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PROBLEMS OF THE GLACIALIST¹

By FRANK LEVERETT

A YEAR ago, at the New York meeting of this association, I discussed the Pleistocene glaciation of the northern hemisphere, as a contribution to the symposium on the centenary of glacial geology. This year I will take up some of the problems confronting the glacialist. Last year's paper outlined the results of past work. The present paper endeavors to outline future work. Some of the problems are matters of local application, but the majority of those here considered are of world-wide bearing.

THE PROBLEM OF GLACIAL EPOCHS

Inasmuch as the normal climate of the earth has been non-glacial the cause for glacial epochs has excited wide interest, and its solution has been attempted by a wide range of students, including astronomers,

¹ Address of the retiring vice-president and chairman of Section E—Geology and Geography, American Association for the Advancement of Science, Des Moines, Iowa, December 30, 1929.

physicists and biologists, as well as geologists and climatologists. Unfortunately, the climatologists, who should be the leaders in this study, have been baffled by the complexities of climatic factors. They differ widely in the interpretation of present climate, as well as in that of past climates. Some of the leading ones have opposed their speculative views to the plain teaching of observations on the existing ice-sheets, as has been clearly shown by Hobbs in his recent book on the glacial anticyclones.² The doctrine of circumpolar cyclones, to which Ferrel Maury and James Thomson contributed in the 1850's, was still supported by Hann in 1897, when he wrote in his "Klimatologie" (p. 543):

The whole Antarctic circumpolar area presents us, as already stated, with a vast cyclone, of which the center

² "The Glacial Anticyclones: The Poles of the Atmospheric Circulation," Univ. of Michigan Studies, Scientific Series, Vol. IV, 1926, by William Herbert Hobbs.

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