mer field school of forestry and geology at Alvon, the young college students and the oldsters, too, had the down-to-earth satisfaction of standing under the rock roof of a picture-book anticline, a sharp fold in the Williamsport (Silurian) sandstone. This is the Beaver Lick Mountain-Brown's Mountain anticline.

The last field stop of this scenic excursion—at Hawks Nest State Park—afforded a panorama of the horseshoe gorge of the New River from a look-out ledge of upper Nuttall sandstone (Pottsville series of the Pennsylvanian), 600 feet above the stream. As the party returned to Charleston, near the end of the 400-mile excursion, the group in each bus voiced by intercom radio to chairman Maxwell in bus No. 1, and his praiseworthy committees, unanimous gratitude for a thoroughly pleasant experience.

The field trip permitted surface examination of most of the producing zones of the Appalachian area: Big Lime, Injun, Weir, Berea, Shale, Oriskany, Clinton, and others; also many interesting features of the Pennsylvanian, Mississippian, Devonian, Silurian, Ordovician, and Cambrian.

Following are the officers of the Appalachian Geological Society at the time of the meeting: president, W. B. MAXWELL, chief geologist, United Fuel Gas Company; vice-president, JOHN GALPIN, of V. C. Smith Management; associate vice-president, H. P. MCJUNKIN, McJunkin Supply Company; secretary-treasurer, W. T. ZIEBOLD, Spartan Gas Company; editor, F. SIEGEL WORKMAN, JR., Acme Engineering Services.

CONVENTION COMMITTEES

General.—Society officers

Registration.—F. S. Workman, Jr., W. T. Ziebold, C. G. Krebs, J. H. Kime, R. N. Thomas, H. J. Wagner

Technical Program.—H. J. Simmons, Jr., R. D. Rogers, Jr., Paul H. Price, Frank Fisher, F. H. Finn, E. B. Curry, Cramon Stanton

Exhibits and Meeting Room Arrangements.—G. H. Hall, R. T. Wolfe, Jr., R. L. Bird, Jr., D. W. Marden, R. C. Lafferty, J. A. Crumley, A. H. McClain

Entertainment.—J. G. Vandergrift, G. L. Ballentine, C. E. Stout, Mike Henderson, S. A. Hawkins, Jr., H. C. Mefford, Jr., R. H. Adkins, P. C. Craig

Field Trip.—R. H. Wilpolt, Paul H. Price, J. L. Hutchinson, J. C. Ludlum, C. E. Hare, H. P. Woodward

ABSTRACTS

1. "The Origin of Red Beds," by PAUL D. KRYNINE, Pennsylvania State College, State College, Pennsylvania.

Introduction.—Red-colored sediments have always attracted the attention of geologists. A venerable opinion of long standing connects red beds with aridity, thus investing them with an important paleoclimatic significance. Red beds are rather extensive, forming, for instance, close to 15 per cent of the Paleozoic section in the Appalachian region. The red-bed problem has been extremely controversial, with marked differences of opinion, possibly due to the fact that the term "red bed" is a catch-all for many sedimentary types produced under different conditions, the only common feature of them being the red color.

Conclusions.—Most detrital red beds are formed under warm and moist climatic conditions, possibly in tropical savanna-type climates. There is no connection between red color and aridity, the contrary being true. Tectonically red beds are connected mostly with positive movements and frequently are related to strong orogenesis and subsequent peneplanation.

2. "Oil Prospects of Australia," by FRANK REEVES, Oil and Gas Division, Department of the Interior, Washington, D. C.

Australia does not have a single commercial oil field. Four or five thousand barrels have been produced from shallow wells in the Gippsland basin on the south coast since 1924 and about 30,000 gallons of gasoline were obtained from a gas well at Roma, Queensland, in the late twenties.

The reason why Australia has no commercial oil field and is likely never to be an important oil-producing country may be attributed to the fact that it is a very old continent and most of its surface is occupied by ancient rocks which nowhere yield oil. There are several sedimentary basins but with one or two exceptions they contain only a few thousand feet of strata and in most instances half of these are nonmarine in origin. Marine Tertiary formations which yield the greater percentage of the world's oil are limited to narrow belts on the south and southwest coasts.

The only basin with a fair thickness of marine strata is the Northwest basin north of Perth. It is

being explored at present by an American-Australian syndicate, which will shortly put down a test well. Shell is starting a deep test north of Roma where some gas and shows of oil have been obtained in Triassic and Permian strata by several companies during the past 30 years.

