

the Board of Certification, and the Nominating Committee; these shall be appointed by the Executive Committee.

The president shall annually designate the chairman of the committees, excepting the chairman of the Nominating Committee who shall be appointed by the Executive Committee.

The chairmen shall make annual reports to the Executive Committee.

No member of the Executive Committee shall serve on any other Association committee. Any committee member may be relieved of his responsibilities by unanimous action of the Executive Committee.

Membership Qualifications Committee changed to Committee on Membership with implied expanded responsibilities in the area of membership solicitation.

Awards Committee changed to Committee on Awards and Recognition with implied definition of responsibilities amplified to fit current practice.

Certification Board, Nominating, and Ballot Committees are made standing committees.

Committee on Statistics of Exploratory Drilling changed to Statistics of Drilling to permit coverage of development wells.

ARTICLE XIV. ANNUAL BUSINESS MEETING

The president shall preside at the annual business meeting.

The annual business meeting shall receive the annual reports of the Executive Committee and shall act on recommendations presented; it shall conduct old and new business, including amendments to the bylaws and referral of constitutional amendments to a vote of the membership.

All members are invited to attend; only active members may vote. Society and district representatives only are authorized to vote by proxy on the basis of numerical representation. Any representative may request a roll call and the recording of proxies. (See article XII of bylaws.)

Business Committee meeting and annual business meeting are in effect combined—the former is the most popular and effective part of this Association's government, whereas the latter is required by corporate regulations.

ARTICLE XV. AMENDMENTS

These bylaws may be amended by a vote of three-fourths of the active members, including proxies, present and voting at an annual business meeting. Legal opinions regarding all amendments shall be obtained by the Executive Committee prior to the voting.

No change—amendments of bylaws may be effected by the annual business meeting.

A.A.P.G. AT ST. LOUIS

51ST ANNUAL MEETING

April 25-28, 1966



CLARENCE E. BREHM, General Chairman, 1966 A.A.P.G. Semi-Centennial Convention in St. Louis, points to progress in construction of the towering Gateway Arch, symbol of Convention's general theme, "Gateway to Worldwide Petroleum Exploration." Serving with Brehm on the Convention Coordinating Committee are C. B. BAUER, General Vice-Chairman; DOROTHY J. ECHOLS, Vice-Chairman for S.E.P.M.; ROBERT W. MAXWELL, member; and ELMER W. ELLSWORTH, Convention Manager.

MID-CONTINENT SECTION BIENNIAL MEETING

TULSA, OKLAHOMA, OCTOBER 13-15, 1965

The Mid-Continent Section of the A.A.P.G. will hold its 1965 meeting in Tulsa, Oklahoma, October 13-15, in the new Tulsa Assembly Center. Meeting theme is *Mid-Continent Plays—Past and Present*. Tours will be conducted through two major petroleum research laboratories and more than 30 commercial and educational exhibitors will display latest equipment and techniques.

Following are the abstracts of papers to be presented, listed in sequence from the technical program. Papers numbered 1 through 11 will be given Thursday, October 14, the remainder on Friday, October 15.

ABSTRACTS OF PAPERS (IN SEQUENCE)

ORLO E. CHILDS, Pres., A.A.P.G. Welcome

1. M. J. DAVIS, Retired board chairman, Humble Oil and Refining Company, Houston, Texas

KEYNOTE ADDRESS

A. I. LEVORSEN MEMORIAL

2. A. I. LEVORSEN, Consultant, Tulsa, Oklahoma

MID-CONTINENT REGION—LABORATORY FOR PETROLEUM EXPLORATION

Many geological concepts of widespread application to petroleum exploration were either first, or early, observed and studied in the Mid-Continent region. Five are selected for discussion. These are: (1) pools reser-voired in sandstone patches, lenses, channels and bars; (2) unconformities, truncations, and layers of geology—their influence on exploration; (3) tilted oil-water con-tacts, fluid pressure gradients; (4) changing structure with depth, converging strata, "bald-headed" struc-tures, closed structures below terraces, and the hinge-line concept; and (5) one discovery leads to another—and another. These are typical of some of the simple geological phenomena that abound in this region, that seem to control much petroleum occurrence, and that are continually being used in the world-wide search for oil and gas.

3. J. G. WINGER, Chase Manhattan Bank, New York, New York

OUTLOOK FOR DOMESTIC PETROLEUM INDUSTRY TO 1975

The changing composition of population by age brackets is providing an impact upon U. S. energy markets. A similar impact is noticeably affecting the general economy. Each regional division of the U. S. energy market possesses a relative growth opportunity for oil and natural gas. The expanding Atlantic Coast gas market is providing a noticeable effect on the oil market.

