

# New Mexico Geological Society

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## ***Front Matter***

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

*in:*

*Black Mesa Basin (Northeastern Arizona), Anderson, R. Y.; Harshbarger, J. W.; [eds.], New Mexico Geological Society 9<sup>th</sup> Annual Fall Field Conference Guidebook, 205 p.*

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*This is a section from the 1958 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.

### **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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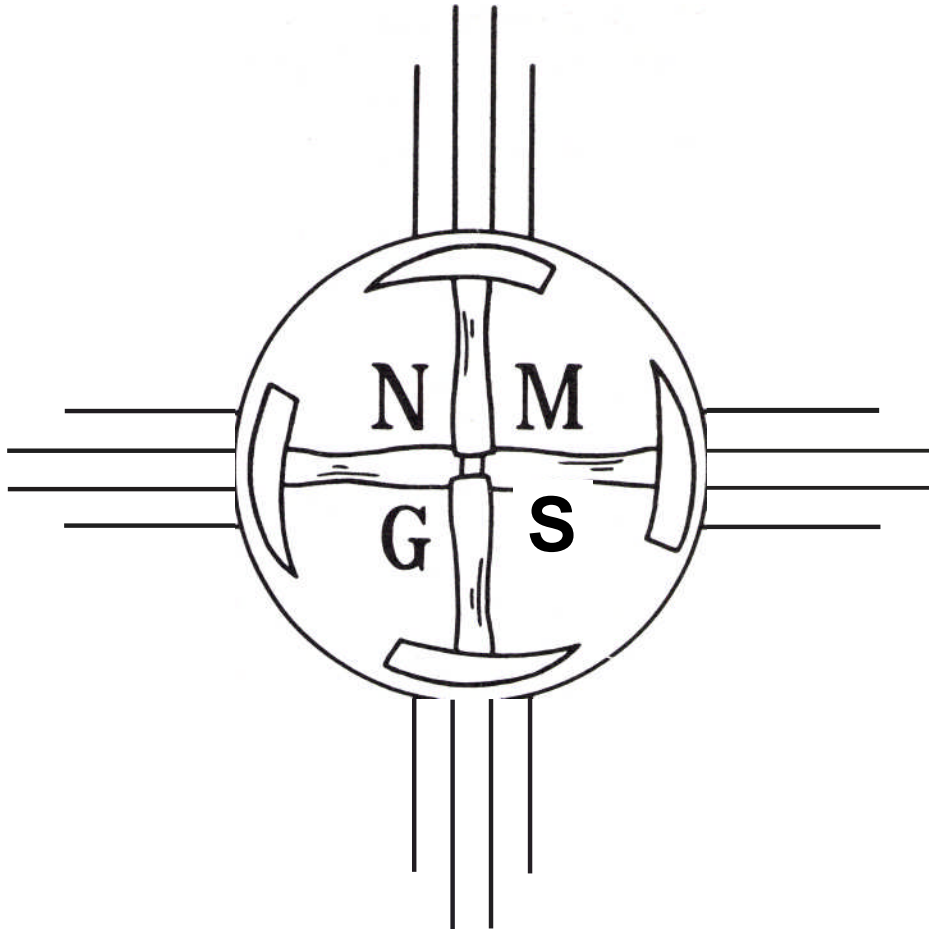
*This page is intentionally left blank to maintain order of facing pages.*



#### PUEBLO OF WALPI

In the summer of 1879, Mr. James Stevenson and his wife, in charge of field parties under Major Powell, visited many pueblos for the purpose of collecting implements, utensils, etc. This photograph was taken at that time.

