

# CONTENTS

## GENERAL

President's Message . . . . .	vi
Editor's Message . . . . .	vi
Publications List . . . . .	vii
Advertisers' Index . . . . .	vii

## TECHNICAL PAPERS

The Permian System . . . . .	<i>D. L. Baars</i>	1
Permo-Pennsylvanian Climatic Trends in the Ancestral Rocky Mountains . . . . .	<i>Greg H. Mack, Lee J. Suttner and James R. Jennings</i>	7
Lower Permian Depositional System, Northern Uncompahgre Basin . . . . .	<i>John A. Campbell</i>	13
Uranium in the Cutler Formation Lisbon Valley, Utah . . . . .	<i>John A. Campbell and Brenda A. Steele-Mallory</i>	23
Littoral Marine Depositional Model for the Cedar Mesa Sandstone (Permian), Canyonlands National Park, Utah. . . . .	<i>Greg H. Mack</i>	33
The Occurrence of Ground Water in the Canyonlands Area of Utah, with Emphasis on Water in the Permian Section . . . . .	<i>Peter W. Huntoon</i>	39
Breccia Pipes in the Vicinity of Lockhart Basin, Canyonlands Area, Utah . . . . .	<i>Peter W. Huntoon and Henry R. Richter</i>	47
White Belly Wash Field—An Organ Rock Gas Field . . . . .	<i>Harold H. Brown</i>	55
Permian Rocks of the San Juan Basin . . . . .	<i>D. L. Baars and G. M. Stevenson</i>	59
The Esplanade Sandstone of Grand Canyon . . . . .	<i>Edwin D. McKee</i>	67
Regional Correlation of the Esplanade Sandstone, West-Central Arizona . . . . .	<i>Charles L. Lane</i>	81
Marine-Carbonate, Sabkha, and Eolian Facies Transitions within the Permian Toroweap Formation, Northern Arizona . . . . .	<i>Richard R. Rawson and Christine E. Turner-Peterson</i>	87
Facies of the Hurricane Cliffs Tongue of the Toroweap Formation, Northwestern Arizona . . . . .	<i>Robert M. Altany</i>	101
Facies Analysis of the Kaibab Formation in Northern Arizona, Southern Utah and Southern Nevada . . . . .	<i>Craig W. Cheevers and Richard R. Rawson</i>	105
Lower Permian Stratigraphy of the Southern Colorado Plateau. . . . .	<i>Ronald C. Blakey</i>	115
Pennsylvanian-Permian Stratigraphy of the Sedona Area and Environs, Central and Northern Arizona . . . . .	<i>Donald P. Elston and William D. DiPaolo</i>	131
Regional Stratigraphic Relationships of the Permian "Kaibab" or Black Box Dolomite of the Emery High, Central Utah . . . . .	<i>John E. Welsh, William Lee Stokes, and Bruce R. Wardlaw</i>	143

## ROAD LOGS

FIRST DAY: Moab, Utah Eastward to Onion Creek, Castle Valley, and Westward to Dead Horse Point, Shafer Trail, Shafer Dome, Cane Creek Anticline and Return to Moab . . . . .	<i>C. M. Molenaar, D. L. Baars, and J. A. Campbell</i>	151
SECOND DAY: Moab, Utah to Kayenta via Lisbon Valley, the Needles District, and Monument Valley. . . . .	<i>D. L. Baars and J. A. Campbell</i>	157
THIRD DAY: Kayenta to Flagstaff (via Page), Arizona . . . . .	<i>Richard R. Rawson and Ronald C. Blakey</i>	167
FOURTH DAY: Sedona Area, Arizona . . . . .	<i>Ronald C. Blakey</i>	177



## COMMITTEES

### 1979-1980 EXECUTIVE COMMITTEE

President	Richard A. Sturm	El Paso Natural Gas Company
Vice-President	Fred M. Johnson	Consultant
Secretary	R. Tucker Attebery	Consultant
Treasurer	Billy F. Latch	Consultant
Editor	Donald L. Baars	Ft. Lewis College
Past President	Jack A. Ellingson	Ft. Lewis College

### FIELD SYMPOSIUM COMMITTEE

Co-Chairman	Donald L. Baars	Ft. Lewis College
Co-Chairman	Ronald C. Blakey	Northern Arizona University
Advertising Chairman	Connie M. Krivanek	Wexpro
Assistant	Alvina Candelaria	Wexpro
Registration Chairman	James M. Hornbeck	El Paso Natural Gas Company
Guidebook Editor	Donald L. Baars	Ft. Lewis College
Caravan	Robert W. Blair, Jr.	Ft. Lewis College
Road Logging and Trip Leaders	D. L. Baars	Ft. Lewis College
	R. C. Blakey	Northern Arizona University
	J. C. Campbell	U.S. Geological Survey
	R. R. Rawson	Northern Arizona University
Cover Design	Dan Stouffer, Jr.	University of New Mexico Press