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TIMBERLINES AS INDICATORS OF CLIMATIC TRENDS¹

By Dr. ROBERT F. GRIGGS

THE GEORGE WASHINGTON UNIVERSITY

EVEN though Hutton and Lyell more than a century ago established the principle that the face of the earth has been shaped by forces still in operation, there has remained a great gulf between the geological past and the historical past. Almost ironically, the geologists denominated as "recent" formations of an antiquity far beyond the reach of history. The attempt to bridge the gulf and to connect the past with the present, actually as Lyell did theoretically, is a recent development. The progress toward the construction of a continuous chronology back into the geological past is one of the most significant scientific developments of the last decade. The problem has been attacked from a number of different angles: The excavations of arche-

ologists and their correlation with geological terrains, the records of the annual varves in water-laid deposits collected by DeGeer and in America by Antevs²; the interpretation of variant thickness of tree rings in ancient logs by Douglass³; the identification of sub-fossil pollens under the leadership of Erdtmann³—each in its own way has helped to carry the chronicle back.

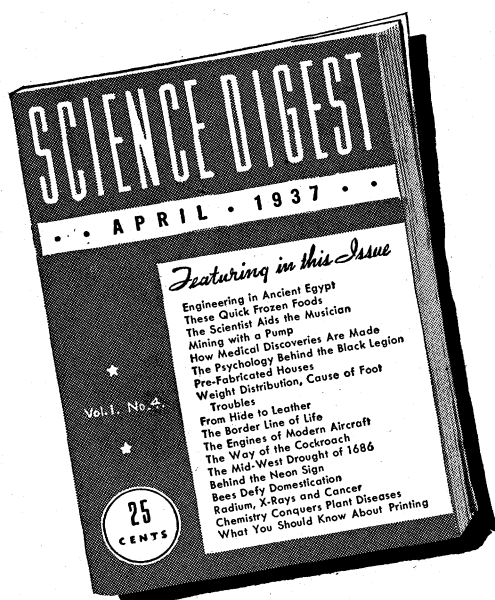
But with all that may be learned by these and other methods, our knowledge of the past must remain very fragmentary. And, what is far more important from my point of view, our appreciation of the long-time climatic trends, which in the end must mould our civilization, is as yet hardly dawning.

¹ Address to the Geological Society of Washington, October 28, 1936.

² For a general account see Smithsonian Inst. Publ. No. 3152, pp. 304-312, 1931.

³ G. Erdtmann, *Archiv. f. Bot.*, 77: 1-173, 1922.

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