As an aid toward arousing a wider and more intelligent public interest in shoreline problems and to collect information of possible value concerning shoreline phenomena, the committee is asking all who are interested in the work to communicate to the committee information on the following points:

(a) Changes in the shoreline (backward cutting, forward building, shifting of inlets, etc.) now in process of taking place, or which have taken place very recently. Precise data, or the names of reliable persons able to give precise data, are particularly desired. Photographs, especially photographs taken at intervals from the same viewpoint, are valuable in showing cliff retreat under wave attack, the progressive growth of bars and sandspits, the erosion of beaches and the destruction of seawalls, houses and other artificial structures.

(b) Engineering works now in process of construction for the protection of shore cliffs or beaches, for the maintenance of inlets or channels across beaches or bars, or for any other purpose which will involve a checking or changing of the natural operation of waves or currents along the coast. Information as to the purpose of the works in construction, with addresses of engineers or contractors in charge of construction, will be especially valuable.

(c) Completed engineering works that are of especial interest, either because they have proven unusually successful in accomplishing their purpose, or because they have signally failed to achieve the results for which they were designed. Addresses of engineers, contractors or other authorities who can furnish reliable detailed information are particularly desired.

(d) New beaches created by artificial means, whether completed or in process of development. Photographs or sketches showing original condition of the shore and its appearance after the new beach was formed, together with information as to conditions of wave and current action in the vicinity and the degree of success obtained in securing a satisfactory beach will be useful. The addresses of engineers, contractors or others in charge of the development work are desired.

(e) Addresses of individuals or organizations willing to cooperate with the committee by measuring and recording shoreline changes in their vicinity, by photographing rapidly changing shorelines at stated intervals, by observing the behavior of waves and currents on their parts of the coast in different seasons, or by loaning the committee photographs, sketches, engineering drawings, unpublished reports or other data throwing light on shoreline changes and the results (whether satisfactory or not) secured by shore protection and improvement works will be most welcome.

Communication may be addressed to the present chairman of the committee, Commander R. S. Patton, United States Coast and Geodetic Survey, Washington, D. C., or to the undersigned.

DOUGLAS JOHNSON

COLUMBIA UNIVERSITY,
NEW YORK CITY

FRANK HALL KNOWLTON

AT the close of a distinguished career it is quite impossible to separate the influences of heredity and environment, but both were certainly united in making a naturalist of Frank Hall Knowlton. His ancestors were of that sterling old Vermont stock which originally settled that region. He was born at Brandon, Vt., on September 2, 1860. At Middlebury College where he arrived in due season he came under the influence of Ezra Brainerd and Henry M. Seely, those distinguished naturalists who taught all the sciences and collaborated on the difficult problems of geologic research among the older rocks of that region. Their influence on the lad can not be doubted.

Knowlton's earliest interests were ornithology and botany and he retained these undiminished through life. In his early days in the West for the Geological Survey he collected recent birds and plants as well as fossil plants. The wonderfully isolated lignites of Brandon, unique in all New England, with their great variety of curious Eocene fossil fruits, must also have early stimulated his imagination and he returned to their study in his later years. In 1884 Middlebury gave him the B.S. and three years later the M.S. degree.

Knowlton came to Washington in 1884 in connection with the preparation of the U. S. National Museum exhibit for the Cotton Centennial Exposition at New Orleans, remaining afterward at the museum on a slender salary, first as aid and then as assistant curator. When Lester F. Ward was placed in charge of paleobotany by Major Powell, then director of the survey, Knowlton was made one of his assistants being employed in collecting fossil plants in the summers and studying the anatomy of fossil woods during the winters, his first work of this kind being on the woods and lignites of the Potomac formation. In 1894 he was appointed assistant paleontologist on the U. S. Geological Survey, and in 1907 he was advanced to the rank of geologist.

For nine of his earlier years in Washington he was professor of botany in Columbian (now George Washington) University, from which he received the

Ph.D. degree in 1896. In 1897 he founded *The Plant World* and was its editor for seven years. Official salaries were low and Knowlton was forced to do a vast amount of routine botanical work at that time for the Century, Standard and Webster's dictionaries and for the Jewish Encyclopædia.