# NEW MEXICO GEOLOGICAL SOCIETY



Guidebook

of the

## **BLACK MESA BASIN**

NORTHEASTERN ARIZONA

Prepared in cooperation with the  
ARIZONA GEOLOGICAL SOCIETY

Edited by

Roger Y. Anderson and John W. Harshbarger

## **NINTH FIELD CONFERENCE**

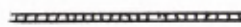
October 16, 17, and 18, 1958

UTAH  
ARIZONA

INDEX MAP  
LEGEND



Route 1<sup>st</sup> day



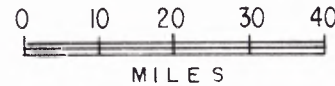
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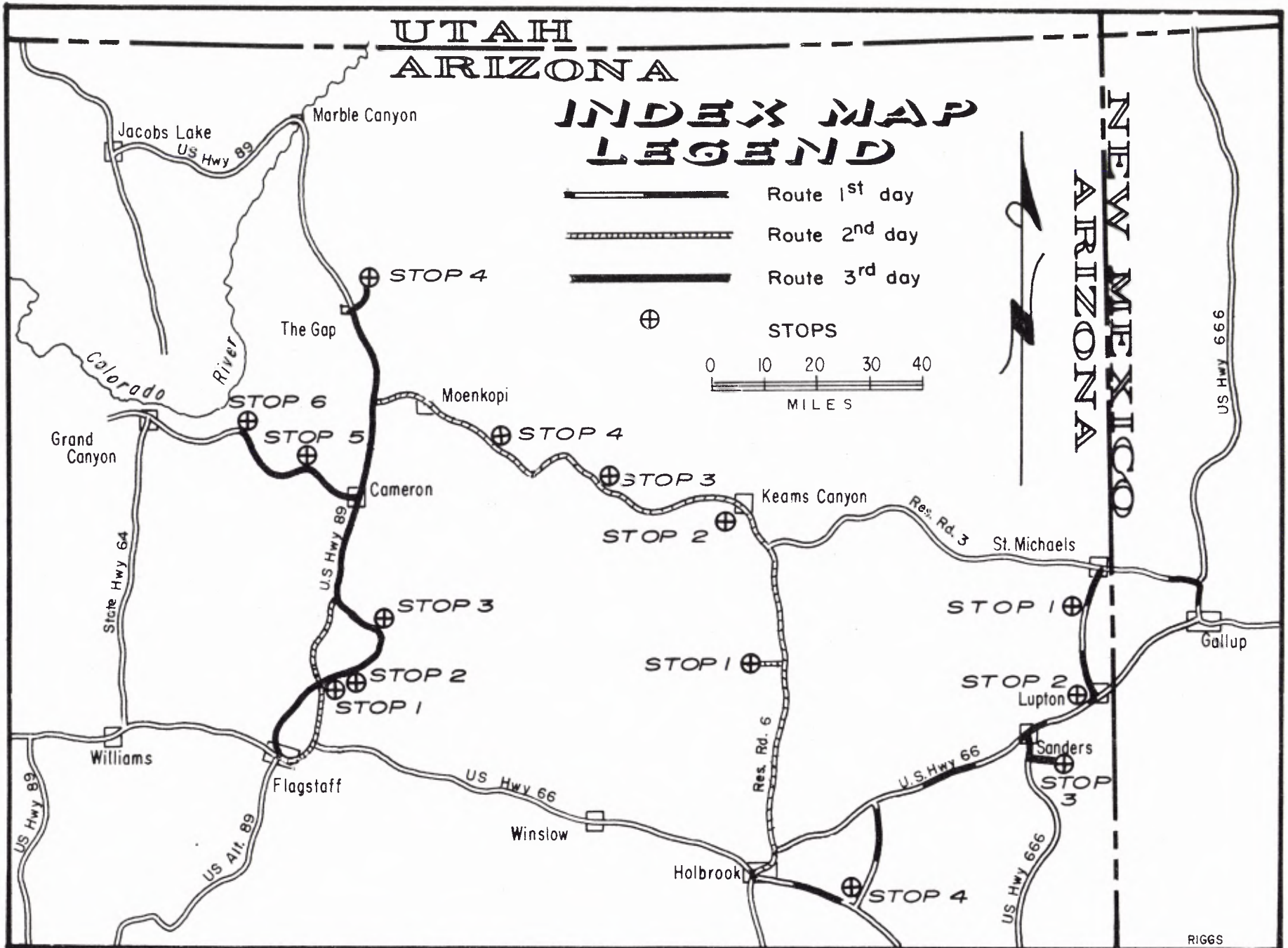
Route 3<sup>rd</sup> day



