ments would prove to be of so simple a character as we now believe it to be. It is an illustration of the fact that Nature appears to work in a simple way, and that the more fundamental the problem often simpler are the conceptions needed for its explanation. The rapidity and certitude of the advance in this epoch have largely depended on the fact that it has been possible to devise experiments so that few variables were involved. For example, the study of the structure of the atom has been much facilitated by the possibility of examining the effects due to a single atom of matter, or, as in radioactivity or x-rays, of studying processes going on in the individual atom which were quite uninfluenced by external conditions.

In watching the rapidity of this tide of advance in physics I have become more and more impressed by the power of the scientific method of extending our knowledge of Nature. Experiment, directed by the disciplined imagination either of an individual, or still better, of a group of individuals of varied mental outlook, is able to achieve results which far transcend the imagination alone of the greatest natural philosopher. Experiment without imagination, or imagination without recourse to experiment, can accomplish little, but, for effective progress, a happy blend of these two powers is necessary. The unknown appears as a dense mist before the eyes of men. In penetrating this obscurity we can not invoke the aid of supermen, but must depend on the combined efforts of a number of adequately trained ordinary men of scientific imagination. Each in his own special field of inquiry is enabled by the scientific method to penetrate a short distance, and his work reacts upon and influences the whole body of other workers. From time to time there arises an illuminating conception, based on accumulated knowledge, which lights up a large region and shows the connection between these individual efforts, so that a general advance follows. The attack begins anew on a wider front, and often with improved technical weapons. The conception which led to this advance often appears simple and obvious when once it has been put forward. This is a common experience, and the scientific man often feels a sense of disappointment that he himself had not foreseen a development which ultimately seems so clear and inevitable.

The intellectual interest due to the rapid growth of science to-day can not fail to act as a stimulus to young men to join in scientific investigation. In every branch of science there are numerous problems of fundamental interest and importance which await solution. We may confidently predict an accelerated rate of progress of scientific discovery, beneficial to mankind certainly in a material but possibly even more so in an intellectual sense. In order to obtain the best results certain conditions must, however, be fulfilled. It is necessary that our universities and other specific institutions should be liberally supported, so as not only to be in a position to train adequately young investigators of promise, but also to serve themselves as active centers of research. At the same time there must be a reasonable competence for those who have shown a capacity for original investigation. Not least, peace throughout the civilized world is as important for rapid scientific development as for general commercial prosperity. Indeed, science is truly international, and for progress in many directions the co-operation of nations is as essential as the cooperation of individuals. Science, no less than industry, desires a stability not yet achieved in world conditions.

There is an error far too prevalent to-day that science progresses by the demolition of former well-established theories. Such is very rarely the case. For example, it is often stated that Einstein's general theory of relativity has overthrown the work of Newton on gravitation. No statement could be farther from the truth. Their works, in fact, are hardly comparable, for they deal with different fields of thought. So far as the work of Einstein is relevant to that of Newton, it is simply a generalization and broadening of its basis; in fact, a typical case of mathematical and physical development. In general, a great principle is not discarded but so modified that it rests on a broader and more stable basis.

It is clear that the splendid period of scientific activity which we have reviewed to-night owes much of its success and intellectual appeal to the labors of those great men in the past, who wisely laid the sure foundations on which the scientific worker builds to-day, or to quote from the words inscribed in the dome of the National Gallery, "The works of those who have stood the test of ages have a claim to that respect and veneration to which no modern can pretend."

ERNEST RUTHERFORD

SCIENTIFIC EVENTS

THE GORGAS MEMORIAL INSTITUTE OF TROPICAL AND PREVENTIVE MEDICINE[1]

1. The Gorgas Memorial was organized under the laws of the state of Delaware with Admiral Braisted, Honorable John Bassett Moore, Surgeon General Ireland, Surgeon General Stitt, Surgeon General Cumming, Dr. Leo S. Rowe, Honorable Jose E. Lefevre of the Panaman Legation, President Belisario Porras of Panama, and Dr. Franklin Martin as the sponsors.

2. The object of the organization is to raise money,

[1] Statement presented to the American Medical Association by Dr. Franklin H. Martin.

the interest of which will sustain a working memorial to General Gorgas, whose genius stamped out yellow fever and malaria in Cuba and Panama, and who taught us how to control those diseases.

