

# New Mexico Geological Society

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## ***Front Matter***

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

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*This is a section from the 1974 NMGS Fall Field Conference Guidebook.*

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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.

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# SILVER ANNIVERSARY GUIDEBOOK

Ghost



Ranch

## CENTRAL-NORTHERN NEW MEXICO

LEE A. WOODWARD JONATHAN F. CALLENDER  
Associate Editors

NEW MEXICO GEOLOGICAL SOCIETY

TWENTY-FIFTH FIELD CONFERENCE—October 10, 11 and 12, 1974

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# THE PRESIDENT'S MESSAGE

## A YEAR OF RECORD ACCOMPLISHMENTS

The New Mexico Geological Society was founded in 1947. The year 1974, however, will long be remembered as the "Silver Anniversary" of the Geological Society in commemoration of the 25th consecutive field conference. The officers, committee members, and others associated with the activities of the Geological Society are invariably exceptionally dedicated and enthusiastic, but an additional stimulus during 1974 was provided by a pervasive Silver Anniversary spirit. Thus motivated, the individual volunteers responded harmoniously as a dynamic team to successfully confront the many challenges encountered. Much has been accomplished in the fleeting months of the past year.

In May, the Geological Society and the New Mexico Bureau of Mines and Mineral Resources jointly sponsored the Symposium on Base Metals and Fluorspar Districts of New Mexico at the New Mexico Institute of Mining and Technology in Socorro. Credit for the outstanding program and record attendance for an Annual Meeting (273 paid registrants) goes to Chuck Chapin, General Chairman, and Russ Clemons, Registration Chairman, who were generously assisted by many members from the staff of the Bureau of Mines and Mineral Resources. Abstracts of the papers presented at the Symposium are printed in this guidebook, along with several photographs taken during the field trip that followed.

Inasmuch as the money received from the sale of guidebooks constitutes the major source of support for the operations of the Geological Society, any budget prepared for the forthcoming year is always fraught with uncertainty. The year just completed was no exception. With substantial increases in publication costs predicted, the reprinting of several guidebooks in progress and others remaining to be reprinted, and an Annual Meeting and Fall Field Conference with a new guidebook in sight, a trial budget prepared near the end of 1973 rather ominously suggested that a deficit in excess of \$20,000 could be incurred. The Executive Committee clearly recognized the danger signals and immediately chose a course of action designed to resolve the impending financial crisis stemming from a record budget.

Fortunately, our financial needs coincided with a renewed interest in the geology and natural resources of New Mexico and the surrounding States and the completion of a long-term program to reprint all out-of-print guidebooks. A modest advertising campaign was implemented to call attention to the guidebooks as a major reference series on the geology of the region. As a result of this program and the other efforts made by the Publications and Sales Committee, we are able to report that sales of guidebooks during the first 6 months of 1974 exceeded \$21,000 and shattered all previous records.

Supplemental funds needed to finance the guidebook are normally derived from the sale of advertising space. This year a new approach to the sale of ads was initiated with the hope of obtaining more substantial funding for the Silver Anniversary Guidebook. Don Porter, Chairman of the Advertising Task Force, and his group of Marksmen really zeroed in on the targets. Result—ad revenues of more than \$6,000—nearly doubling the previous record. In addition to the ads contained in the guidebook, two companies, Mobil and Exxon, contributed money instead of purchasing advertisements. The gen-

erous support of the many petroleum, mining, and service companies, consultants, independents, individuals, and others who, as advertisers, have helped to advance the objectives of the Geological Society is appreciated.

Jim Fassett, following the record setting program initiated by Russ Clemons last year, conducted a membership drive with extraordinary enthusiasm. Membership in our society now totals 520—another new record. Jim is now accepting dues for 1975, so as you congratulate him for a job well done, offer him a check for your dues with the other hand and help sustain the momentum of this continuing effort.

Again, as in past years, the Geological Society has been nurtured by the New Mexico Bureau of Mines and Mineral Resources, the U.S. Geological Survey, the Geology Departments at the University of New Mexico, New Mexico State University, and New Mexico Institute of Mining and Technology, other State and Federal agencies and institutions, and many companies within the energy and mineral industries, who have willingly made both professional talent and secretarial and technical services readily available.