STOPS



NEW MEXICO  
ARIZONA





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## THE FIRST RESPONSIBILITY -

- - OF A PROFESSIONAL GROUP IS TO PROVIDE SUBSTANTIAL CONTRIBUTIONS TO ITS FIELD THAT WOULD NOT OTHERWISE MATERIALIZE. FURTHER, IT IS THE PERSONAL RESPONSIBILITY OF EACH MEMBER TO CONTRIBUTE A SHARE OF THE EFFORT REQUIRED BY PROJECTS SPONSORED BY HIS GROUP. ADDED ABILITY WITH WHICH TO SERVE HIS PARTICULAR ROLE, WHETHER IT BE THAT OF A CONSULTANT, A TEACHER, OR EMPLOYEE, IS HIS REWARD.

THIS NINTH ANNUAL FIELD CONFERENCE AND THE FOLLOWING PAGES COMPRISE A RECORD OF RESPONSE TO THESE OBLIGATIONS, AND PERPETUATE A FOREMOST PURPOSE OF THE NEW MEXICO GEOLOGICAL SOCIETY.

WHILE ENJOYING THE BROAD SCOPE OF THIS EXCURSION, CONSULT THE LIST OF COMMITTEE MEMBERS AND OFFER A GRATEFUL HAND TO THE DEDICATED INDIVIDUALS WHO HAVE GIVEN FREELY OF THEIR KNOWLEDGE AND TIME TOWARD THE PREPARATION OF THE CONFERENCE AND GUIDEBOOK.

DURING MANY MONTHS OF PLANNING, THE SPLENDID COOPERATIVE SPIRIT OF THE ARIZONA GEOLOGICAL SOCIETY DEMONSTRATES THE ADVANTAGES OF JOINT EFFORT IN BEHALF OF A COMMON PURPOSE. AN EFFECTIVE PATTERN FOR THE FUTURE IS SUGGESTED.

MEMBERS OF THE EXECUTIVE COMMITTEE JOIN TO WELCOME EACH OF YOU AND URGE YOU TO AVAIL YOURSELVES OF THE LASTING FELLOWSHIP AFFORDED BY OUR MUTUAL PROFESSIONAL INTERESTS. YOU ARE INVITED TO RETURN TO OUR TENTH ANNUAL FIELD CONFERENCE IN 1959.

WE OFFER ENTHUSIASTIC THANKS TO THOSE WHOSE CONTRIBUTIONS HAVE ASSURED THE SUCCESS OF THIS VENTURE. OUR GENERAL CHAIRMAN, RICHARD D. HOLT, HUMBLE OIL REFINING COMPANY, ROSWELL OFFICE, MERITS SPECIAL RECOGNITION. To HIM, I EXTEND MY PERSONAL AND SINCERE GRATITUDE.



REX ALCORN, PRESIDENT  
NEW MEXICO GEOLOGICAL SOCIETY



## ACKNOWLEDGMENTS

Primary acknowledgment is due the Arizona Geological Society, whose cooperation makes this conference possible. As a group, and as individuals, as committee members, editors, authors of individual papers, and solicitors of the works of their confreres, they have carried a major part of the preparation of the guidebook and of the field conference. They are showing us the hospitality of our neighbor State, as well as the intensely interesting geology of a very beautiful portion of it.

The New Mexico Geological Society is grateful to all the Conference Committee members, and to the individuals, organizations, companies, and advertisers whose cooperation with them have made the guidebook and the conference technically and physically possible. Special mention is due the United States Geological Survey for authors, editors, and committee men. Also the University of New Mexico, the University of Arizona, the New Mexico Bureau of Mines & Mineral Resources, the New Mexico Institute of Mining & Technology, the Atomic Energy Commission, several oil companies, and individual consultants, some identified in author or committee listings, but many sharing the effort unnamed.

