of Libya was possibly uplifted with the exception of the Northern Cyrenaican area.

The Upper Cretaceous produced a large widespread transgression in all of the northern portion of Libya, over an eroded peneplaned surface. The deposition was thin and of a "stable shelf" type with the exception of northern Cyrenaica.

During Paleocene time Western Libya remained stable; however a tilting in the eastern part of Libya produced a large sedimentary basin in the Syrte area, which continued subsiding until Miocene time with its hinge line along the Hun-Misurata main fracture system.

Large portions of Libya are still to be tested by drilling, with the oil strikes localized in general as follows: (1) in the two western Paleozoic basins; (2) in the eastern Syrte Tertiary basin where several unconformities in Upper Cretaceous and Eocene time combined with various movements, resulted in effective favorable conditions for oil accumulation.

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Exploratory Drilling in 1959, United States, Canada, and Mexico

This is the 15th report, based on data gathered by the Committee on Statistics of Exploratory Drilling. It is the 24th annual summary on the subject published in the *Bulletin*. Frederic H. Lahee prepared this statistical analysis and wrote the article for 20 consecutive years. Graham B. Moody prepared the report for 1956. This is the 3d year in which the present author has prepared this exploratory drilling analysis and report.

This report presents a comparison of 1959 data with the number of exploratory holes drilled, and footage drilled during 1958. Also by means of graphs a comparison of 1959 statistics with previous years inclusive of 1944. Ratios of profitable fields resulting from new-field wildcat discoveries are also shown. Trends are indicated by graphs of success ratios for new-field wildcats located on basis of geology, geophysics or the combination of both geology and geophysics. For the 12th time, we are presenting data on Canada and Mexico.

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Status of Petroleum Exploration in Australia

No commercial oil field has been discovered in Australia but this must be related to the very small amount of exploration that has been undertaken and the deficiencies in knowledge about the sedimentary basins. Outcrop geology of the sedimentary basins in Australia is known only up to regional reconnaissance detail, and the limits of few basins are precisely known. The complete stratigraphic sequence and its variations are known adequately in few basins and the geological history in none. About 1 million feet of exploration drilling has been completed in the whole of Australia and Papua-New Guinea with a total basin area of about 1,480,000 square miles.

The regional structure is indicated but not precisely established in the Fitzroy basin, Carnarvon basin and Perth basin (W.A.), Sydney basin (N.S.W.), Papua basin (P.N.G.) and the Great Artesian basin. Much of the structure, both regional and local, is of the synchronous type and surface anticlines do not necessarily continue downwards below unconformities. Petroleum source beds and shows are known in many basins but the geological conditions for accumulation have not been established. Much more information is required on the relationships among sedimentation, structure, and possible migration paths of oil.

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Credit for Discovery

The "basis for location," as used by the A.A.P.G Committee on Statistics of Exploratory Drilling, is inadequate and misleading for any true evaluation of exploratory efforts, and should it be discontinued.

The publication of case histories of typical discoveries, compiled by experienced and representative geologists in each oil and gas district, is proposed as a means of improving our statistical system, and giving proper credit to various exploratory methods, thereby promoting more effective exploration for oil and gas reserves.

The purpose of this paper is to appraise the meaning and use of the statistical column "basis for location." It is also the purpose of this paper to prove that "basis for location" as a statistical classification is inadequate, in its present form, for presenting the geological viewpoints, is unsatisfactory for evaluating our exploration and development efforts, and should be omitted from our annual development papers. It is proposed that committees be appointed in each hydrocarbon producing district to compile annual records in the form of case histories of discoveries, for the purpose of correcting present inadequacies in the classification and improving our exploratory efforts.

BRUCE F. CURTIS, University of Colorado, Boulder, Colorado, and Sandstone Reservoir Committee (C. A. BENGTSON, JULES BRAUNSTEIN, HARRELL BUDD, VIRGIL COLE, RALPH A. DAVIS, BRUCE W. FOX, HARRY GLOVER, PENN L. GOOLDY, T. P. MCCANN, DAVID P. MEAGHER, R. F. MEYER, North Texas Geological Society, KEITH L. RATHBUN, TED R. RUSSELL, F. D. SPINDLE, S. KEITH TUTHILL, R. D. WHITE, JOHN H. WIESE, D. L. ZIEGLAR)

Characteristics of Sandstone Reservoirs in United States

The sandstone reservoir rocks of United States oil and gas fields have been studied by the Sandstone Reservoir Committee in order to learn which kinds of sandstones are most commonly productive and which are most prolific. Information has been gathered concerning the areal extent of sandstones producing in combination and structural trap fields, and concerning genesis of those sandstones constituting stratigraphic traps.

Each of the twenty committee members has been responsible for the assembling of data on an area with which he is familiar. For practical reasons, only large fields (5 million barrels or more gross ultimate production) were considered. This analysis of existing fields should help guide the search for additional production from sandstones.

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Basement Beneath Atlantic Coastal Plain Between New York and Georgia

Basement is defined, for the purposes of this discussion, as the metamorphic and (or) igneous rocks below