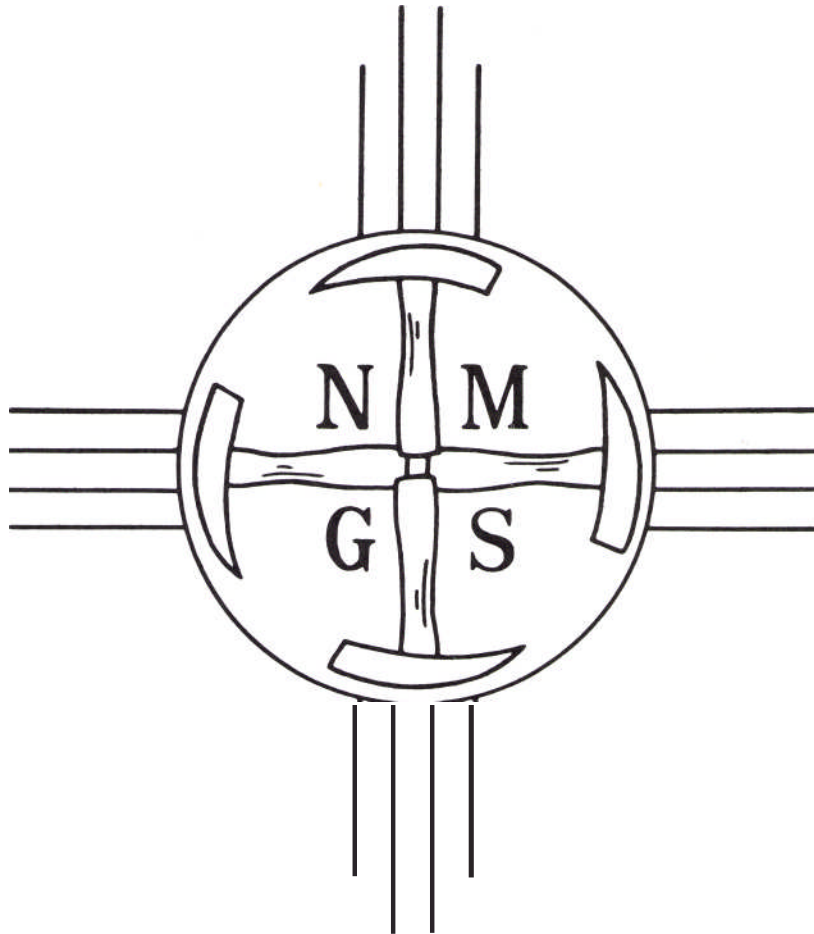


NEW MEXICO GEOLOGICAL SOCIETY



Guidebook
o f t h e
SOCORRO REGION
N E W M E X I C O

Editor: FREDERICK J. KUELLMER

FOURTEENTH FIELD CONFERENCE

October 4, 5, and 6, 1963

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PRESIDENT'S MESSAGE

Welcome to Socorro County! This year we are trying out a new recipe for the field conference. Those of us who agree with Professor H. H. Read that "The best geologist is he who has seen the most rocks" have long wondered whether past field conferences were in fact showing us the rocks we came to see. Was too much time being spent in a speeding car? Were the logistics of maintaining more than 200 people hundreds of miles from home becoming too complicated?

This year the emphasis is on small groups, short drives, and long stops at critical exposures. The trip leaders carry extra burdens, but catered lunches, flagmen, and police escorts have been eliminated. Time formerly lost while cars jockeyed in and out of parking spots and their occupants ambled to and from assembly points will be put to better use. In keeping with the times, we will hike—not for 50 miles, perhaps, but with "vigah" nonetheless.

Plans for this field conference evolved over several years of discussion by the Executive Committee and individual members of the Society. It was foreshadowed by Ed Beaumont's presidential message in 1959 and discussed at length by Elmer Baltz last year. Since then, Fred Kuellmer and Sam Thompson each submitted detailed plans in writing to the Executive Committee.

Will the Society ever return to the old-style field conference with its long drives and arm-waving discussions? Undoubtedly, yes! Sooner or later the pendulum will swing the other way. We need the Big Picture as much as the local detail, the broad brush as well as the fine-toothed comb.

