of education. I would only say that it is not special new courses that are needed, but rather a change in the spirit of our old courses. When a boy learns about the weighing machine, emphasize its sensitivity and consider the length of time that must be taken for the weighing. When he has a problem on projectiles, make him consider the zone of danger and not merely the point of fall. At a rather higher level, but still I should hope at school, introduce the idea of a distribution law; for example, in doing central orbits work out Rutherford's law of scattering. Calculate the fluctuations of density of a gas, or the groupings in time of the scintillations of α-particles. All these things ought to be examples of a familiar train of thought, and not merely a highly specialized side branch of mathematics first met at the university. It is the incorporation of probability in the other subjects on which I want to insist, but there will of course remain some higher aspects—things like least squares or significance tests—which are still to be treated in separate university courses. Even these I should hope would come to be recognized as subjects of central interest and not, as they are at present, relegated to a remote corner of specialized study.

If these reforms are carried out I shall hope that generations will grow up which have a facility that few of us at present possess in thinking about the world in the way which the quantum theory has shown to be the true one. The inaccuracies and uncertainties of the world will be recognized as one of its essential features. Inaccuracy in the world will not be associated with inaccuracy of thought, and the result will be not only a more sensible view about the things of ordinary life, but ultimately, as I hope, a fuller and better understanding of the basis of natural philosophy.

SCIENTIFIC EVENTS

NATIONAL PARKS

PRESIDENT ROOSEVELT has approved a recent act of Congress, marking an important step towards the final establishment of the proposed Isle Royale National Park in the State of Michigan. This act provides that all lands purchased by the Federal Government for conservation or forestation purposes within the authorized park boundaries, with funds heretofore allocated and made available by executive order, or otherwise, shall be made a part of the park as fully as if originally acquired for that purpose.

The establishment of the Isle Royale National Park was authorized by the act of Congress approved on March 3, 1931. Isle Royale, the largest island in Lake Superior, is rich in wildlife and is famous for its copper mines worked by Indians before the advent of white men. It is situated just within the international boundary separating Canada and the United States, being 50 miles northwest of Keweenaw Point, Michigan, and 20 miles southeast of the nearest Canadian mainland at Thunder Cape. Isle Royale measures 44 miles in length and 9 miles in width, including an area of 205 square miles. To date, 102,000 acres of land have been acquired under the executive order, leaving approximately 19,000 acres under contract to be purchased or in condemnation. The State of Michigan, which has appropriated $100,000 toward the acquisition of private rights on the island, must also cede exclusive jurisdiction to the United States over the lands acquired directly by the Federal Government before the park will be fully established.

Two days before his term as Chief Executive expired on March 4, 1909, Theodore Roosevelt by executive order established the Mount Olympus National Monument. An act was passed during the closing hours of the last session of Congress creating the Olympic National Park with the Mount Olympus National Monument as a nucleus. It provides for the immediate inclusion of 634,000 acres, nearly twice the area of the Mount Olympus National Monument, and in addition authorizes the President to add to this acreage lands from the Olympic National Forest and any lands that may be acquired by gift or purchase up to 898,292 acres. The region comprising the park is one of rugged ice-capped peaks and dark but vividly green "rain forests" of giant moss-festooned spruce and fir; of lake-studded flowering meadows forming natural gardens. Through its deep canyons streams fed by the waters of melting glaciers above find their outlet in the Pacific.

Purchase by the Federal Government of the last remaining land needed to complete the Great Smoky Mountains National Park in the wilderness of North Carolina and Tennessee has been announced. The act provides an appropriation for the National Park Service with which it will be possible to acquire 26,000 acres of land in Tennessee. All but the relatively small amount of land remaining to be bought gradually has been acquired since 1926 by the states with private donations and with state and federal funds. Private funds were matched, dollar for dollar, up to $5,000,000 by the Rockefeller Foundation as a memorial to Laura Spelman Rockefeller, mother of John D. Rockefeller, Jr. The Great Smoky Mountains National Park area so far acquired has been under the jurisdiction of the National Park Service since 1930. With the money now available, the final steps can be taken toward completion and formal

dedication of the park. To date title to 410,000 acres within the prescribed boundary is in the name of the United States, of which North Carolina purchased and gave title to approximately 184,752 acres, and Tennessee 165,921 acres. Also 59,394 acres were purchased with emergency funds authorized by executive order, at a cost of about one and a half million dollars, leaving the approximately 26,000 acres in Tennessee, the purchase of which now is possible.

