at the north limit of the reservoir and at the time of depletion were dipping 45° north.

ROBERT J. WEIMER, Colorado School of Mines, Golden, Colorado

Geometric Patterns, Upper Cretaceous Sandstones, Rocky Mountain Region

The Cretaceous of the Rocky Mountain region contains sandstones that were deposited in marine, transitional, and non-marine environments. Geometric patterns of sandstones deposited in shallow neritic and transitional environments are regular in character and are easily defined. Only these sandstones are here considered and units illustrating their minimum and maximum geometric aspects are treated.

Minimum-size sand bodies are well shown by the Fox Hill sandstone where it is exposed on the northeast flank of the Rock Springs uplift, Wyoming. This formation consists of a series of barrier-bar sandstones that change northwestward to lagoonal shales (Lance formation) and change southeastward to marine shale (Lewis shale). Detailed surface analysis of one barrier bar shows a thickness ranging from 30 to 50 feet and a width of 5 miles from the lagoonal shale and sandstone facies to the marine shale and siltstone facies. Each bar is believed to have extended along much of the western margin of the Cretaceous seaway.

The Judith River formation of central and eastern Montana exemplifies a transitional and marine sandstone unit have a maximum width. The unit is 50–75 miles wide and was deposited between lagoonal shale facies to the west and marine shale facies (Pierre shale) to the east. Thickness of the unit varies from 50 to 100 feet.

The geometric pattern of most of the sand bodies that accumulated along the Cretaceous shoreline is similar in character to the above examples and ranges in size between these extremes.

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Gravity Measurements on Continental Margins

Gravity sections are presented for 10 profiles off the east coast of North America. The gravity effects for the upper sedimentary layers and the basement rocks, observed by seismic refraction measurements, are computed and subtracted from the gravity sections. The residual anomalies are attributed to fluctuations of the mantle surface. The shape of this surface which accounts for this residual anomaly is computed. The transition from a continental type crust to an oceanic type crust occurs fairly abruptly within a distance of about 200 km. The true continental edge is located at about the 1,000-fathom depth curve in the ocean.

Sections across continental margins of the west coast of Central America, the west coast of Chile, and the west coasts of Europe and Africa are compared with those of the east coast of the United States. Though differing considerably in details, the main features are somewhat similar.

A.A.P.G. HONOREES, 1960

HENRY VAN WAGENEN HOWE

SIDNEY POWERS MEMORIAL MEDALIST[1]

H. N. FISK[2]
Houston, Texas

In bestowing the Sidney Powers Medal award upon Henry Howe, our Association is paying homage to a man truly dedicated to geology, and to one who has contributed greatly to advancing petroleum geology by teaching, by administrative ability, and through outstanding research in stratigraphy and paleontology.

"Heinie" or "Doc," as he is affectionately known to many of us, was born in Fulton, New York, in 1896. Most of his early life was spent in Oregon where he graduated from the University in 1916 with a degree in humanities. After briefly studying law at Yale and teaching in an eastern Oregon high school, his interest in geology led him to return to the University of Oregon for graduate studies. Later he attended the University of California, and then Stanford University, where he studied under the noted James Perrin Smith, receiving his Ph.D. in 1922. That same year he accepted an appointment at Louisiana State University, and by 1931 had organized a School of Geology designed to provide broad training and to fulfill the petroleum in-

[1] Citation before the Association at Atlantic City, April 26, 1960.

[2] Humble Oil and Refining Company.

HENRY VAN WAGENEN HOWE