Last year Elmer Baltz pointed to our shaky finances as a reason for reconsidering the program of our society. Solvency has now returned, but economy is still the watchword. The format of our guidebook has been changed to cut costs while maintaining quality. Fewer copies are being printed, but the line has been held on cost per book. With luck, we should be able to add to our surplus this year. We would then be able to consider worthy new projects without the nagging question of "where's the money coming from?". For instance, does anyone agree that we need a "digest" type of publication listing

progress in all current public geologic research in New Mexico?

Several problems remain unsolved. Although advance preparations for the conference have been simplified, the burden on the general chairman and his coworkers remains formidable. The editor's job is as heavy as ever. Again and again the same trusty workhorses have volunteered their services to the Society. New blood is needed if the work is to continue. Every editor asks himself whether our guidebooks are really worth the effort put into them. I think they are. Last year we printed 1000 guidebooks and sold 1100. Obviously, someone wants our product!

Our profession is only just emerging from a slump that led to long-overdue soul-searching. Our Society has emerged unscathed. Ironically, while industrial geologists worried about unemployment and academic geologists about enrollment, the science advanced at the fastest pace in its history. The geologist changed from a landlubber to an amphibian; tomorrow he may be soaring into space or worming his way into the interior of our planet. Why shouldn't the present be the Heroic Age of geology? So much progress has been made in the laboratory that some people have questioned the value of field work and, by implication, field trips like those run by our Society. I believe that only meticulous field observations can supply the laboratory worker with the information he needs to ask intelligent questions of his computers and recorders. Conversely, laboratory findings should arm the field geologist with new insights as he struggles to interpret his outcrops. No field area can ever be worked out. The progress of our science demands that we subject our field observations to continual and critical re-evaluation. No matter how many field trips our Society takes, there will always be virgin ground ahead.

Many thanks to general chairman Roy Foster, to editor Fred Kuellmer, and to all committee workers and trip leaders for making this trip a success. Enjoy yourself and let the rocks speak for themselves!

Wolfgang E. Elston
President

ACKNOWLEDGMENTS

The New Mexico Geological Society is most grateful to all members and friends who contributed toward the success of this guidebook and field conference. We acknowledge the enthusiastic and wholehearted cooperation of Dr. E. J. Workman and Professor A. J. Thompson. Without the interest of these men and the effort of many of the staff

members of the entire New Mexico Institute of Mining and Technology, this trip would not have been possible. Note the many committee workers who contributed toward this trip and guidebook. Our advertisers are found at the back of the book. Please refer to them for your needs.

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PUBLICATIONS OF THE NEW MEXICO GEOLOGICAL SOCIETY

- Guidebook of the San Juan Basin (covering north and east sides), New Mexico and Colorado; First Field Conference, 1950; edited by Vincent C. Kelley and others; 153 pages, 40 illustrations. (Out of print)
- 2. Guidebook of the south and west sides of the San Juan Basin, New Mexico and Arizona; Second Field Conference, 1951; edited by Clay T. Smith and Caswell Silver; 163 pages, 69 illustrations. (Out of print)
- 3. Guidebook of the Rio Grande country, central New Mexico; Third Field Conference, 1952; edited by Ross B. Johnson and Charles B. Read; 26 pages, 51 illustrations. (Out of print)
- 4. Guidebook of southwestern New Mexico; Fourth Field Conference, 1953; edited by Frank E. Kottlowski and others; 165 pages, 67 illustrations. \$5.00
- 5. Guidebook of southeastern New Mexico; Fifth Field Conference, 1954; edited by T. F. Stipp; 213 pages, 83 illustrations. \$5.00
- 6. Guidebook of south-central New Mexico; Sixth Field Conference, 1955; edited by J. Paul Fitzsimmons; 193 pages, 70 illustrations. Prepared with the cooperation of the Roswell Geological Society. \$7.00 (Out of print)
- 7. Guidebook of southeastern Sangre de Cristo Mountains, New Mexico; Seventh Field Conference, 1956; Edited by A. Rosenzweig; 154 pages, 61 illustrations. \$7.00
- 8. Guidebook of southwestern San Juan Mountains, Colorado; Eighth Field Conference, 1957; edited by Frank E. Kottlowski and Brewster Baldwin; 258 pages, 109 illustrations. \$7.00
- 9. Guidebook of the Black Mesa Basin, northeastern Arizona; Ninth Field Conference, 1958; edited by Roger Y. Anderson and John W. Harshbarger; 205 pages, 105 illustrations. Prepared in cooperation with the Arizona Geological Society. \$8.50
- 10. Guidebook of west-central New Mexico; Tenth Field Conference, 1959; edited by James E. Weir, Jr., and Elmer H. Baltz; 162 pages, 83 illustrations. \$8.50
- 1. Guidebook of Rio Chama country (New Mexico and Colorado); Eleventh Field Conference, 1960; edited by Edward C. Beaumont and Charles B. Read; 129 pages, 35 illustrations. \$8.50
- 12. Guidebook of the Albuquerque country (New Mexico); Twelfth Field Conference, 1961; edited by Stuart A. Northrop; 199 pages, 73 illustrations. \$9.50
- 13. Guidebook of the Mogollon Rim region, east-central Arizona; Thirteenth Field Conference, 1962; edited by Robert H. Weber and H. Wesley Peirce; 175 p., 68 illus. \$9.50.
- 14. Guidebook of the Socorro region, New Mexico; Fourteenth Field Conference, 1963; edited by Frederick J. Kuellmer. \$9.00

