

deviating power for good in both scientific research and business administration. Once he was satisfied that a proposed course of action was honest and essential to the public interest, he was unflinching in oral and written expression and in action with regard to it. Loyalty, courage, patience and intensive, persistent effort were conspicuous elements in his life. One who knew him well in the later years, during which much of his most productive and important work was done, has said:

I think it was his courage for which I admired him most. . . . It was his own peculiar and personal kind—it was quiet, it was never spectacular, it was imperturbable, it was calm and unflinching in defeat, without trace of arrogance in victory. His wise, unselfish counsel has helped scores, probably hundreds, among his scientific acquaintances. His research ability and his skill as an administrator leave science and society deeply in his debt. His courage as an individual, which approached the absolute, was a moral force which his death does not extinguish.

He was actively interested in the work of a number of the national and local scientific societies, a member of Delta Upsilon and Sigma Xi fraternities and an active member of the Cosmos Club and the Columbia Country Club of Washington.

In 1923 the Kansas Agricultural College conferred upon him the degree of doctor of science in recognition of his work in plant physiology and pathology.

Dr. Kellerman is survived by his wife, Mrs. Gertrude (Hast) Kellerman, his son, Karl Frederic, Jr., his grandson John, his mother, Mrs. Stella V. Kellerman of San Diego, Calif., and two sisters, Dr. Ivy Kellerman Reed and Mrs. Walter T. Swingle.

WM. A. TAYLOR

BUREAU OF PLANT INDUSTRY

## RECENT DEATHS

DR. FREDERIC SOWDEN JONES, associate member of the Rockefeller Institute for Medical Research, with headquarters at the Department of Animal and Plant Pathology at Princeton University, died on October 19. He was forty-six years old.

DR. FRANCIS METCALF ROOT, associate professor of medical entomology at the Johns Hopkins School of Hygiene and Public Health, died on October 21 at the age of forty-five years.

DR. JOHN H. BANKS, New York geologist and metallurgist, died on October 3 at the age of seventy-three years.

GRACE POTTER RICE, assistant professor of chemistry at Barnard College, died on October 18 at the age of fifty-two years.

SANTIAGO RAMÓN Y CAJAL, the distinguished neurologist and histologist of Madrid, died on October 18 at the age of eighty-three years.

## SCIENTIFIC EVENTS

### LOCUST CONTROL IN AFRICA AND ASIA

THE third International Locust Conference opened in London on September 11. Simultaneously with the meeting of the congress the sixth report of the Committee on Locust Control of the British Economical Advisory Council has been issued as a white paper.

According to a summary in the London *Times*, the committee, of which Sir Henry Miers is chairman, reviews the present locust outbreak in Africa and Western Asia and the investigations carried out since 1929 and ends with a note concerning further investigations. There are appendices dealing with anti-locust aircraft experiments in Northern Rhodesia and the fungus disease of locusts. Four varieties of locust are dealt with in the report, the Tropical Migratory, the Desert, the Red and the Moroccan locusts.

In its general conclusions the committee says:

The truly international character of the locust problem has never been demonstrated on so large a scale or in so convincing a manner as during the outbreak which began nine years ago and is still in progress. Thus, in the astonishingly short period of five generations, the tropical migratory locust was able to cross Africa from

west to east. In the course of the next three generations it spread over the whole of East Africa, and crossed the continent diagonally from northeast to southwest. Turning to the desert locust, we find that the breeding of this locust in the remote regions that lie to the south of the Sahara is closely connected with the invasions of the fertile coast lands of the African shores of the Mediterranean. Again, we find that invasions of Egypt, Palestine, Syria, Turkey, Iraq, Persia and, perhaps, India are dependent on the situation in Arabia and the Sudan, and that the locust problem in the territories of East Africa is intimately bound up with that in Somaliland.

The present locust outbreak, especially in Africa, developed on so great a scale that it soon became apparent that attempts at its general control would be doomed to failure. . . . Even in those territories where the extermination of invading locust swarms and of their immediate progeny was possible, though costly, the success attained was limited to the saving of the crops of a single season. No immunity for the future was secured. Fresh campaigns had to be organized in following years to meet the threat of fresh invasions.

Thus, from this point of view, the chief lesson of the last few years has been the realization that in tropical and sub-tropical Africa and Asia it is impossible to control a locust outbreak once it has been allowed to spread

over a large area. . . . There is reason to suppose that, even if every territory were to adopt the most modern methods of control and to organize a highly efficient service, they would still be powerless to affect materially either the general development or the extent of a locust outbreak once it has developed on a considerable scale.