The Silver Anniversary Guidebook edited by Chuck Siemers, Lee Woodward, and Jon Callender is destined to become the major geologic reference for central-northern New Mexico. Those who have helped with the guidebooks for prior years will appreciate the enormous effort required to produce this magnificent volume. The editors, authors, field trip leaders, road logging crews, and the many others who have given so generously of their time and talents can be justly proud of a guidebook that so appropriately commemorates the 25th field conference.

Registration for the Silver Anniversary Field Conference has been a particularly formidable task. If you are bunking with your favorite wife or colleague as planned, credit Jim Yarbrough with the arrangements. Jim is to be congratulated for successfully completing this short course of on-the-job training in hostelry.

To the Reverend James W. Hall, we extend our thanks for permitting the New Mexico Geological Society to use the Ghost Ranch facilities and for being a gracious host to our conferees.

Much of the success of this excursion into central-northern New Mexico is due to the tireless efforts and dedication of Lee Woodward and Harold James. As Co-Chairmen, they have planned and organized the 25th field conference. In addition, they accomplished much of the road logging and photography. Their work is interwoven throughout the guidebook and will become more evident as the field trip unfolds.

Welcome to the Silver Anniversary Field Conference. While enjoying this venture into the central-northern part of New Mexico, consult the list of committee members who have made this trip possible, seek them out and offer a grateful hand and words of praise, as this will be their reward for the knowledge, time, and effort they have so freely given toward the success of this mission.

## A RESOLVABLE DILEMMA

A precautionary note—the views expressed herein are my own and do not necessarily represent those of the New Mexico Geological Society as a whole.

# THE GHOST RANCH LAND AND ITS USES



Many persons have expressed interest in the history of the Ghost Ranch land. Located as it is in northern New Mexico, it was first claimed to be part of the dominion of the Spanish conquerors of the original Indian inhabitants of the area. The first recognition of the particular acreage begins more than two hundred years ago with a grant of the Spanish King.

The Ghost Ranch is principally located upon the northern one-third of the "Las Casas de Riano" or "Piedra Lumbre" Land Grant. The grant was made February 12, 1766 by Tomas Velez Cachupin, Royal Governor and Captain General of the Province on New Mexico to Lieutenant Pedro Martin Serrano "for himself, his children and heirs that he may lawfully hold the same in fee and dominion." It was a purely private grant to Lieutenant Serrano alone and was never a community grant made to any group. Lieutenant Serrano was put into juridical possession on February 8, 1766 by Chief Alcalde Manuel Garcia Pareja.

At the close of the war with Mexico under the treaty of Guadalupe Hidalgo in 1846, the United States agreed to respect all titles which had been granted by Spain or the Republic of Mexico.

On August 25, 1893, the grant was confirmed to Pedro M. Serrano, his heirs and assigns, by the United States Court of Private Land Claims. That Court after a careful investigation held that the grant was a genuine private Grant within the provisions of the Treaty of Guadalupe Hidalgo.

The succeeding years saw the grant gradually divided, largely by the Spanish pattern of inheritance, under which the estates were divided equally among children of the immediate family. Serrano had died in 1813 leaving three sons and one daughter. His direct heirs conveyed to J. Patricio Chavez, Jose Maria Chavez, F. C. Chavez and Ramon Salazar. Small tracts in large numbers were then traded back and forth. Several elaborate partition suits, beginning in 1910, were filed in order to establish fee simple title to the northerly third of the grant. In 1929 all conflicting claims were bought in for a little more than \$20,000 by the A. B. Renehan estate. Title can be traced directly from Mrs. Renehan to the Board of Christian Education, to whom the ranch was given by Arthur and Phoebe Pack in 1955.

Any conflicting claimants to the north one-third of the Piedra Lumbre Grant have had five opportunities to present their claims in court and a large number have done so. For a minimum of forty years since the last case, the Board of Christian Education and its immediate predecessors in title have held firm, adjudicated fee simple title to the premises and have been in actual possession all that time.

