EVENING MEETING—JANUARY 11, 1982

LEONARD D. HARRIS—Biographical Sketch

After graduation from the University of Missouri in 1950, Len joined the U.S. Geological Survey. During his career with the Survey he has published over 75 reports many of which were concerned with fundamental aspects, such as regional structure, stratigraphy, sedimentology, paleogeography, paleohydrology, and hydrocarbon potential of the Appalachian Basin, and the Eastern Overthrust Belt, in particular. He is a member of the American Association of Petroleum Geologists, Society of Economic Paleontologists and Mineralogists, and Fellow of the Geological Society of America. Just recently he was granted the Department of Interior's Meritorious Service Award for his achievements as a research scientist. As the Structural Traps Program Manager for the Survey's Oil and Gas Branch, he initiated a geologic and geophysical investigation to evaluate the concept that crystalline rocks of the Blue Ridge and Piedmont have moved westward above a great overthrust burying a large section of Paleozoic rocks with possible hydrocarbon potential.

THE APPALACHIAN BLUE RIDGE - A FRONTIER PROVINCE

Seismic-reflection studies in the southern Appalachians have established that the basic geologic framework of the Appalachian orogen consists of a low-angle megathrust-fault system, stretching from the Appalachian Plateaus to the Continental Shelf. In this system, igneous and metamorphic rocks of the Blue Ridge and Piedmont have been thrust westward, burying a large segment of the sedimentary rocks of the Valley and Ridge. Thus, the Blue Ridge, and perhaps a small part of the Piedmont, forms an unusual frontier province, in which the entire surface is composed of rocks commonly referred to as "basement" by petroleum geologists and the subsurface composed of sedimentary rock having unknown hydrocarbon potential. Our current studies indicate that within the Appalachian orogen, regional thermal patterns, which have a direct bearing on the maturity levels of organic matter in sedimentary rocks, existed prior to thrusting. Westward movement of thrust sheets disrupted and telescoped that pattern by placing thermally more mature eastern rocks over less mature western rocks. Palinspastic reconstruction of the original thermal pattern emphasizes that more than 10,000 feet of Lower Paleozoic rocks with possible commercial gas potential, extend eastward for about 50 miles in the subsurface beneath the Blue Ridge in the southern Appalachians.