It has sometimes been argued that the present locust outbreak is unprecedented in its extent and that it is unlikely that so formidable an attack will occur again. All the available evidence, however, points to the opposite conclusion. . . . It may, therefore, be confidently assumed that far from being less serious, locust invasions in the future, if allowed to develop, will be even more disastrous than that through which we are now passing.

There is nothing to lead us to suppose that the remote districts which serve as the permanent breeding places of locusts are likely to suffer any natural changes which would cause them to cease to produce locusts. Thus, unless the problem can be solved by the effective control of the breeding areas, there is every likelihood that as larger areas come under cultivation in Africa there will be a proportionate increase in the losses sustained by reason of locust invasions. Even in the present outbreak the losses, direct and indirect, have amounted, we estimate, to at least £7,000,000, and this figure may be well greatly exceeded during the next outbreak.

One of the most important of the results so far obtained is the discovery that the distribution, breeding habits and migrations of locusts which formerly appeared so capricious in character are, in fact, subject to definite regularities. Thus it is now known that each species of locust is restricted in its occurrence to a vegetation zone of a definite type. Again, the migrations of swarms from and to the breeding areas are now known to be regulated by seasonal climatic changes. . . .

If, therefore, the permanent breeding places were known and were kept under regular observation, it should require but little expenditure of time or money to control swarms immediately they began to form after the transformation of the locusts from the solitary to the swarming phase. Control of this type, once established, would at last rid Africa of the constantly recurring risk of devastation by locusts. . . . It is in the hope of providing a solution to this problem that we have devised the experiments in the use of aircraft against locusts that are now being carried out in Africa.

#### THE AMERICAN TREATY ON THE ROERICH PACT

PRESIDENT ROOSEVELT has appointed Secretary of Agriculture Henry A. Wallace as United States plenipotentiary to sign the Inter-American Treaty on the Roerich Pact, for the protection of artistic, scientific, historical and cultural monuments. This treaty has been drawn up by the Pan American Union in accordance with the unanimous resolution of the Pan American Conference at Montevideo recommending that all the American governments adopt the Roerich Pact for the protection of culture.

In regard to this appointment, Secretary Wallace issued the following statement:

I am deeply gratified to have been named by President Roosevelt to sign for the United States this important document in which I have been interested for many years and which I regard as an inevitable step in international relations.

The Roerich Pact, which forms this treaty, provides that all museums, cathedrals, universities, schools, libraries and other cultural sites be registered by the nations and marked by a banner—known as the Banner of Peace—which designates them as neutral territory respected by all signatory nations. This pact owes its conception to the versatile genius of Nicholas Roerich, one of the greatest figures and true leaders of contemporary culture.

In many ways the history of the Roerich Pact is analogous to that of the Red Cross which was accepted only after sixteen years of effort. But, as Roerich has written, "where the Red Cross cared for the sick and physically wounded, the Roerich Pact protects the values of human genius, thus preserving the spiritual health of the nations."

The Roerich Pact represents thirty years of tireless effort on the part of Nicholas Roerich. In 1904 after several archeological expeditions he first presented his project for the preservation from destruction of the irreplaceable historical and cultural sites of the nations. In 1929 after his return to America from his Central Asiatic Expeditions, he formulated his project into the Roerich Pact. Three conventions have been held for its promulgation—two in Belgium and the third last November in Washington, when 35 nations officially participated. Following this, the Pan-American Conference in Montevideo unanimously recommended the Roerich Pact for adoption by the American Governments and on this basis the present treaty has been drawn up for signature by the Pan American Union.

At no time has such an ideal been more needed. While the individual nations are working out their separate economic and national problems, it is also necessary that they recognize their responsibility as part of the community of nations. I am not one to urge visionary substitutes in the place of effective action in a world of hard economic facts. Yet I do say that it is high time for the idealists who make the reality of to-morrow to rally around such a symbol of international cultural unity. It is time that we appeal to that appreciation of beauty, science and education, which runs across all national boundaries to strengthen all that we hold dear in our particular governments and customs.

It is for this reason that I regard the ratification of the Roerich Pact as so significant a step. Its acceptance signifies the approach of a time when those who truly love their own nation will appreciate in addition the unique contribution of other nations and also do reverence to that common spiritual enterprise which draws together in one fellowship all artists, scientists, educators and the truly religious of whatever faith.

I feel that this age owes a great debt to Nicholas Roerich in the creation of this ideal—for such ideals