Name and Address	Area
Paul L. Lyons Sinclair Oil and Gas Company Tulsa, Oklahoma	Nebraska, Kansas, Colorado, east of Rocky Mountain Front, Oklahoma, Missouri, and Arkansas, exclusive of Coastal Plain area
Grover E. Murray Department of Geology Louisiana State University Baton Rouge, Louisiana	Coastal Plain of Texas and Louisiana
Paul L. Applin U. S. Geological Survey 1202½ North State Street Jackson 2, Mississippi	Upper part of Mississippi Embayment, Gulf and Atlantic Coastal Plains
Philip B. King Department of Geology University of California Los Angeles, California	Appalachian province and adjoining regions
Alfred H. Bell Illinois Geological Survey Urbana, Illinois	Mid-Continent states including Minnesota, Wisconsin, Iowa, Illinois, Indiana, Ohio, and Michigan
Marland P. Billings Department of Geology Harvard University Cambridge 38, Massachusetts	New England states and New York state
Chester R. Longwell Department of Geology Leland Stanford University Palo Alto, California	Liaison

Because the problem of accumulation of data will vary in different areas, the committee members, who will have full responsibility in their individual areas for the data to be compiled for the map, may find it necessary in some parts of their areas to obtain assistance from a number of sources such as affiliated geological societies and individuals, and also some may find it necessary to appoint subcommittees. Each committee member should feel free to enlist the aid of the A.A.P.G. Research Committee and local geological societies to facilitate his work. The revised map will be a joint project with the U. S. Geological Survey.

The first meeting of the committee will be held in conjunction with the annual meeting of the Association at Chicago, Illinois, at which time plans for the accumulation and compilation of the data will be formulated.

ROCKY MOUNTAIN SECTION MEETING, DENVER FEBRUARY 27–29, 1956

ABSTRACTS

1. D. L. Blackstone, Jr., University of Wyoming, Laramie
Introduction to Tectonics of Rocky Mountains

The Rocky Mountain system extends from the Liard River, B. C., to Santa Fe, New Mexico, and is the dominant geological feature within the seven-state Rocky Mountain section. Five tectonic divisions based on the present structural position of the Precambrian crystalline basement exist within the system and the adjacent eastern area. The divisions are: Canadian shield; thinly covered shield; area of locally exposed basement; area of deeply buried basement; and the area where the basement is no longer recognizable.

Precambrian rocks exposed over large areas of Canada collectively form the Canadian shield. The exposed basement is bounded in Alberta and Saskatchewan by overlying sediments. The surface upon which the overlying sedimentary rocks were deposited is warped into a major syncline the steeper limb of which lies in or near the disturbed belt of Alberta and Montana and along the Rocky Mountain front. In this syncline the basement is covered by a relatively thin veneer of sediments except for local areas such as the Williston basin. Petroleum accumulation in the area of thin sedimentary cover is controlled more by stratigraphic than by structural factors.

The area of local exposure of the Precambrian basement includes the Southern Rockies, the Wyoming basin, and part of the Middle Rocky Mountain province. Prior to deformation the basement was thinly covered by sediments. Anticlinal mountain ranges and deep local intermontane basins characterize the region. The site of deformation was localized by the Pennsylvanian structural history. Petroleum accumulation is largely controlled by geologic structure.

The Precambrian basement was deeply depressed beneath the troughs existent in central Utah, western Wyoming, eastern Idaho, western Alberta, and eastern British Columbia during late Precambrian and early Paleozoic time. Deformation of the troughs created the overthrust belt characterized by repetition of the sedimentary sequence in overthrust fault plates. Absence of Precambrian basement rocks in the thrust plates suggests that faulting is localized in the sedimentary sequence. Accumulations of petroleum have been negligible in this division.

The Precambrian basement complex is no longer recognizable in the areas of batholithic intrusion in Idaho, Montana, and British Columbia. The development of granite and granite gneiss in the Idaho batholith, age 100 MY, modified the pre-existing rocks, and substituted a new floor for subsequent geologic history.

Lineaments of primary significance are superimposed across the tectonic divisions. The lineaments have complex geologic histories in which transverse movement was probably important. The prominent lineaments are: Rocky Mountain trench, Montana lineament, Wyoming lineament, and the Walker lineament, all of which separate regions of differing geology.

Volcanically derived materials of Cenozoic age are widely spread across the Rocky Mountain system, and reflect igneous activity of great magnitude. Extensive tectonic adjustment took place by means of normal and reverse faulting both during and subsequent to the deposition of the volcanic products. The extent and magnitude of the late Cenozoic faulting are as yet incompletely understood. Critical discrimination should be made between fault systems of different ages.

2. L. A. WARNER, University of Colorado, Boulder
Tectonics of Colorado Front Range

The Colorado Front Range is the largest structural and topographic element in the eastern Rocky Mountains. Its axis parallels the northerly trend of the mountain front through central Colorado. Two additional trends are recognized in the Colorado Rockies. A northwesterly zone of uplifts extends from the Apishapa arch to the Uinta Mountains. A similar, but more vaguely expressed, northeasterly zone localizes a belt of Laramide igneous intrusives. These regional trends constitute the tectonic framework within which the Front Range evolved.

Fragmentary data on the structure of the basement complex suggest a probable relation between Precambrian and later structures. Paleozoic and Mesozoic crustal movements and sedimentation accentuated and modified Precambrian structural trends. In general the sedimentary cover was relatively thin, but locally thicknesses exceed 15,000 feet. Certain positive elements may have persisted from ancestral Rocky Mountain time into the Cretaceous.

Associated with the northeast-trending belt of Laramide intrusives in the central part of the Front Range are northeast- and northwest-trending steep faults that appear to form a conjugate system of shears. Recurrent movements along these faults were complex and displacements noted along the margins of the range are in places opposite to those observed in the crystalline core. Along the northeast flank of the range, the northwesterly faults cut the sedimentary rocks and produce *en échelon* folds.

Except along the northeast flank, the Front Range is bounded by reverse faults and thrusts that dip toward the mountains. The range was wedged upward along these faults, and adjacent sedimentary basins were depressed during Laramide time. Thrusting was most prominent adjacent to and within those areas which had received the greatest thicknesses of pre-Laramide sediments.

3. GENE L. SHAW, American Stratigraphic Company, Denver
Tectonic History of Raton Basin with Special Reference to Late Paleozoic

During early Pennsylvanian time the ancient Apishapa Sierra Grande, a linear mildly positive element trending 45° W. of the present strike of the Sierra Grande uplift, extended across the Raton basin and connected with the strongly positive Front Range element. Seas surrounded the ancient Apishapa Sierra Grande except on the extreme northwest where it connected with the old Front