The general chairman wishes to express his thanks and gratitude - and even awe and amazement - for the cheerful and enthusiastic manner in which all of these assignments and solicitations were accepted, and the keen and efficient manner in which they were carried out. Let the obvious appreciation of those in attendance at the conference, and of the many proud owners of the guidebook, be their fitting reward.

The Society wishes to thank the National Park Service for cooperation at Petrified Forest, Sunset Crater, Wupatki, and Grand Canyon. Grateful thanks are offered to the Northern Arizona Society of Science and Art and to Lowell Observatory for having the museum, the research center, and the observatory accessible to us during our stop in Flagstaff.

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## TENTH FIELD CONFERENCE

The Tenth Annual Field Conference and Guidebook will cover West-Central New Mexico.

**EXECUTIVE COMMITTEE OF THE NEW MEXICO GEOLOGICAL SOCIETY**

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### PUBLICATIONS OF THE NEW MEXICO GEOLOGICAL SOCIETY

1. Guidebook of the San Juan Basin, New Mexico and Colorado ; First Field Conference, 1950 ; edited by Vincent C. Kelley et al. ; 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 ; 126 pages, 51 illustrations. \$5.00
4. Guidebook of southwestern New Mexico ; Fourth Field Conference, 1953 ; edited by Frank E. Kottlowski et al. ; 156 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
7. Guidebook of southeastern Sangre de Cristo Mountains, New Mexico (Raton Basin) ; Seventh Field Conference, 1956; edited by A. Rosenzweig ; 154 pages, 61 illustrations. \$7.00
8. Guidebook of southwestern San Juan Mountains, Colorado (Four Corners Area) ; Eighth Field Conference, 1957; edited by Frank E. Kottlowski ; 258 pages, 109 illustrations. \$7.00

Available by mail (25 charge) from New Mexico Bureau of Mines and Mineral Resources, Socorro, N. M.; and over the counter at the Bureau of Mines, or at the Geology Department, University of New Mexico, Albuquerque, New Mexico.

### PUBLICATIONS OF THE ARIZONA GEOLOGICAL SOCIETY

Guidebook for field trip excursions in southern Arizona. Cordilleran Section, Geological Society of America, April 10-14, 1952, Tucson, Arizona. Price \$2.50.

Arizona Geological Society Digest No. 1, Short articles, abstracts, and reports of progress of geological activities in Arizona during 1957, multilithed, 8<sup>1</sup>/<sub>0</sub> x 11, price \$1.00.

Copies of the Guidebook and Digest may be obtained from the University of Arizona Mailing Bureau, Tucson.

# NEW MEXICO GEOLOGICAL SOCIETY CONSTITUTION

## ARTICLE I — Organization

**Section 1.** This organization shall be known as the New Mexico Geological Society, a non-profit scientific organization.

**Section 2.** The purpose of the Society shall be to promote the science of geology and related subjects, and to further the interests of the geological profession in New Mexico.

## ARTICLE II — Membership

**Section 1.** There shall be four types of membership in the New Mexico Geological Society; members, associate members, student members, and honorary members.

### Section 2.

(1) An active member shall be a geologist who is practicing or has practiced the profession.

(2) An associate member shall be a person interested in geology or related subjects.

(3) A student member shall be a geology major in an accredited college.

(4) An honorary member shall be any person who has made an outstanding contribution to the geology of New Mexico, or to the interests of the geological profession in New Mexico. Honorary members shall be elected for life by the Executive Committee. Only one honorary member may be elected in each calendar year.

**Section 3.** Any applicant for membership in this society shall submit an application, giving evidence thereon of his professional status. Payment of dues on a non-prorated basis shall accompany application.

**Section 4.** The Executive Committee of this organization may at its discretion revoke the membership of any individual or change his classification of membership.

## ARTICLE III — Dues

Dues for each calendar year shall be: members \$2.00; associate members \$2.00; student members \$1.00; honorary members, gratis. Dues shall be payable on January 1 of each year. Thirty days prior to January 1 the treasurer shall mail to each member a statement of dues for the coming year. A membership card shall be sent in lieu of a receipt.

