Stanton, Robert James, Jr., Houston, Tex.
(Raymond C. Murray, Andrew Lee Diehl, Robert H. Norton)
Swayne, Lawrence Edwin, Calgary, Alta., Canada
(Don B. Gould, Albert S. Depetris, Lewis T. Braun)
Thomas, Patrick Powers, Midland, Tex.
(Eugene Greenwood, Forrest F. Spry, Menhart L. Feldman, Jr.)
Volz, Edward Richard, Farmington, N. Mex.
(William R. Speer, David M. Thomas, Jr. Marvin L. Matheny)
Webernick, Nelson E., Midland, Tex.
(Calvin S. Smith, Dexter H. Craig, Walter Wayne Roye)
Weist, William G., Jr., Arvada, Colo.
(Stanley W. Lohman, Thad G. McLaughlin, John R. Donnell)
Williams, Floyd Elmer, Albuquerque, N. Mex.
(Chester M. Garrett, Warren A. Bald, Henry W. DeJong)
Witherspoon, Paul Adams, Jr., Berkeley, Calif.
(Parker D. Trask, Alfred H. Bell, Ralph E. Grim)
Yelken, Jack Herbert, Bartlesville, Okla.
(William H. Courtier, Perry M. McNally, Alma J. Hintze)
Zuniga y Rivero, Fernando, Talara, Peru, S. A.
(William E. Denton, Russell B. Travis, Lawrence Weiss)

AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS
46th Annual Meeting

SOCIETY OF ECONOMIC PALEONTOLOGISTS AND MINERALOGISTS
35th Annual Meeting

ROCKY MOUNTAIN SECTION, A.A.P.G.
11th Annual Meeting

Denver, Colorado April 24–27, 1961

Host Society: ROCKY MOUNTAIN ASSOCIATION OF GEOLOGISTS
General Chairman: Laurence Brundall
General Vice-Chairman and President, RMAG: H. H. R. Sharkey
Vice-Chairman for SEPM: R. Dana Russell

TECHNICAL PROGRAM
A.A.P.G.–R.M.S.

Monday Afternoon, April 24

RESEARCH COMMITTEE SYMPOSIUM

Presiding: JOHN E. KILKENNY, FREDERICK L. STEAD

Introductory Comments: DANIEL A. BUSCH

1. Automatic Data Processing in Geology: W. C. KRUMBEIN, Northwestern University, Evanston, Illinois

Geologists depend increasingly on numerical data to supplement the core of qualitative observations on which the science rests. In subsurface studies especially, the amount of data available on structure, thickness, and composition of stratigraphic units is accumulating at rates beyond the ability of geologists to absorb its full implications. In academic aspects as well, numerical data in sedimentary petrology, paleontology, geochemistry, and virtually all branches of the science are rapidly assuming gigantic proportions. The profession is faced with the need for data storage, retrieval, and processing on a scale unthought of a few decades ago.

Data are stored on punched cards or tape. Retrieval is accomplished by automatic sorting and listing equipment, including devices for plotting data directly on base maps. Data processing may range from simple summaries to more elaborate statistical and mathematical analysis. A wide range of equipment is available for these functions, culminating in present ultra-high-speed digital computers.

The high-speed computer has opened new doors for the extraction of maximum information from geological observations. Studies of interrelationships among rock properties, faunal groups, mappable data, and a host of other kinds of analyses are possible, and are being used increasingly by geologists. An example of trend surface analysis of maps is presented as an illustration. The general problem of setting up "program libraries" for use by geologists, as well as "data centers" for storage, is touched upon.

2. Palynology and Petroleum Exploration: JOHN F. GRAYSON, Field Research Laboratory, Socony Mobil Oil Company

During the past decade, the relatively new science of palynology has generated considerable interest in the field of petroleum exploration. Many geologists have not yet become familiar with palynology and its great potential in stratigraphic, paleogeographic, paleoecologic, and paleoclimatologic studies. After a brief sketch of the development of palynology and the amount of activity in this field at present, some of the basic principles are presented and examined in detail. During the examination of these principles, their potential value to the field of geology is illustrated. Among the important problems facing exploration geologists are the following: (1) age dating of sediments, (2) correlation of contemporaneously deposited sediments, and (3) depositional environment of sediments. Palynology can give valuable data in all three of these areas. Emphasis is placed on some of the recent correlations established on the basis of palynological work as well as some of the recent findings concerning age determinations. In view of the fact that palynology is such a young field, some of the problems confronting palynologists are discussed as well as certain areas of this field that are relatively unexplored.

3. The Geochemistry of Petroleum Migration and Accumulation: BARTHOLOMEW NAGY, Fordham University, New York, N. Y.

Small quantities of a large variety of organic compounds enter the Recent marine sediments before burial. Petroleum, the only major organic and fluid substance in the consolidated rocks, however, contains mainly