trip found me on the front porch of the Wetherill home in Kayenta passing the time of day with old John Wetherill, beloved friend of the Navajos, one of the first white men to settle in that part of the reservation. In my then youthful exuberance I said some day a fine paved road would bring the whole world past his door. He shook his head and answered, "Hope I don't live to see that day." Old John, though, had his own peculiar ideas about privacy. When another white trader moved in forty miles away, he is reported to have said, "it's getting mighty crowded around here." I do not share Old John Wetherill's apprehension that too many people will clutter up the landscape. It would take a lot of people to crowd an area that in size, scenery, archeological and anthropological interest has all the ingredients for about four national parks and innumerable national monuments.

I have returned many times to Monument Valley and know well its vastness and mystery. The buttes, monuments, arches, natural bridges, and the little valleys within the valley are to me familiar and friendly landmarks, and yet the story of Monument Valley is always refreshingly new for every trip is with a sense of surprise and discovery. Now, thanks to the industry and ingenuity of young engineers seeking uranium, jeep roads have opened up the back country so all of the forty-by-sixty mile area can be visited if one is a hardy traveller with an explorer's mind and temperament and has a hardy vehicle.

The Totem Pole is one of my favorite landmarks in Monument Valley. It rises about 1600 feet from the valley floor—far higher than any man-made object on this planet. I have seen it in all times of the year and in all kinds of weather and it always strikes me as one of nature's masterpieces. One night on the far side of the Totem Pole I was fortunate enough to attend a Navajo "sing." Several hundred Navajos were dancing around a juniper log fire and their steady chant was music, it seemed, from another world. The scene was indescribable, weird and beautiful. Towering above was the Totem Pole, and in the bright moonlight it looked like a church spire reaching high towards Heaven. Perhaps it was ...

Raymond Carlson, Editor Emeritus
Arizona Highways



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Frontispiece: *Three Sisters Silhouette.*
Title Page: *Sundown at the North Window.*

PUBLICATIONS OF THE NEW MEXICO GEOLOGICAL SOCIETY

FIELD CONFERENCE GUIDEBOOKS

*Out of Print

1. **San Juan Basin** [New Mexico and Colorado], 1950, Vincent C. Kelley, ed., 152 p., 40 illus. Second printing, 1971. \$5.00.
2. **San Juan Basin** [New Mexico and Arizona], 1951, Clay T. Smith and Caswell Silver, eds., 163 p., 71 illus. Second printing, 1971. \$5.00.
3. **Rio Grande Country** [central New Mexico], 1952, Ross B. Johnson and Charles B. Read, eds., 126 p., 50 illus. Second printing, 1971. \$5.00.
4. **Southwestern New Mexico**, 1953, Frank E. Kottlowski, ed., 153 p., 70 illus. Second printing, 1972 \$5.00.
5. **Southeastern New Mexico**, 1954, T. F. Stipp, ed. 209 p., 76 illus. \$5.00.
6. **South-Central New Mexico**, 1955, J. Paul Fitzsimmons, ed., 193 p., 66 illus. Prepared in cooperation with the Roswell Geological Society. Second printing, 1973. \$8.00.
7. **Southeastern Sangre de Cristo Mountains** [New Mexico], 1956, A. Rosenzweig, ed., 151 p., 61 illus. \$7.00.
8. **Southwestern San Juan Mountains** [Colorado], 1957, Frank E. Kottlowski and Brewster Baldwin, eds., 258 p., 110 illus. \$7.00.
- *9. **Black Mesa Basin** [northeastern Arizona], 1958, Roger Y. Anderson and John W. Harshbarger, eds., 205 p., 106 illus. Prepared in cooperation with the Arizona Geological Society. \$8.50.
10. **West-Central New Mexico**, 1959, James E. Weir, Jr., and Elmer H. Baltz, eds., 162 p., 91 illus. \$8.50.
11. **Rio Chama Country** [New Mexico and Colorado], 1960, Edward C. Beaumont and Charles B. Read, eds., 129 p., 35 illus. \$8.50.
12. **Albuquerque Country** [New Mexico], 1961, Stuart A. Northrop, ed., 199 p., 83 illus. \$9.50.
13. **Mogollon Rim Region** [east-central Arizona], 1962, Robert H. Weber and H. Wesley Peirce, eds., 175 p., 77 illus. Prepared in cooperation with the Arizona Geological Society. \$9.50.
14. **Socorro Region** [New Mexico], 1963, Frederick J. Kuellmer, ed., 240 p., 90 illus. \$9.00.
15. **Ruidoso Country** [New Mexico], 1964, Sidney R. Ash and Leon V. Davis, eds., 195 p., 64 illus. \$9.00.
16. **Southwestern New Mexico II**, 1965, J. Paul Fitzsimmons and Christina Lochman Balk, eds., 244 p., 73 illus. \$9.50.
17. **Taos-Raton-Spanish Peaks Country** [New Mexico and Colorado], 1966, Stuart A. Northrop and Charles B. Read, eds., 128 p., 40 illus. \$7.50.
18. **Defiance-Zuni-Mt. Taylor Region** [Arizona and New Mexico], 1967, Frederick D. Trauger, ed., 228 p., 98 illus. \$9.00.
19. **San Juan-San Miguel-La Plata Region** [New Mexico and Colorado], 1968, John Shomaker, ed., 212 p., 95 illus. \$9.00
20. **The Border Region** [Chihuahua and the United States], 1969, D. A. Córdoba, S. A. Wengerd and J. W. Shomaker, eds., 228 p., 159 illus. \$13.50.
21. **Tyrone-Big Hatchet Mountains-Florida Mountains Region** [New Mexico], 1970, L. A. Woodward, ed., 176 p., 84 illus. \$12.50.
22. **San Luis Basin** [Colorado], 1971, H. L. James, ed., 340 p., 226 illus. \$15.00.
23. **East-Central New Mexico**, 1972, Vincent C. Kelley and Frederick D. Trauger, eds., 236 p., 128 illus. \$15.00. Special Publication No. 4 included with purchase.
24. **Monument Valley** [Arizona and Utah], 1973, H. L. James, ed., 232 p., 160 illus. \$13.50.

