The effect of forests upon climate, if viewed as a local influence, must necessarily be insignificant. First we must not forget that whenever we compare a forest with an open field adjoining it, the open field itself is under the influence of the forest and can not give a proper conception of the true effect of the forest.

Such a meteorological authority as Lorenz Liburnau, at the end of his monumental work on "The Results of Forest Meteorological Observations," remarks that his data and conclusions apply only to the influence which the forest exerts while it exists, but do not extend to conditions which may rise upon its complete destruction. "If, for instance, according to our observations in the Carpathian foothills, it appears that the influence of the forest upon the neighboring country is only insignificant, this does not indicate that a complete destruction of all the existing forests will produce here also only insignificant climatic changes. Very likely that, if the forest were completely destroyed, the difference would be much greater than the difference that exists now between the climate of the forest and its neighboring areas."

Local observations, no matter how accurately and minutely carried out, can not lead us to the solution of the problem. The method of attack itself is wrong. It is only by approaching the problem from a much broader standpoint, by rising mentally to a height which opens wide perspectives both to the distant shores of the Gulf of Mexico and the Atlantic Ocean and to the most interior portions of the continent; only by following the moist south winds on their way from the gulf through the gateway of the North American continent, the Atlantic plain to the Prairie region, by considering how many times the moisture carried by the wind is dropped in the form of precipitation and raised again as evaporation, by studying the part which the vegetative cover plays in this circulation of water on the land, especially the dense coniferous forests, that we can grasp the problem in its true light.

RAPHAEL ZON

U. S. FOREST SERVICE

LESTER FRANK WARD

LESTER FRANK WARD, A.B., LL.B., A.M., LL.D., was born at Joliet, Illinois, June 18, 1841, and died in Washington, D. C., April 18, 1913.

Philosopher, sociologist, paleobotanist—few men in these days of specialization have earned such enviable reputation along such widely divergent lines of thought as are designated in these terms, which imply both a deep thinker on abstract subjects and a careful student of concrete facts. The scope of his mentality was remarkable, not alone in the ability to master any subject in which he chanced to become interested, but also in the ability to completely dismiss any subject from his mind whenever he wished to concentrate attention on something entirely different, and to subsequently resume the original trend of thought without apparent effort.

His reputation as a student of and writer on ethical and sociological subjects assures that he will not be forgotten or fail of suitable recognition by those who are best qualified to discuss his activities in such connection. It is my privilege to merely say a few words in regard to Dr. Ward as a paleobotanist.

Our personal acquaintance began in 1882, about a year after his appointment as assistant geologist on the staff of the United States Geological Survey. His special work was in connection with the problems of paleobotany and their relations to geological investigations, the importance of which was just beginning to attract some attention, and it was my good fortune to enlist his interest and to subsequently enjoy the privilege of his cooperation and kindly criticism in my paleobotanical studies and to feel the inspiration of his con-

scientious and careful methods of procedure, for a period of almost thirty years.

Dr. Ward possessed a good working knowledge of botany and geology at the time when he entered upon his duties in the Survey, and it is interesting to note that one of the earliest of his published works was a "Guide to the Flora of Washington and Vicinity"—the fruit of his many local tramps and explorations from which he derived the keenest pleasure. Several short articles, published in the *American Naturalist* and elsewhere, had preceded this, two of which "On the Natural Succession of the Dicotyledons" and "Homologies in the Lauraceæ," may be cited as foreshadowing the philosophical and evolutionary tendency of the works that were to follow. The drift into paleobotany was almost inevitable, even had it not been included in the line of official duties. Among the titles of papers which appeared in rapid succession, for example, were such as "Evolution in the Vegetable Kingdom," "The Ginkgo Tree," "The Paleontologic History of the Genus *Platanus*," "Historical View of the Fossil Flora of the Globe," "Geological View of the Fossil Flora of the Globe," "Botanical View of the Fossil Flora of the Globe," "Sketch of Paleobotany," "Geographical Distribution of Fossil Plants," etc. The two last mentioned are exhaustive dissertations which are standard works of reference for all who are interested in the bibliography and general principles of the subject and the recorded localities in which fossil plants have been found in the different parts of the world. These two works, issued in 1885 and 1888, respectively, demonstrate in a striking manner the wide acquaintance with paleobotanical literature which he had already acquired, and the wealth of such material which he had so rapidly gathered together. The pioneers of the science in America—Dawson, Newberry and Lesquereux—had blazed the way; but it remained for Dr. Ward to realize the necessity for systematic preparation in order to insure accuracy and to place the science on a firm and dignified footing which would win for it the recognition that it deserved. With his tireless energy and persistence he gradually gathered together, largely through personal correspondence and exchange, all obtainable works directly or indirectly treating of fossil plants, and thus built up a library which, with recent additions, is to-day, without doubt, the most complete of its kind in the world.