For over a hundred and fifty years, this area of the Great Southwest has suffered from periodic serious overgrazing combined with a prolonged period of below average rainfall (at best 10-12 inches a year). Therefore the Board of Christian Education is committed to a program of soil conservation and restoration in the hope that over the years the 20,000 acres of the ranch will become an example of what can be achieved in this region.

This commitment is not alone economical, but ethical and theological as well. Its roots are found in the "ecology" of the ranch. (Ecology is the science of the mutual relations of organisms with their environment and with one another.) Christian Education, in our understandings at Ghost Ranch, includes an appreciation of the natural processes by which the land and the living things upon it have achieved their characteristic forms. To know and to appreciate these processes is one of the major lessons to be learned from the Ghost Ranch. It suggests that to enjoy the gifts of God we need not possess, invade, or appropriate them.

Ghost Ranch is an antidote to the spiritual dangers inherent in a technologically oriented and mechanized society. Too many modern men are separated from the land by middlemen, and by innumerable physical gadgets. They have no vital relationship to it; to them, land is the space between cities. Turn such a man loose for a day on the land, and if the spot does not happen to be a golf course or a carefully organized "scenic area," he is anxious to be on to something more exciting. If crops could be raised in test tubes, it would suit him very well. Synthetic substitutes for wood, leather, wool, and other natural land products suit him better than the originals. In short, land is something that he thinks he has "outgrown." If he thinks of it at all, it is as an adversary—or perhaps an old fashioned taskmaster that keeps him in slavery.

Our philosophy refutes the idea that man has "outgrown" the land. Rather, it believes that men are only fellow-voyagers with plants and creatures in the odyssey of creation, and that man forgets at his own peril a sense of kinship with the nature which is his coterminous theatre.

A land ethic does not, of course, prevent the alteration, management, and use of our natural resources; but it can and does affirm their right to exist in continuous form, and at least, in some places, to exist in their natural state. In short, the Ghost Ranch land



ethic suggests that the role of *Homo sapiens* is not that of conqueror of the land community, but of citizen and intelligent members of it.

Beyond the commitment to education in this stewardship, the Ghost Ranch land serves as a specific educational aspect of the ranch's program. One instance is the Animal Husbandry Education Project. Supported by a generous gift from a private foundation, the ranch offers opportunity to the small ranchers nearby, mostly Spanish speaking, to bring their cattle to the ranch for winter pasture and to participate in class room and range workshop exposure to the most modern and progressive techniques of livestock management.

In an area where a 40% calf crop is common, where markets are limited, where supplementary feeding is almost unknown, this practical program offers opportunity for immediate improvement in animal husbandry with correspondingly real financial gain to the owners, most of whom live on the margin of poverty.

By our concern for and care of the land, our continued demonstration that land can be used productively and still continue to improve, and by our use in specific educational ventures, we hope our conviction that we are charged to live in this land guided by a trained and perceptive Christian conscience will be to the benefit not only of the thousands who visit the ranch each year, but perhaps more importantly to our neighbors in Northern New Mexico, and beyond this, to the generations yet to come.

James W. Hall, Director  
Ghost Ranch, Abiquiu, New Mexico

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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 figs. (includes 8 isopach maps) . ....	2.00

## MAPS

a. Geologic highway map of New Mexico (in color, 23 x 29 in.), compiled by Frank E. Kottlowski and others. Rolled, \$1.25; folded. ....	\$... 1.00
b. Geologic map of the Sierra Country Region, compiled by Vincent C. Kelley, in Guidebook 6. ....	0.50
c. Geologic map of the Albuquerque Country, compiled 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

## COMPLETE SETS

Guidebooks 1-25 inclusive, Special Publications 1-4, and Geologic highway map of New Mexico (folded), postpaid. ....	\$225.00
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All publications are available by mail from the New Mexico Bureau of Mines and Mineral Resources, Socorro, NM 87801. (Please add 75 cents to the price of each volume or map for postage and handling.) Guidebooks, and the geologic highway map, are available over the counter at the New Mexico Bureau of Mines and Mineral Resources; the Department of Geology, University of New Mexico; Holman's, Inc. 401 Wyoming Blvd., Albuquerque; the Museum of Northern Arizona, Flagstaff; Pebble Pups Rock Shop, Las Cruces; and Roswell Map and Blueprint Co., 125 East 3rd St., Roswell.

