visit France, Germany and other countries. The commission includes Dr. Thomas Parran, director of the Public Health Service; Major Eugene W. Ridings, of the general staff of the War Department, and F. C. Horner, transportation consultant to the Defense Commission. The commission will be accompanied by a staff of technicians.

DR. CARL C. SPEIDEL, professor of anatomy at the University of Virginia, delivered the fourth Harvey Society lecture of the current series at the New York Academy of Medicine on January 16. He spoke on the "Adjustment of Nerve Endings."

THE Charles Sumner Bacon Lectures for 1940–1941 will be given on February 12 and 13 at the College of Medicine of the University of Illinois at Chicago by Dr. Henrik Dam, of the Biochemical Institute of the University of Copenhagen. The subject of the lectures are "Vitamin K, Its General Significance in Biochemistry" and "Vitamin K, Its Rôle in Human Pathology and Its Application in Therapeutics."

THE two hundred and fortieth regular meeting of the American Physical Soicety is to be held in Cambridge on Friday and Saturday, February 21 and 22. There will be sessions at Harvard University and at the Massachusetts Institute of Technology. The Optical Society of America will hold meetings conjointly.

THE Federation of Societies of Experimental Biology, composed of the American Physiological Society, the American Society of Biological Chemists, the American Society of Pharmacology and Experimental Therapeutics, the American Society for Experimental Pathology and the American Institute of Nutrition will meet in Chicago from April 15 to 19. The Stevens Hotel has been chosen as headquarters and all scientific sessions and demonstrations will be held there.

THE Midwestern Psychological Association will meet at Ohio University, Athens, on April 11 and 12 under the presidency of Dr. E. A. Culler, professor of psychology at the University of Illinois. About eight or ten sections and a similar number of symposia on special topics will be scheduled. Full details as to program, housing and transportation arrangements will be available about March 1 from the office of the secretary-treasurer, Dr. Robert H. Seashore, Northwestern University, Evanston, Ill.

THE New Jersey Gastro-Enterological Society will hold a symposium on "Lesions of the Stomach, Duodenum and Jejunum" at the Academy of Medicine, Newark, N. J., on February 3. Participants will be Drs. William T. Lemmon, Jefferson Medical College, Philadelphia; Burrill B. Crohn, Mount Sinai Hospital, New York City; Karl Kornblum, Jefferson Medical College, Philadelphia; Isidor S. Ravdin, University of Pennsylvania; John H. Garlock, Mount Sinai Hospital, New York City; Charles L. Brown, professor of medicine, Temple University. Dr. Hyman I. Goldstein, Camden, N. J., president, will preside at this meeting.

THE annual Social Science Field Laboratory, under the auspices of the Graduate School of New York University, will be held in Northern California during the summer of 1941. Eight fellowships will be granted to graduate students and accredited seniors from any branch of the social sciences and from any university. The laboratory provides an opportunity of receiving practical experience and training in social research and to participate in a long term research project. The results, which may be used as theses or dissertations, will be published in a series. Communications should be addressed to Dr. B. W. Aginsky, director, Social Science Field Laboratory, New York University, New York City.

DISCUSSION

AN INVENTORY OF NATURAL VEGETATION TYPES AND THE NEED FOR THEIR PRESERVATION

THERE will be general agreement among biologists that there is a very real need for samples of completely undisturbed vegetation and accompanying biota, as suggested by R. L. Piemeisel,[1] who has pointed out the numerous influences which may interfere with such areas even under the best conditions of protection. The illustrations, drawn from grassland ecology, of disturbance by natural agencies, largely beyond the control of man, find many parallels in forest types, the most striking of which was the New England hurricane of September, 1938.

A number of examples of natural forest types in essentially virgin condition had been set aside as natural areas to be maintained perpetually as reserves of undisturbed natural vegetation for study and comparison with adjacent sites more or less greatly altered. These had been acquired over a period of years by state and federal governments, universities and individuals. The timber on these areas, with few exceptions, was completely destroyed by the hurricane because of the especial vulnerability of over-mature trees to windfall; in fact, this might have been antici-

[1] R. L. Piemeisel, SCIENCE, 92: 2383, 195–197, 1940.

pated from the finding that the white pines on the natural area at Heart's Content, near Warren, Pennsylvania, were essentially even-aged, suggesting their origin from some blowdown before the coming of the white man.[2, 3] Certainly destructive hurricanes occurred in the past, and several other recent blowdowns have been observed, such as the one on the Olympic Peninsula in Washington in 1920. Tornado tracks of all ages can be traced in southern pine forests in Louisiana. Wide-spread windthrow of forests may thus logically be said to be natural phenomena, and such areas natural areas even during the periods when the dominant vegetation is prostrate and decaying. Viewed in this light there may seem no occasion for concern over the New England hurricane were it not for the fact that the scattered fragments of virgin timber now destroyed were frequently the only ones remaining in the region.