Considerable new oil and gas reserve additions will be necessary to maintain production levels required to satisfy the increasing demand by major markets.

4. R. C. CLINTON, Clinton Oil Company, Wichita, Kansas

GEOLOGIST'S ROLE IN ECONOMICS OF FINDING OIL IN MID-CONTINENT AREA

The Mid-Continent geologist must become involved with the economics of oil-finding. Because the fields being found today are smaller, the development risk is greater. We must compensate by improving our technique of selecting exploratory drill-sites.

The costs of overhead, equipment, travel, promotion, geophysical work, *etc.* are increasing at a fairly steady rate. Drilling costs, however, are about the same because they have increased in certain areas and decreased in others. The price of oil remains the same, but the net price paid to the oil-finder is reduced by an increase in taxes and service fees for oil-gathering. The over-all cost of selecting and preparing an exploratory prospect for drilling has nearly doubled in the last 5 years.

The tax burden has now become so great that it seems necessary to incorporate tax savings in drilling and development programs to realize a profit comparable with other businesses. A larger number of geologists may be required to represent oil "deals" for sale to the general public, particularly to those in high tax brackets. Therefore, the geologist must be completely familiar with the Securities Act of 1933.

5. L. L. WYNN, Apache Corporation, Tulsa, Oklahoma

GAS FIELDS FROM HARTSHORNE SAND OF ARKOMA BASIN

The Arkoma basin of southeastern Oklahoma is characterized by long, steeply folded anticlines, dry gas production, and no oil. One of the most prolific gas reservoirs in the area is the Hartshorne Sand, of early Desmoinesian age, productive at 1,000-4,000 ft. This

sandstone produces gas in the Poteau-Gilmore field on the Gilmore anticline, at Cameron field on the Midland anticline, at Red Oak-Norris on the Brazil anticline, and at Quinton-Carney-Featherston and Kinta fields on the Kinta anticline.

The first commercial gas well in the Quinton field was completed in September, 1915, with an open-flow potential of 25 million cu. ft. of gas daily from the Hartshorne Sand. Subsequent drilling along the structural axis of the anticline found the Blocker-Featherston, Carney, and Kinta fields. The significance of the "structural" accumulation of gas on the Kinta anticline was not fully understood until Pine Hollow gas field was discovered and developed nearly 50 years after the completion of the discovery well at Quinton. It now appears that the Hartshorne Sand is producing from stratigraphic traps in a series of off-shore bar deposits that extend from Pine Hollow to Kinta.

6. W. E. RICHARDSON, Consultant, Oklahoma City, Oklahoma

OSWEGO LIMESTONE FACIES CHANGE IN MID-CONTINENT REGION

The Oswego is the oldest and most widespread limestone unit of the Marmaton Group. The Marmaton is the oldest succession of Pennsylvanian carbonates that are indigenous to the shelf area of the western Mid-Continent.

The Oswego Limestone occurs over most of northern Oklahoma and southeastern Kansas, where it sometimes attains a thickness in excess of 100 ft. The Oswego is developed as a shelf limestone unit. Southward, it grades into a basin shale. The gradation from shelf limestone to basin shale occurs in a zone that is usually from 2-4 mi. wide. Within this transitional band, "reef-like" limestone banks occur. Some of the limestone banks have become reservoirs for large oil and gas accumulations.

A regional facies change of the Oswego can be traced from its outcrop east of Tulsa into the subsurface west to the Oklahoma panhandle. This facies change in eastern Oklahoma parallels the Arkoma basin. It intersects the Nemaha ridge south of Oklahoma City and west of Oklahoma City, it parallels the Anadarko basin. In Ellis County, it swings abruptly northward.

A regional study of the transitional zone explains the location of such fields as Putnam and Kendrick, and may point the way to future oil and gas production.

7. J. E. BREWER, Consultant, Wichita, Kansas

SEDGWICK BASIN

The Sedgwick basin is a moderate-size basinal structure, approximately 10-12,000 sq. mi. located in south-central Kansas. The basin is bounded on the east by the Nemaha anticline and on the west by the Pratt anticline. It is actually an embayment connected to a major Oklahoma structural basin. The northern boundary is poorly defined. It is separated from the Salina basin by lithologic changes within the rock section. These changes are the primary causes of a large number of producing zones.

This paper deals with past and future prospects of the area with respect to these changes in lithologic types.

8. ORVIE HOWELL, Hinkle Oil Company, Wichita, Kansas

O.S.A. AND GILLIAN POOLS, SEDGWICK COUNTY, KANSAS

Regionally the O.S.A. and Gillian pools, producing