A 30 percent reduction from the price of each publication is offered to students. Sales to students will be made only at the New Mexico Bureau of Mines at Socorro and the Department of Geology, University of New Mexico, Albuquerque. Student orders must be verified by the Department Chairman or another official of similar authority in the school attended. Only one copy of each publication may be purchased at the student price.

# 1974 FIELD CONFERENCE SCHEDULE

## **WEDNESDAY, October 9th**

1:00 p.m.-6:00 p.m.

### **REGISTRATION DAY**

Registration at ranch headquarters.

6:00 p.m.-7:00 p.m.

"Get-acquainted" party (cocktails) at pool side-patio area.

7:00 p.m.-8:30 p.m.

Evening meal (mess hall) with conference orientation.

## **THURSDAY, October 10th**

6:30 a.m.-7:30 a.m.

### **FIRST DAY FIELD TRIP**

Breakfast meal (mess hall).

7:30 a.m.-8:00 a.m.

Boarding of buses (ranch headquarters). Charter to Cuba, New Mexico, and return via Abiquiu Dam, Coyote, Gallina, and Regina.

Picnic lunch enroute.

Distance: 67 miles

Stops: 6

6:00 p.m.-7:30 p.m.

Outdoor steak-fry supper (south lawn-mess hall).

7:30 p.m.-9:00 p.m.

Geologic "Mini-Symposium".\*

## **FRIDAY, October 11th**

6:30 a.m.-7:30 a.m.

### **SECOND DAY FIELD TRIP**

Breakfast meal (mess hall).

7:30 a.m.-8:00 a.m.

Boarding of buses (mess hall). Charter for circuitous tour of the Tusas Mountains region via Abiquiu, El Rito, Petaca, Tres Piedras, and Tierra Amarilla.

Picnic lunch enroute.

Distance: 150 miles

Stops: 4

6:00 p.m.-7:00 p.m.

Attitude adjustment hour (cocktails) at pool side-patio area.

7:00 p.m.-8:00 p.m.

Evening meal (mess hall).

8:00 p.m.-9:00 p.m.

Movie: "Continental Drift & Plate Tectonics" (mess hall).

## **SATURDAY, October 12th**

6:30 a.m.-7:30 a.m.

### **THIRD DAY FIELD TRIP**

Breakfast meal (mess hall).

7:30 a.m.-8:00 a.m.

Auto-caravan assembly (ranch headquarters). Caravan will tour the Jemez Mountains region via Espanola, White Rock, Jemez Springs, San Ysidro, and Bernalillo.

Picnic Lunch enroute.

Distance: 130 miles

Stops: 3

\*Three concurrent sessions. Program in preparation. Schedule announced at conference.





Topography compiled from U. S. G. S. maps of Gallina, Jemez, and Santa Clara quadrangles; Forest Service maps of Santa Fe and Carson National Forests; and reconnaissance by N. H. Darton