Knowlton's youthful interest in ornithology culminated in "Birds of the World," published by Holt in the American Nature Series in 1909, a great up-to-date work of 873 pages, 236 illustrations and 16 colored plates, eloquent of the insight with which he had followed the expanding knowledge in all of the phases of avian study. Throughout those earlier years Knowlton was active in the meetings of the various scientific societies in Washington and held office in many of them. He was elected a fellow of the Geological Society of America in 1889, and was a charter member of the Paleontological Society and one of its first vice-presidents, serving as president in 1917. In 1921 his youthful alma mater conferred on him the degree of Sc.D.

As he came more fully into his powers a long series of memoirs on Mesozoic and Cenozoic floras flowed from his ever-active pen, and each winter season he reported on literally hundreds of collections of fossil plants made by the various survey field parties. Nor was this all—many ambitious works were partly completed and had to be laid aside because of more urgent duties, remaining unfinished.

Knowlton's health was never robust and only his great love for his work can account for an industry that was the marvel of all who knew him. It is too soon to attempt an evaluation of his contributions to science, but no one can gainsay that his keen chronologic sense has served in large measure to remove the prejudices with which his predecessors had handicapped paleobotanical studies.

For many years the Knowltons lived at Laurel, Maryland, and he was never happier than working in his garden or dispensing hospitality to his many scientific friends. A few years ago they moved to Ballston, Virginia—an easier journey from the museum. Knowlton's interests were broad—all phases of human activities—scientific, religious, political—were the themes of the lunch hour. He held decided opinions and was forthright in his likes and dislikes, but a kindlier spirit never lived, and he was never too busy or too ill to counsel and help his colleagues.

In 1913 we spent a memorable summer in the Rocky Mountain states, and Knowlton did not again go into the field until the past summer. This year he made a trip to the Pacific coast, collecting a large amount of material from the Puget group and the Spokane lake beds. The summer had been unusually good, but in November his chronic enemy, asthma, necessitated his remaining at home, as it had so often in the past, so that neither family nor friends were prepared for the end which came suddenly on November twenty-second, and was due to heart failure. He is survived by a sister, his devoted wife and two grown children—a son and a daughter.

E. W. B.

SCIENTIFIC EVENTS

PROGRAM FOR THE EXPANSION OF THE MEDICAL SCHOOL OF THE UNIVERSITY OF PENNSYLVANIA

AN extensive program for the expansion of the medical school and the hospital of the University of Pennsylvania has been announced by Dr. Alfred Stengel, professor of medicine at the university and chairman of a committee arranging for a conference on January 10 to discuss the subject.

Some of the objects included in the program are the establishment of an "out patient" department; erection of a hospital with 1,000 beds and a staff of 100 internes and 500 nurses, and the establishment of a "medical press," which would issue pamphlets on the latest developments in medicine and surgery for the information of the public.

As goals for immediate action Dr. Stengel suggested the establishment of the Martin Maloney medical clinic, provided for under the terms of a gift of $250,000 by Mr. Maloney; further development of the Henry Phipps Institute for the study and treatment of tuberculosis, in accordance with a gift of $500,000 from the Phipps family, an additional $500,000 to be raised by the university; establishment of a Philip Syng physical foundation, with an endowment of $500,000 as an adjunct to the department of surgery, and the establishment of a Joseph Leidy chair of anatomy.

The plans call for the erection of suitable buildings for the housing of these clinics. Each separate medical and surgical specialty would have a chief who would also be the senior professor of that subject in the medical school.

Plans are to be discussed at the coming conference, at which Dr. Hubert Work, secretary of the interior, and Dr. Henry S. Pritchett, president of the Carnegie Foundation, will be among the speakers.

RESEARCH IN PURE CHEMISTRY AT THE MELLON INSTITUTE

ACCORDING to a statement by Dr. Edward R. Weidlein, director of the Mellon Institute of Industrial Research of the University of Pittsburgh, there has been established in the institute a definite department of research in pure chemistry, with Dr. Leonard H.