DISCUSSION

This department has been established by the editors in order to afford to those interested in questions relating to economic geology an opportunity for informal discussion. Contributions are cordially invited either in the form of discussion of more formal papers appearing in earlier numbers or bearing upon matters not previously treated. Letters should be directed to the Editor, Sheffield Scientific School of Yale University, New Haven, Conn. The full name of the author should be attached to all communications.

THE GULF COAST SALT DOMES.

Sir: On page 456 of your issue of September, 1918, Mr. G. Sherburne Rogers makes the assertion that I attributed the origin of the coast salt domes of Texas to "pressure of ascending artesian waters" and refers as authority to page 263 of a paper of mine, entitled "The Beaumont Oil Fields," published in the *Journal of the Franklin Institute*, volume 154, 1902, which, I may also add, simultaneously appeared in *Transaction of the American Institute of Mining Engineers*. Knowing, however, that I never intentionally made the assertion alluded to, I have re-read the separate of the paper which I have before me now, with painstaking care and have failed to find therein anything whatsoever which justifies the attribution to me of such a theory.

On the other hand, I find that the one and only conspicuous theory set forth in that paper and one which Mr. Rogers fails to report, pertains not to the structure but to the probable origin of the oil and is to the effect that the salt and associated minerals were probably secondary deposits derived from ascending hot artesian waters along fissures. This hypothesis is one which I at that time considered original. It was stated as follows:

The writer has in mind an hypothesis, not hitherto advanced, so far as he is aware, which coördinates Captain Lucas's data and explains that which he omitted—the source and distribution of the oil salt islands, sulphur, sulphuretted hydrogen gas, and dolomite. The hypothesis is

offered with hesitation, not as a final explanation, but in the hope that it may be reached. . . .

The hypothesis is as follows: The oil and salt-pockets of the Texas Coastal Plain are probably not indigenous to the strata in which they are found, but are the resultant products of columns of hot saline waters which have ascended, under hydrostatic pressure, at points along lines of structural weakness, through thousands of feet of shale, sand, and marine littoral sediments of the Coastal Plain Section, through which oil and sand are disseminated in more or less minute quantities. The oil, with sulphur, may have been floated upward on these waters, and the salt and dolomite may have been crystallized from the saturated solution.

The channels of these ascending waters may have been in places of structural weakness, such as fissures, which probably at one time continued to the surface, but may have been sealed by the deposition of the later overlapping strata now capping the oil-pools. Such features, when occurring under gentle anticlines, may explain the collection of oil beneath the surface in pools.

However poor this hypothesis of the origin of the oil may have been at the time of its publication, it was in advance of and entirely different from any previously published, and with the exception of Kennedy's theory that the oil is indigenous to the nearby and associated Frio or Fleming clays, it is still the chief one worthy of consideration. It makes no attempt to explain the doming, however, concerning which there are many theories.

Mr. Rogers also omitted any reference to me as the author of the theory which "postulates the deposition of the salt from artesian waters ascending along lines of weakness" and which "are probable the most widely accepted among geologists today," but, upon page 459 of his article, he attributes it to Prof. Gilbert D. Harris, who adopted it in 1909. At the time of the publication of my paper, 1902, and probably for some time later Harris' writings attributed the origin of these salt bodies to lagoonal deposits in the old Cretaceous seas, and it was not until many years after the publication above cited that he adopted the ascensional theory and amplified it by his concept that the dome structure proper may have originated through salt crystallization.

ROBERT T. HILL.

DALLAS, TEXAS.