**RECONNAISSANCE GEOLOGIC MAP OF NACIMIENTO UPLIFT AND CHAMA BASIN IN RIO ARRIBA AND SANDOVAL COUNTIES, N. MEX.**

Geology by N. H. Darton. Some geologic data in Range I from maps by B. C. Ranck

Scale 25000

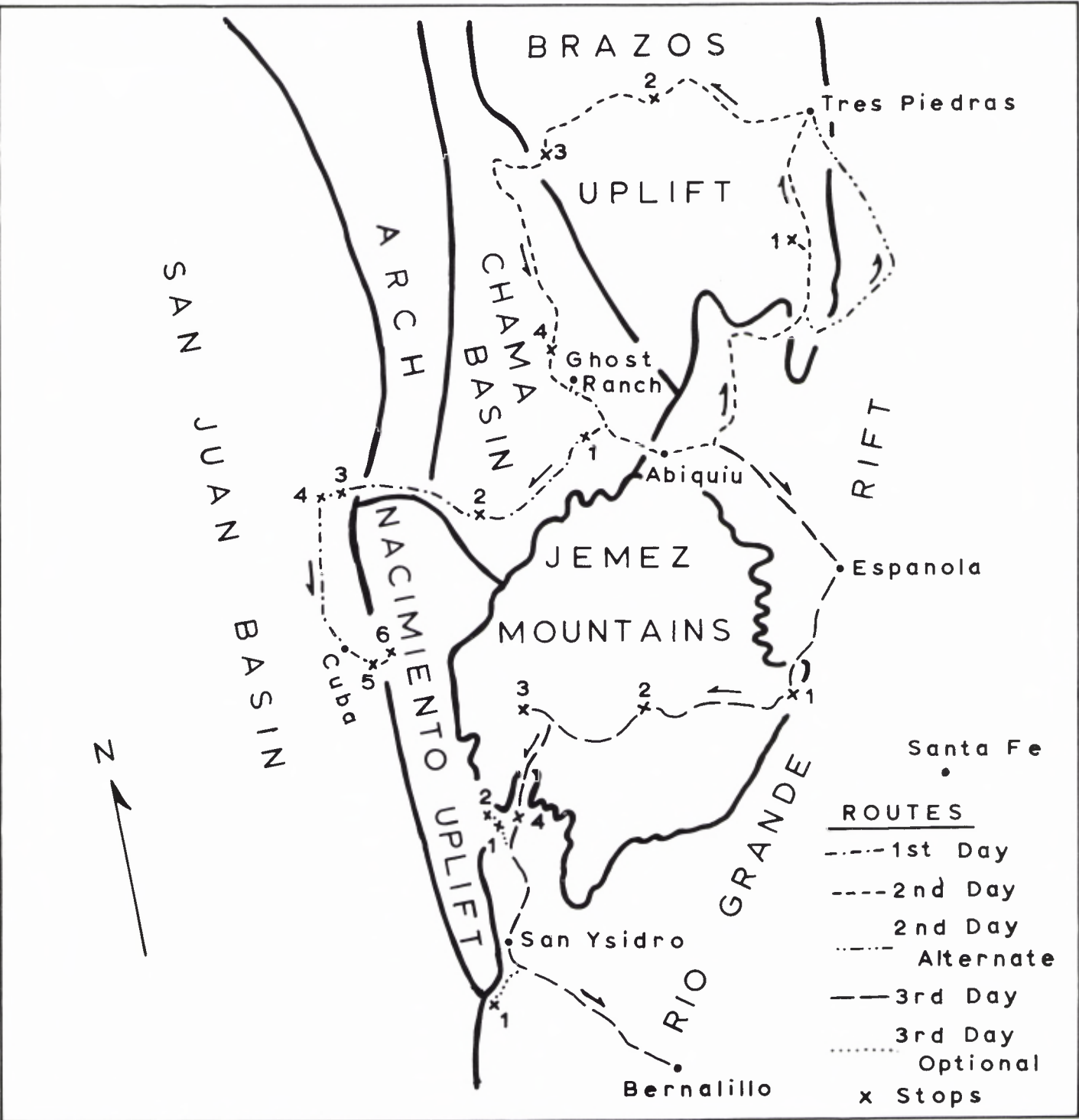
Contour interval 200 feet.

Distances in miles and feet.





*ERTS photograph of central-northern New Mexico. Approximate scale is 1 inch = 16 miles.  
ERTS (Earth Resources Technology Satellite) photographs and an ERTS mosaic of the State of New Mexico can be ordered from Technology Application Center, University of New Mexico, Albuquerque, N.M. 87131.*



Sketch map of major tectonic features of central-northern New Mexico made from ERTS photograph. Field Trip Routes are also shown. Drawn by Lee A. Woodward.



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Ghost Ranch. Oblique air view north. Bedrock units are Triassic Chinle Formation (**Rc**), Jurassic Entrada Sandstone (**Je**), Todilto Formation (**Jt**), and Morrison Formation, and Cretaceous Dakota Formation (**Kd**). Photograph by Dick Kent.