Climatic factors are not the only destructive agencies. Other illustrations of agencies causing profound alteration of natural forest types may be found in forest tree diseases such as chestnut blight (*Endothia parasitica* (Murr.) P. J. and H. W. And.), which has eliminated chestnut as a component of fully stocked forests in the Northeast. White pine blister rust (*Cronartium ribicola* Fischer) and Dutch elm disease (*Ceratostomella ulmi* Schwarz) have demonstrated their capacity to influence stand composition markedly, if allowed to spread unchecked. Insects are no less important. Most of the spruce in parts of eastern Canada has been killed by the European spruce sawfly (*Diprion polytomum* Hartig); the Eastern spruce bark beetle (*Dendroctonus piceaperda* Hopk.) periodically makes inroads in overmature virgin spruce in some of the very areas set aside as natural reserves, often as a successor to the spruce budworm, (*Cacoecia fumiferana* (Clem.)); and the gypsy moth (*Prothetria dispar* L.) has noticeably reduced the proportion of oak and other favored food plants in some sections where the insect has abounded for many years. Less destructive in general, some mammals may occasionally concentrate on just the areas selected for study. The writer has observed virtually complete destruction of trees on permanent sample plots by deer, porcupines and even beaver. Rabbits, gophers, squirrels and mice are a scourge to forestry experiments in many parts of the country. Yet they are an integral component of the forest community and as well as insects, fungi and other biota are part and parcel of the natural forest complex, to which they are bound by intricate and diverse interrelationships. To eliminate them as disturbing influences is to create at once an altered environment.

[2] H. J. Lutz, *Ecology*, 11: 1–29, 1930.

[3] H. J. Lutz and A. L. McComb, *Ecology*, 16: 252–256, 1935.

Man, of course, is the arch enemy of natural vegetation because of his greater ability to affect it in more indirect and direct ways than other mammals. Like other biotic factors, however, his direct influence is usually more acute the greater the population concentrated on an area. Lone hunters and woodsmen interrupted natural environment far less than the mass attack of CCC boys.

How, then, shall adequate examples of all the major types of vegetation be protected from the constantly increasing number of disturbing influences? Only by anticipation of future needs for such reserves and by as complete protection as is humanly possible of large and small areas, well distributed and replicated so that if one meet with disaster another may survive. The National Park Service and U. S. Forest Service have many such natural areas and reserves under their jurisdiction and they are establishing more all the time.[4] A periodic inventory should be made to enumerate what types of vegetation are now under preservation and what others need protection. The only comprehensive attempt along this line was the "Naturalists' Guide to the Americas."[5] Many changes have occurred in the last 14 years, and this survey should be brought up to date. The Committee on Preservation of Natural Conditions of the National Research Council might well undertake such a survey.* Until data are available on (*a*) what vegetation types (and animal communities) are at present adequately represented in protected areas and (*b*) what other types should be so protected, with the recommended priorities, we shall go on setting aside reserves in hit-or-miss fashion, duplicating some excessively and overlooking others until it is too late.

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LEADING NATIONS IN SCIENCE AND THE NOBEL PRIZE

IN SCIENCE Brill[1] has recently presented results of calculations applied to the Nobel Prize awards in science and has given tables comparing all winning nations on a basis of population and the number of winners for each. Four small countries of Europe, namely, Switzerland, Denmark, Holland and Sweden, had the largest ratio of winners to the population. This conclusion is simple and irrefutable. However,

[4] *Anon.*, SCIENCE, 92: 347–348, 1940.

[5] V. E. Shelford, editor, "Naturalists' Guide to the Americas." 761 pp. Baltimore, 1926.

* Since the preparation of this note the writer has been informed that the Committee on Preservation of Natural Conditions of the Ecological Society of America is compiling such an inventory.

[1] SCIENCE, 92: 2388, 310–311, 1940.