He also foresaw the necessity of having at hand, for ready and accurate reference, an index of the genera and species of fossil plants and their places of publication. He fully realized the years of hard work, both mental and mechanical, which the undertaking involved, with but little to show as an ultimate result which would be appreciated or even understood by any except the limited number of persons actively interested in paleobotanical investigations. Nevertheless it was undertaken and has been successfully continued and elaborated and brought up to date; and it is no exaggeration to say that the accuracy and completeness which characterize the paleobotanical publications of the Survey are in large measure due to this work, conceived and begun by Dr. Ward. It includes some 80,000 references to descriptions and illustrations of fossil plants, and a bibliography of about 12,000 titles by about 2,000 authors. Dr. Ward's titles alone, including reviews, number about one hundred and fifty. Critical paleobotanical work in America can not be prosecuted without its aid, and all American students and writers on the subject must, at times, consult it and the library connected with it, in order to obtain information nowhere else available.

The relations of fossil plants to geology, and their value and importance in stratigraphic investigations, were discussed and indicated in many of Dr. Ward's more extended works, such as "Synopsis of the Flora of the Laramie Group," "Evidence of the Fossil Plants as to the Age of the Potomac Formation," "The Plant-bearing Deposits of the American Trias," "Principles and Methods of Geologic Correlation by Means of Fossil Plants," "Status of the Mesozoic Floras of the United States," etc. He also contributed the article on Fossil Plants for Johnson's Encyclopedia

in 1895, and the botanical and paleobotanical definitions for the Century Dictionary.

Dr. Ward had a wonderful faculty for coordinating and systematizing facts and information. The former were always clearly stated and presented in logical sequence, and the arrangement of his text was always carefully thought out. His guiding principle in all his writings was that he was not writing for himself, but for others, and he always tried to place himself in the position of those who would have occasion to read or consult or cite what he had written. The consequence is his works may be easily read, or quickly referred to, or accurately cited in any particular.

His influence and example as a systematic, orderly, and conscientious worker and writer have left an indelible impression upon all who were associated with him and will be felt, consciously or unconsciously, by all who may follow in his footsteps.

ARTHUR HOLLICK

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GERMAN AND SWISS UNIVERSITY STATISTICS

THE preliminary statistics of the number of students enrolled in German universities during the winter semester of 1912–1913 (Deutscher Universitätskalender, 83. ed.) show that the total number of matriculated students amounted to 58,844 as against 58,672 in the summer semester of 1912. Including auditors the totals are 64,590 and 63,351, respectively. Of the auditors registered in the winter semester 3,997 were men and 1,749 were women, while of the matriculated students, no less than 3,213 were women, these being distributed by faculties as follows:

Theology	11
Law	79
Medicine	715
Philosophy	2,408

The following universities attracted the largest number of women students:

Berlin	904
Bonn	289
München	262
Göttingen	237
Heidelberg	219
Freiburg	189
Münster	172
Breslau	150
Leipzig	129
Marburg	126

It may be interesting in this connection to call attention to some statistics recently published by the French Ministry of Education, showing that the percentage of women students in France in 1912 was 9.8 per cent. as against 4.8 per cent. in Germany.

Excluding the emeritus professors, the faculties of the German universities in the summer semester of 1913 are manned by 1,306 full professors, 131 honorary full professors, 788 adjunct professors, 3 honorary adjunct professors and 1,210 docents.

The matriculated male students enrolled in the winter semester were distributed by faculties as follows:

Protestant theology	3,386
Catholic theology	1,785
Law	11,376
Medicine, pharmacy and dentistry	15,309
Philosophy	26,988

The largest number of matriculated students, namely, 9,806, was enrolled at the University of Berlin, this institution being followed by the remaining 20 institutions in the following order:

München	6,759
Leipzig	5,351
Bonn	4,179
Halle	2,906
Breslau	2,710
Göttingen	2,660
Freiburg	2,627
Heidelberg	2,264
Münster	2,154
Marburg	2,076
Strassburg	2,063
Tübingen	1,898
Jena	1,842
Kiel	1,738
Königsberg	1,616
Würzburg	1,455
Giessen	1,338