basal Permian may range up to 15,000 feet in the Zechstein basin, to 14,000 feet in the British basin, and to 12,000 feet in the Norwegian basin.

Cyclic development of the Zechstein evaporite basin of northwestern Europe is reflected in the Upper Permian stratigraphy of northeastern and eastern Netherlands where the four classic cyclothems are more or less completely developed.

Rhenish direction prevailed during deposition of the first cyclothem, while during the last cycle, the basin rim followed the hercynic trend.

Principal natural gas producing beds in The Netherlands are the dolomites of Zechstein or Upper Permian age.

▲ ▲ ▲

February 8, 1965

W. A. BECKMAN, JR.[1] and L. L. SLOSS[2]

"Possible Pre-Springeran Unconformity in Southern Oklahoma"[3]

Since the relationships among post-Devonian, pre-Morrowan units (Woodford, Sycamore, Caney, Goddard and Springer) in southern Oklahoma are apparently of a conformable nature, previous reports on this complex area have attributed any interruption of the normal succession of these strata to faulting. In the Madill-Aylesworth area of Marshall and Bryan Counties, Oklahoma, the writers find a systematic pattern at the base of the Goddard Shale such as would be formed by deep erosion of a pre-Springerian anticline. Thick sections of Goddard are found in off-structure positions and in a belt presumed to occupy a deep valley along the axis of the old anticline. Detailed cross sections and reconstructions to an early Pennsylvanian datum indicate an axial valley over 2500 feet deep (cut largely in Simpson and Arbuckle) between strike ridges formed by the limbs of the anticline. Confirmation of this interpretation is seen in the localization of sand accumulation over presumed topographic highs on the buried erosion surface. Possible relationship between the postulated erosional episode and the boulder beds of the Johns Valley Shale (Ouachita province) is suggested.

1. Evanston Exploration Corporation, Evanston Illinois
2. Northwestern University, Evanston, Illinois.
3. Manuscript received August 5, 1965. Modified from a paper presented before the Mid-Continent Regional Meeting, American Association of Petroleum Geologists, Oklahoma City, November 1963; and before the Tulsa Geological Society, February 8, 1965.

February 15, 1965

ALLEN M. FEDER, Texas Instruments, Dallas

"Airborne Multisensing for Reconnaissance and Production"

Technical and economic factors have led to acceptance and use of photogeology as an important tool for preliminary reconnaissance and certain detail work. Photogeology remained for many years completely dependent upon capabilities of visible spectrum sensor systems composed of various camera, film and filter combinations. However, restricting data collection to visible spectrum wavelengths (0.4 to 0.76 microns) was not mandatory. Development and application of film and filters sensitive to near infrared energy, out to 1.35 microns, proved valuable additional information was available, when properly sought.

Near infrared sensing having proved useful, it is obvious that even more valuable geologic information should be available through data collection in the many other decades of wavelengths of the electromagnetic spectrum.

Equipment more advanced than the classical aerial camera is required for this. Such equipmentf particularly for infrared and radar imaging devices, was developed and has been used successfully in contract operations for nearly two years. Images collected by these advanced sensors are presented and include examples of sub-surface and sub-vegetation geologic structure, ground water patterns, geothermal deposits, stream and current thermal and sediment transport patterns and buried pipelines. This imagery, while significant for reconnaissance, is indicative of the value of advanced multisensing for production problems such as thermal flooding and pipeline maintenance.

A special capability of these advanced sensors is their high mobility and near independence from time-of-day and meteorological conditions.

▲ ▲ ▲

February 22, 1965

H. M. THRALLS, Geo Prospectors, Inc., Tulsa

"Geology, Geophysics, and Their Common Ground"

During the past ten to fifteen years many subjects for papers and topics for symposiums have hinged about pleas for closer cooperation between geologists and geo-