3. The memorial is to be known as the Gorgas Memorial Institute of Tropical and Preventive Medicine, and will take the form of a research laboratory and a teaching institute in Panama for those branches of medicine.

4. The headquarters of this institute will be presided over by a board of scientific directors, of which Professor Richard P. Strong, of Harvard University, has been selected as the first director. The institute will be located in Panama on a beautiful site on the shore of the Pacific, which was formerly in the exposition grounds of the city of Panama. The site was donated by the Republic of Panama, and President Porras, backed by the citizens of Panama, has guaranteed the initial buildings.

5. It is the plan of the directors of the institute to raise the sum of five million dollars, which will be invested in trust securities, and only the interest of which is to be used to carry on the purposes of the organization.

6. The board of directors is composed of the following named men:

Honorary president, president of the United States.
Dr. Belisario Porras, president, Republic of Panama.
Surgeon General Merritte W. Ireland, United States Army, Washington.
Surgeon General Hugh S. Cumming, United States Public Health Service.
Dr. Seale Harris, president of the Southern Medical Association.
Mr. Bernard Baruch, New York.
Mr. W. P. C. Harding, president of the Federal Reserve Bank, Boston.
Mr. Fred W. Upham, president, Consumers' Company, Chicago.
Dr. W. H. G. Logan, professor of oral surgery, Chicago College of Dental Surgery.
Dr. Gilbert Fitz-Patrick, chairman of the board of control, American Institute of Homeopathy, Chicago.
Dr. Leo S. Rowe, director-general, Pan American Union, Washington.
Surgeon General Edgar R. Stitt, United States Navy, Washington.
Brig. Gen. Robert E. Noble, Surgeon General's Library, Washington.
Hon. R. J. Alfard, Panaman minister, Washington, D. C.
Judge John Bassett Moore, Court of International Justice, The Hague.
Mr. Samuel Gompers, president of the American Federation of Labor.
Brig. Gen. Charles G. Dawes, president of the Central Trust Company of Illinois.
Mr. Adolph Ochs, editor, New York *Times*, New York.
Dr. Frank Billings, Chicago.
Vice-president and chairman of Board of Directors, Dr. Franklin H. Martin, director-general, American College of Surgeons.

THE ROOSEVELT WILD LIFE FOREST EXPERIMENT STATION

THE Roosevelt Wild Life Forest Experiment Station, Syracuse, N. Y., recently received a valuable gift in the form of an exhibit showing in 14 stages the preparation of Hudson seal or seal-dyed muskrat from the raw skin to the fully dyed fur. This exhibit is enclosed in a polished mahogany case, 20 feet long, with plate glass front, and with electrical illumination. The whole exhibit is beautifully executed. This gift was made by A. Hollander & Son, of Newark, N. J., the leading dyers of this fur, and through the friendly services of Mr. Max Herskovitz, of Alfred Herskovitz and Son, New York City.

Mr. Edward R. Warren, fur naturalist of the station, is continuing his investigations of the beaver in the Yellowstone National Park, begun in 1921. He is aided by Mr. James E. Mills, a volunteer assistant. These studies have been made possible by the gift of the services of these men and by funds from members of the Board of Trade of the Fur Industry of New York City. The cooperation on the part of these men of the fur industry is a part of their program to encourage research and conservation of fur-bearing animals, as they realize that the permanence of the industry depends upon a sustained yield of raw fur.

Mr. Aretas A. Saunders, field ornithologist, has devoted the summer to a study of the breeding grounds of ducks in western New York. His report on the birds of the Alleghany State Park has just been published in the *Roosevelt Wild Life Bulletin.*

Dr. Charles E. Johnson, formerly fur naturalist of the station, who made a study of the Adirondack beaver for the station in 1921, has devoted the summer to a study of the status of muskrat in western New York. Dr. Johnson, recently of the University of Kansas, has accepted a professorship in the department of forest zoology in the New York State College of Forestry.

Dr. William C. Kendall, ichthyologist, assisted by W. A. Dence and W. P. Osborn, continued his investigation of the trout of the Cranberry Lake region in the western Adirondacks which is being made in cooperation with Commissioner Alexander Macdonald, of the N. Y. State Conservation Commission. These are the finest trout waters in the Adirondacks.

CHAS. C. ADAMS
Director

THE WORLD'S DAIRY CONGRESS

THE opening sessions of the congress will be held on October 2 and 3 at Washington, when the discus-