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.

4. Do not confuse identification, correlation, and postulation. In every instance explain in your reports exactly which process you are employing and why.
5. Do not coin new names until you are convinced it will not be superfluous.
6. Pay more attention to whatever rock terminology you use. Find out who used each rock name first and where and why. Every good stratigraphic report—even the company report—should contain some comment on the origin and use of the names it employs; and every good stratigrapher should have concern for the correct application of even the most familiar or rock names. Some of the best known and most commonly used proper names are still confusing, erroneous, or misleading.

6. "Application of Electric Logging Methods to Gas Storage Pools," by CHARLES DOH, Schlumberger Well Surveying Corporation, Mattoon, Illinois.

The storage of gas in the Appalachian area is of vital importance to the industry and to the large concentration of population in northeastern United States.

Since 1915, when it was first used in Canada, gas storage became a necessity due to the increased demand of the various industries. Large gas supplies from Texas and Louisiana are delivered into the Appalachian through the Big Inch and Little Inch pipelines. It is anticipated that 75 per cent of the gas used in the Northeast will be "imported" gas. This imported gas may reach 2 billion cubic feet per day.

The demand being greater in the winter and the obligation of fulfilling purchasing contracts regardless of the demand, makes storage of gas a necessity to meet peak loads. This explains why most major gas companies are operating or developing gas storage fields. Fifty such pools are now in operation, and many more contemplated.

The locations usually chosen for gas storage are porous permeable reservoirs, which have been exploited in the past for gas, and are at present practically depleted. Many old wells are intended to be used again for the injection of new gas into the reservoirs and for the preservation of the gas stored during a sufficient period of time. The problem consists therefore in selecting an area for storage, appropriate geologically, and where the wells already existing could be worked over accordingly without excessive difficulties.

When a geologist is called upon to recommend an area for gas storage he naturally will investigate all the well logs available in that field. This is a tedious and heart-breaking job in many instances. Well logs giving only the names of the well, the approximate geographical location, and, in large print, "Gas producer," are available. But, no mention is made as to the depth of the well, the formations encountered, the size of the hole, or the casing seat, as the only important information to the operator at that time was the production of gas. Better logs naturally are available in recent years, but several storage pools are being developed in fields drilled during the last century—with practically no records at all.

Well logging and auxiliary services can provide a valuable help in such circumstances, and the purpose of this paper is to explain what information can be derived from them. It is eventually of two types: (1) information on the geological features of the area, including structural, stratigraphic and depositional data; and (2) information concerning the mechanical conditions of the wells, including casing positions and size, hole diameter, cavings, deviations, *et cetera*.

It is believed that the scientific completion of gas storage fields with the use of gamma-ray logs and other auxiliary operations, will prove to be highly efficient and time-saving.

A.A.P.G. REGIONAL MEETING, BANFF, ALBERTA, SEPTEMBER 5–8, 1950

L. M. CLARK[1]
Calgary, Alberta, Canada

The Alberta Society of Petroleum Geologists will be hosts at a regional meeting of the A.A.P.G. to be held jointly with the Society of Exploration Geophysicists and the Geological Association of Canada, at the Banff Springs Hotel, Alberta, Canada, September 5–8, 1950.

The structure and stratigraphy of the Rocky Mountains, foothill belt, and the plains will be discussed. The oil and gas fields of Alberta, including recently discovered Devonian reef fields, will be described. Other papers will discuss the Western Canada sedimentary basin, the Northwest Territories, the tectonic map of Canada, the geologic history of

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