## ARTICLE IV — Officers

The officers of the New Mexico Geological Society shall be a president, vice president, secretary, and treasurer.

**Section 1.** Only active members and honorary members shall hold office, and officers must reside in New Mexico.

**Section 2.** The term of office shall be one year, and the same person may not be president for two consecutive years.

**Section 3.** The Treasurer shall be bonded for \$10,000, the expense of said bonding to be borne by the Society. In the absence of the Treasurer, the President and Secretary may jointly sign checks.

**Section 4.** If the office of president be vacated for any reason, the Vice-President shall succeed to the office of president, and the Executive Committee shall then appoint a vice president from the membership to serve for the balance of the term. If any other office is vacated, the Executive Committee shall appoint a member to fill that office for the balance of the term.

## ARTICLE V — Elections

**Section 1.** Candidates for the elected offices in the New Mexico Geological Society shall be selected by a nominating committee of five members appointed each year by the Executive Committee. The nominating committee shall select at least two nominees for each office. Nominations shall be submitted to the secretary.

**Section 2.** All types of members herein above defined are entitled to vote. Voting shall be by secret ballot, which shall be mailed to the members in good standing by the secretary on February 1 of each year. The ballot, besides providing the names of two or more candidates for each office, shall contain a blank space to be used for write-in candidates. All ballots must be returned to the secretary before March 1. The ballots shall be counted by the secretary and a committee of three members appointed by the Executive Committee.

**Section 3.** Newly elected officers shall be installed at the end of the business session, or during the banquet, at the annual meeting.

## ARTICLE VI — Executive Committee

There shall be an Executive Committee composed of the officers of the Society, plus the past president. The Executive Committee shall meet at least once a year, said meeting to take place on a day immediately preceding the day of the annual meeting. The Executive Committee may hold meetings at any other time on the call of the president.

If the past president be unavailable to serve as a member of the Executive Committee, the president shall fill the vacancy by appointment of the next available past president.

## ARTICLE VII — Annual Meetings

**Section 1.** The New Mexico Geological Society shall meet at least one time per calendar year during April or May, at a place chosen by the Executive Committee. The primary purpose of this meeting shall be the presentation of papers concerning the geology of New Mexico. Included in said meeting shall be a short business meeting consisting of reports by the secretary and by the treasurer, plus any new business.

**Section 2.** A small registration fee may be charged for the annual meeting.

**Section 3.** Students of geology shall be admitted to the annual meeting free of charge.

**Section 4.** Additional meetings or field trips may be held on call of the Executive Committee.

## ARTICLE VIII — Amendments

Amendments to the constitution may be proposed by the Executive Committee, by a constitutional committee appointed by the president, or upon petition of any ten members. The proposed amendment must be discussed at the business session of the annual meeting, and its form approved by an attorney before it is submitted to a vote. Voting shall be by mailed secret ballot, and a majority vote of the total number of members shall be required to amend.



## SCHEDULE

### **Wednesday, October 15**

3:00 -5:00 p.m.

7:00 - 9:00 p.m. Registration at the El Rancho Hotel, Gallup, New Mexico.

### **Thursday, October 16 Gallup, New Mexico to Holbrook, Arizona.**

7:30 a.m. Caravan assembles at north edge of Gallup on right side of U. S. Highway 666 (in a vacant lot on the north side of the Gallup Oil Company grounds). Caravan departs at 8:00 a.m.

### **Friday, October 17 Holbrook, Arizona to Flagstaff, Arizona.**

7:00 a.m. Caravan assembles at the Teepee Curio Shop on U. S. Highway 66, 2 miles west of town. Caravan departs at 7:30 a.m.

### **Saturday, October 18 Flagstaff, Arizona to Grand Canyon (Desert View).**

7:00 a.m. Caravan assembles at the Museum of Northern Arizona along the northeast side of Fort Valley Road near the entrance to the museum. Caravan departs at 7:30 a.m.

2:00 p.m. Field conference ends. Participants in the trip down the Kaibab Trail proceed to Yaki Point via the exit road log for the Grand Canyon rim drives.