FIELD WORK OF THE PHILADELPHIA ACADEMY OF NATURAL SCIENCES

EIGHTEEN expeditions and field projects have been carried on for the Philadelphia Academy of Natural Sciences during 1938, which include the following:

Jacques Francine, of Philadelphia, lived four months during the late winter and spring with a party of Swampy Cree Indians in the inaccessible wilderness of the Labrador Peninsula collecting mammals. He and Paul Millard, a French trapper, were flown by airplane some five hundred miles north of Quebec in the middle of last March. Arriving at the Crees' encampment, they shared with them the hardships of short rations and 40 below zero blizzards until the spring thaws made it possible for the group to migrate by canoe down the unmapped Kowashamiska River, about the size of the Connecticut River, south to the Hudson's Bay Post where the Indian furs were traded.

In Mexico, R. R. M. Carpenter, trustee of the academy, collected birds and mammals during March with Harold T. Green of the staff, and H. Radclyffe Roberts is collecting grasshoppers in the highlands north of Mexico City under the auspices of the academy and of the American Philosophical Society.

In the West Indies James Bond continued his survey of bird life and distribution, and at Madagascar, off the coast of Africa, Charles Lamberton is making a collection of insects.

Dr. Edgar B. Howard is carrying on his field researches for early man in North America, both in Florida and at Nebraska. He is accompanied by Malcolm Lloyd and Edward Page, Jr. Dr. Francis W. Pennell, assisted by a grant of the American Philosophical Society, is gathering botanical material in Utah and Colorado; and in Florida John Cadbury made a collection of insects during the month of March.

From Dutch New Guinea, one of the last frontiers of undisturbed wild life, Dillon Ripley returned with a large collection of zoological material, including birds, shells, plants and fish which he collected while a member of the Denison-Crockett Expedition to the southern Pacific.

The R. M. de Schauensee Zoological Survey of Siam is continuing its fourth year of research and the collecting of fish, birds and mammals, and Charles Primrose is doing similar work in India. An expedition sponsored by the academy and the Peabody Museum of Harvard College is seeking traces of early man in northern India, Java and the Philippines. During the past six months George Vanderbilt has continued making collections for the fish department, while he has been at Hawaii and the adjacent islands. In South America, M. A. Carriker, Jr., and Gordon Howes continued their study of bird migrations and distribution in Bolivia, and to the north in Columbia, Kiell von Sneidern is collecting birds.

THE FOURTH INTERNATIONAL CONGRESS OF COMPARATIVE PATHOLOGY

THE fourth International Congress of Comparative Pathology will meet in Rome, from May 15 to 20, 1939, under the official auspices of the Italian Government, with headquarters at the National Council for Researches, Piazzale delle Scienze.

Professor Pietro Rondoni, member of the Italian Academy and director of the Cancer Institute and of the Institute of General Pathology of the University of Milan, is president of the congress, and Professor Vittorio Zavagli, director of the Experimental Station for Animal Prophylactics, Rome, is secretary. The vice-presidents are: Senior Professor Nicola Pende, director of the Institute of Pathology and Medical Methodology of the Royal University, Rome; Professor Alessandro Lanfranchi, director of the Institute of Pathology and Veterinary Medical Clinic of the Royal University of Bologna; Professor Lionello Petri, director of the Institute of Phytopathology, Ministry of Agriculture, Rome, and Dr. Ugo Frascherelli, general secretary of the National Council for Researches, Rome, is the general secretary.

All meetings will be held at the Royal University and at the Institute for Public Health. The official languages will be Italian, English, French, German and Spanish.

The congress, which is of a purely scientific nature, has as its object the comparative study of pathology in human beings, animals and plants, bearing particularly upon diseases common to several groups of organisms and upon general organic reactions, viewing all biological as well as economic and social correlations. It will meet in three sections: Human Medicine, Veterinary Medicine and Phytopathology. There will be reports on ultra virus diseases, heredity in pathology, the function of the associated antigenes and regressive processes in plants.

In order to render more complete and more interesting the study of the various problems and to bring about closer mutual relations among the students of related sciences, the main subjects which are on the agenda will be reported on and discussed before an assembly of all the sections.