ties, all of which are important but which can not be enumerated here on account of lack of space. The details of these operations will be found in the Annual Report of the council, which will be published in the Annual Report of the National Academy of Sciences and in the first Annual Report of the Science Advisory Board, which will be published later this fall.

OBITUARY

KARL FREDERIC KELLERMAN

IN the death of Dr. Karl Frederic Kellerman at Garfield Memorial Hospital in Washington, D. C., on August 30, 1934, agricultural science lost a very productive investigator in the biological field and an unusually able administrator of a wide range of research, regulatory and service projects. Born in Göttingen, Germany, on December 9, 1879, while his parents, the late Professor W. A. Kellerman and Mrs. Kellerman, were temporarily there, his childhood and youth were largely spent at Manhattan, Kansas, and Columbus, Ohio, where his father held the chairs of botany in the Kansas Agricultural College and the Ohio State University. He was graduated from Cornell University in 1900 with the degree of bachelor of science and served there for one year as an assistant in botany before entering the then newly organized Bureau of Plant Industry of the U. S. Department of Agriculture in 1901 as assistant physiologist.

His next fifteen years were devoted largely to research in the fields of water supply purification and soil bacteriology, at first in association with Dr. George T. Moore and later in full charge of the bureau projects in those fields, the scientific results of which appeared in numerous publications of the Department of Agriculture and papers in technical journals. Practical methods now widely used for preventing the growth of algae and certain pathogenic bacteria in water supplies were developed, and improved methods of bacterial inoculation of leguminous crops were worked out and widely adopted by practical farmers.

In 1914 Dr. Kellerman became assistant chief of the Bureau of Plant Industry and in 1917 was made associate chief, in which capacity he served until recently transferred to the Bureau of Entomology and placed in charge of the work involved in the eradication and control of plant diseases, activities also assigned to that bureau which is now known as the Bureau of Entomology and Plant Quarantine.

While available space and present circumstance prevent the adequate setting down of the results of the twenty years of his active and productive life in the administrative field, as is contemplated for later recording, a continuing, intimate, personal association with him and his work during this period is the basis for the conviction that few public servants of our generation have rendered such able, energetic and productive service as he. Under his leadership, as chairman of its editorial committee, which responsibility he carried for ten years, the *Journal of Agricultural Research* was organized and established in 1913. For ten years, beginning in 1914, he served as a member of the Federal Horticultural Board during the formative period of national plant quarantine development and enforcement. In 1915, when the discovery was made that the introduced citrus canker disease had gained foothold at a number of scattered points in the orange and grapefruit producing regions of the Gulf States, under his vigorous and capable leadership there was developed and successfully carried through the cooperative research and regulatory program through which the causal organism was promptly determined and the pest brought under control, thus saving this highly important and valuable industry. The successful carrying through of this project, which at the outset was by many scientists and administrators regarded as hopeless, required the highest type of administrative courage and faith in the loyalty of cooperating associates both in laboratory and field. Recognition of the essential basic principles which were crystallized out through this campaign was of great value in the guidance of other emergency eradication projects which followed.

In 1917 Dr. Kellerman was designated by President Wilson as a member of the National Research Council, serving as secretary of the agricultural committee, and from 1918 he served as a member of the division of biology and agriculture and of the division of federal relations. In 1929 he organized the phony peach disease eradication project in the South and shortly before his death the Dutch elm disease eradication project in the Eastern States.

Among his associates Dr. Kellerman was a most highly regarded counselor and friend, the wholesome and stimulating effect of whose personality upon hundreds of scientific workers is widely recognized by the workers of the department and the state experiment stations. In the planning of research undertakings he possessed unusual clarity of vision, ability to locate the essential objectives and to work effectively with men of widely divergent training and temperament, as is frequently necessary in the public service. Inherently logical in his mental processes and honest in thought and expression, he was an un-

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 RAMÒN 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.
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> 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.
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> 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