The writer has spent four years in exploratory work in Australia, during which he investigated seven of the major sedimentary basins. Ground work in the more remote basins was preceded by air reconnaissance to outline basin boundaries, discover geological features requiring detailed investigation on the ground, and to locate water holes and feasible routes of travel. Most ground work was done by small parties traveling with pack horses and at times furnished with supplies dropped by parachute from a plane.

3. "Gas Production, Reserves, and the Importance of Gas Storage in the Appalachian Area," by R. DOUGLAS ROGERS, JR., South Penn Natural Gas Company, Parkersburg, West Virginia.

This paper summarizes by tables of statistics and graphs the current trends of the natural-gas industry in the Appalachian region. It is shown that despite a vigorous drilling program a pronounced production decline has set in. Proved reserves, while not shrinking rapidly, also exhibit a generally downward trend despite sizable additions to storage facilities. Contrasting strongly are gas sales which have mounted swiftly and promise to continue their climb. To bridge the widening gap between local supply and demand, imports of western gas have been brought into the area in growing quantities. To solve the intensified distribution problems, gas storage is being resorted to with constantly increasing frequency and at great cost.

4. "Progress Report on the Search for Early Devonian Gas in Northern West Virginia, with Comments on Pre-Devonian Oil Prospects," by FRANK REEVES, consulting geologist, Washington, D. C., formerly cooperating geologist, West Virginia Geological Survey, and PAUL H. PRICE, State geologist, Morgantown, West Virginia.

Since the discovery of gas in the Oriskany sand in north-central Pennsylvania in 1930, nineteen deep wells have been drilled to the Oriskany on seven major folds 30–40 miles southeast of the old oil and gas fields in northern West Virginia. This exploratory drilling has resulted in the discovery of two gas fields known as the Terra Alta and Canaan Valley fields situated respectively 25 and 50 miles south of the Summit field in Fayette County, Pennsylvania. The Terra Alta field has eight gas wells and the Canaan Valley field three gas wells. The extent of neither field has been fully defined.

Gas is produced from the Huntersville chert and the underlying Oriskany sand, which are encountered at depths ranging from 5,000 to 8,150 feet. Yields vary from ½ million to 4 million cubic feet daily per well. Small flows of gas also have been obtained in the Benson and Speechley sands and Helderberg limestone in two or three wells. Shows of oil have not been reported. The gas obtained in the two fields contains 97 per cent methane and 1 per cent ethane. It is consequently unlikely that oil will be found in the Devonian formations. However, there are 10,000 feet or more of older Paleozoic rocks beneath the Devonian which are oil-bearing in marginal parts of the Appalachian basin. Only three of the nineteen deep wells drilled in the region have reached the base of the Silurian. Older Paleozoic formations have not been penetrated.

It is believed that no factual or theoretical data can be presented to disprove the possibility that oil may be present in pre-Devonian formations in some of the major folds of the region where fracturing and solution weathering may have developed secondary porosity. It is possible that the hydrocarbon content of the entire pre-Trenton Paleozoic section may have migrated along fissures to the Trenton and be held there by the impermeable cover of Upper Ordovician shale.

5. "Appalachian Stratigraphic Nomenclature," by HERBERT P. WOODWARD, Newark College, Rutgers University, Newark, New Jersey.

During more than 100 years of geologic study, different names in vast number have been applied to the rock formations of the Appalachian region. Some early terms are still in good usage; others have been replaced by more appropriate substitutes; still others have lost value because the formation to which they were once applied has been separated into smaller divisions. Refinements in methods of rock study and correlation, more careful field and laboratory work, and more specific fossil identification have all made possible—indeed, made necessary—an increasingly greater refinement in the nomenclature of Appalachian rock formations. Of course the same remarks can be made for any other geologic province, but the special concern of this paper is with the Appalachian country where, it is probable, more than 2,000 formational names have been applied to different parts of its rock column.

The following points summarize the recommendations of this paper.

1. Do not continue to use obsolete stratigraphic names unless you place them in quotation marks and avoid such names wherever possible.
2. Do not mix time and rock names; that is, do not say "Clinton sand" when you mean "a sand of Clinton age."
3. Do not use drillers' names if there is an available stratigraphic name, and if you must refer to drillers' terms, put them in quotation marks.