SPECIAL PUBLICATIONS

1. **Bibliography and Index of the New Mexico Geological Society guidebooks, 1950-63**; by Sidney R. Ash, 31 p. \$0.75.
2. **History of the New Mexico Geological Society 1947-1968**; by Stuart A. Northrop, 78 p. \$0.50.
3. **The San Andres Limestone: a reservoir for oil, gas and water . . .** [a symposium]; F. E. Kottlowski and W. K. Summers, eds., 51 p., 35 illus. \$3.00.
4. **Subsurface Geology of East-Central New Mexico** by R. W. Foster, R. M. Frentess and W. C. Riese, 22 p., 11 fig., (includes 8 isopach maps) \$2.00.

MAPS

- a. **Geologic highway map of New Mexico** (in color, 23 x 29 in.), by Frank E. Kottlowski and others. folded \$1.00.
rolled \$1.25.
- b. **Geologic map of the Sierra County Region**, by Vincent C. Kelley; in Guidebook 6. \$0.50.
- c. **Geologic map of the Albuquerque Country**, by Stuart A. Northrop and Arlette Hill; in Guidebook 12. \$0.50.
- d. **Tectonic map of the Ruidoso-Carrizozo Region**, by V. C. Kelley and Tommy B. Thompson; in Guidebook 15. \$0.75.
- e. **Tectonic map of the Defiance-Zuni-Mt. Taylor Region** by V. C. Kelley; in Guidebook 18. \$1.50.

All publications are available by mail (please add \$0.50 for postage and handling) from/or over the counter at the following locations:
New Mexico Bureau of Mines and Mineral Resources, Socorro, N.M. 87801; University of New Mexico (Geology Dept.), Albuquerque, N.M. 87131; Holmons, Inc., 401 Wyoming Blvd., N.E., Albuquerque, N.M. 87123; Roswell Map and Blueprint Co., 125 E. 3rd St., Roswell, N.M. 88201; Museum of Northern Arizona, Flagstaff, Ariz. 86001.

Discount prices to students will be made *ONLY* at the New Mexico Bureau of Mines and the Department of Geology, University of New Mexico, Albuquerque. Orders must be verified by the department chairman; only one copy of each guidebook may be purchased at the student price.

1973

FIELD CONFERENCE SCHEDULE

WEDNESDAY, October 3rd
1:00 p.m.-10:00 p.m.

REGISTRATION DAY

Registration in Topaz Room at the Rimrock Inn, Farmington, New Mexico.

THURSDAY, October 4th
7:30 a.m.-8:00 a.m.

FIRST DAY FIELD TRIP*

Auto-caravan will assemble at the Palmer Plaza shopping center on U.S. Highway 550 at the west city limits of Farmington.

Trip will extend to Kayenta, Arizona, via Shiprock, Four Corners, Aneth Oil Fields, Bluff, Cedar Mesa, Goosenecks and Mexican Hat.
Distance: 227.5 miles.

Stops: 6

9:00 p.m.

Kayenta Field House. Speaking engagement by Dr. Harrison H. Schmitt, astrogeologist of Apollo 17.

10:00 p.m.

Kayenta Field House. Motion Picture: Stagecoach (1938) starring John Wayne.

FRIDAY, OCTOBER 5th
8:30 a.m.-9:00 a.m.

SECOND DAY FIELD TRIP*

Auto-caravan will assemble at Kayenta junction (U.S. highways 160 and 163).

Trip will include visits to Black Mesa (Peabody coal mine) and Navajo National Monument.

Distance: 42.4 miles.

Stops: 2

3:00 p.m.-3:30 p.m.

Reassemble at Monument Valley junction (20 miles north of Kayenta on U.S. Highway 163).

Trip will include circuitous tour of Monument Valley Navajo Tribal Park.

Distance: 14.2 miles.

Stops: 3

7:00 p.m.

Barbecue picnic (North Window area).

9:00 p.m.

Indian dances (North Window area).

SATURDAY, October 6th
8:30 a.m.-9:00 a.m.

THIRD DAY FIELD TRIP*

Auto-caravan will assemble at Kayenta junction (U.S. highways 160 and 163).

Trip will extend to Gallup, New Mexico, via Dinnehotso, Rock Point, Round Rock, Many Farms, Chinle, Canyon de Chelly, Ganado, St. Michaels, Hunters Point and Lupton.

Distance: 232.7 miles.

Stops: 5

*Please note that conferees are responsible for providing their own picnic lunches during the three-day caravan. Bring your own bologna and "root beer"—provisions are rather scarce in the Four Corners area. The sale of alcoholic beverages is prohibited on the Navajo Reservation.