These publications are available by mail (please add 250 for postage and handling) from the New Mexico Bureau of Mines and Mineral Resources, Campus Station, Socorro, New Mexico. Also over-the-counter sales at the New Mexico Bureau of Mines and Mineral Resources, Socorro; the Department of Geology, University of New Mexico, Albuquerque; Holman's Book Store, Albuquerque, N. Mex.; and Museum of Northern Arizona, Flagstaff. Checks should be made payable to the New Mexico Geological Society. Discounts of 20% are available on all guidebooks except Nos. 12, 13, and 14 to members of New Mexico Geological Society and to non-members who purchase one set or more. Dealer's discounts are available on all publications by request.

Geological maps are available by mail or over the counter from the New Mexico Bureau of Mines and Mineral Resources, Socorro, as follows:

- (a) Geologic highway map of New Mexico; compiled by Frank E. Kottlowski and others. \$1.25 folded; \$1.50 rolled. Also available from the Department of Geology, University of New Mexico, and Holman's Book Store, Albuquerque; and Roswell Map Company, Roswell.
- (b) Geologic map of the Sierra County Region, New Mexico; compiled by Vincent C. Kelley; accompanies Guidebook of the Sixth Field Conference, \$1.00
- (c) Geologic map of the Rio Chama country; compiled by Clay T. Smith and William R. Muchlberger; accompanies Guidebook of the Eleventh Field Conference. \$0.50
- (d) Geologic map of the Albuquerque country; compiled by Stuart A. Northrop and Arlette Hill; accompanies Guidebook of the Twelfth Field Conference. \$0.50
- (e) Entry and exit road logs to supplement Guidebook of the Ninth Field Conference. \$0.10 each

A FEW WORDS FROM THE EDITOR

Even a casual reader will observe that there are numerous changes in the appearance of this guidebook compared to previous guidebooks. Any improvements are a result of the excellence of my colleagues' assistance, especially Miss Teri Ray. Any errors, mistakes, or changes which you do not consider improvements are my responsibility. An additional change, which would also be an improvement, would be to arrange the road logs in two columns on a page. The human eye, according to specialists, is more capable of rapid reading with comprehension when the lines are considerably shorter than the page width of our guidebooks. Why not try this next year? I feel we have maintained or improved our quality

this year, while reducing costs (without having seen a final invoice or guidebook copy, at this time).

The contributors were most cooperative. Almost all copy was submitted promptly and in excellent condition. Without this assistance, the guidebook would not have seen the light of day so soon.

My editing may be fraught with inconsistencies. To those of you concerned with this, my apologies. My editorial philosophy is to let form and style be as flexible as possible and seek instead clarity. I subscribe to N. L. Bowen's thought that our endeavors should not be concerned with a question of sight but of insight.