a line of meteorological stations along aviation routes would seem to be a first condition. There must also be a much wider coordination of the observations at stations already established. Finally, both the new and the old stations can not be grouped by countries, as in the past, but must be tied in with the airports at the ends of the routes as well as at points between, wherever they may fall with respect to international boundaries. It thus appears that aviation has its own special requirements. We see that clearly in air pioneering in the United States, where the habit of the weather is fairly well known from region to region. How much more important it becomes in high latitudes of the northern hemisphere where successful flights have already been made by airships and airplane around the earth!

[Following his paper Dr. Bowman showed about sixty slides arranged in eight groups as follows: (1) a map of world rainfall variability in relation to pioneer belts to show the importance to future settlement in relatively high latitudes of strong rainfall variations; (2) the position of high-latitude meteorological stations in the northern hemisphere and the paths of high-latitude low- and high-pressure areas that have weather effects in lower latitudes; (3) types of ice and the conditions of ice discharge in the Arctic and the Antarctic; (4) dynamic conditions in the Arctic and the Antarctic in relation to currents, and land and sea migrations of the present and of past time; (5) economic conditions related to the whaling industry and questions of sovereignty; (6) radio exchanges between New York and the field expeditions of Byrd and Wilkins to illustrate the possibilities of scientific consultation while work is actually in progress; (7) the routes and relations of the four main Antarctic expeditions of the past year; (8) physiographic features, especially in the Antarctic Archipelago.]

OBITUARY

GEORGE FOUCHÉ FREEMAN

1878–1930

DR. GEORGE F. FREEMAN, director of the Federal Experiment Station at Mayaguez, Porto Rico, since April, died suddenly on September 18. Interment was made at Manhattan, Kansas.

Dr. Freeman was born at Maple Grove, Alabama, on November 4, 1876, and was graduated from the Alabama Polytechnic Institute at Auburn, Alabama, in 1903. He was granted the degree of doctor of science by Harvard University in 1917. He began his career as a botanist, but became a plant geneticist and educational administrator. He was a member of the botanical staff of the Massachusetts Agricultural College during 1903, and of the Kansas State Agricultural College from 1904 to 1909. From 1909 to 1918 he was in charge of plant-breeding work at the Arizona Experiment Station. In 1919 he was called to Egypt by the Egyptian government to organize the cotton breeding work for the Sultanic Agricultural Society, where he remained three years, at which time he returned to the United States to accept a similar position with the Texas Agricultural Experiment Station. He remained in Texas for a year and was then appointed to an agricultural commission to Indo China by the French government, which work required a year. Upon his return to the United States he was nominated, by the President of the United States, director general of the Service Technique of Haiti, where he went in 1923 to build up a vocational educational system and an agricultural development program. He remained in Haiti until April, 1930, when he resigned to become director of the Federal Experiment Station at Mayaguez, Porto Rico, at which place he resided until death overtook him.

Dr. Freeman's scientific activities centered primarily around cotton. He gave considerable attention to a study of the various varieties of cotton and had made substantial progress on a monograph of the cottons of the world.

He did his greatest work, however, in Haiti, as an administrator and organizer of the Service Technique. He built up an organization of 476 employees in six years, of which 91.6 per cent. were Haitian, according to the "Annual Report of the Service Technique for 1928–1929."[1] The property valuation, which included school building, school land and school equipment, amounted to $1,475,000. A total of 11,430 pupils and students were being accommodated. While this represents a mere beginning towards reducing the estimated 85 per cent. illiteracy in the country and in building up a nation undeveloped both in agriculture and along industrial lines, it indicates something of the enthusiasm and energy with which this difficult task was undertaken. Dr. Freeman deserves the lasting gratitude of the Haitian people for what he accomplished. The complete realization of the program can not be expected before two or three generations.

Dr. Freeman was the author of numerous reports and scientific contributions. He was a member of sev-

[1] Annual Report, Technical Service of the Department of Agriculture and Professional Education, Port-au-Prince, Haiti, Bul. No. 17. 1929.

eral leading scientific societies and was widely known among scientists and educators.

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RECENT DEATHS

ERNEST HENRY WILSON, keeper of the Arnold Arboretum of Harvard University, and Mrs. Wilson were killed in a motor accident in Worcester on October 1. Dr. Wilson was fifty-four years old. He had been connected with the arboretum since 1906.

EDWARD FOSTER, state entomologist for Louisiana, died on October 8.

HENRY MARTYN MACKAY, dean of the faculty of applied science and professor of civil engineering at McGill University, died on October 25 in his sixty-third year. He had been associated with the university for twenty-six years and had been head of the faculty of applied science since 1924.

PAUL E. APPELL, professor of mathematics at the University of Paris, member of the Institute of France, died at Paris on October 24. He was seventy-five years old.

SIR FRANCIS WATTS, K.C.M.G., first principal of the Imperial College of Tropical Agriculture at Trinidad, died on September 26, aged seventy years.

LORD BROTHERTON, first baron of Wakefield, has died at the age of seventy-four years. He was the founder of extensive chemical manufacturing plants throughout England and Scotland. In June of this year he was awarded the Messel Medal by the Society of Chemical Industry for his services to the industry.

MEMORIALS

THE Northeastern Section of the American Chemical Society has announced the establishment of a gold medal to commemorate the fundamental contributions made to chemistry by the late Theodore William Richards, who at the time of his death was Erving professor of chemistry at Harvard University and director of the Wolcott Gibbs Memorial Laboratory. The medal, which will be awarded at intervals of two or three years for achievements in chemistry, is being designed by Cyrus E. Dallin, a sculptor who was an intimate friend of Professor Richards. An opportunity is offered the friends of Professor Richards to assist in securing the sum of $10,000 which is required to cover the initial expenses and provide a trust fund yielding sufficient income for the successive medals and incidental expenses.

CONTRIBUTIONS are invited to the Joseph W. Richards fund by the American Electro-chemical Society. The fund was inaugurated by the board of directors, in order that an independent income might be available to be used towards the payment of expenses of invited speakers from Europe or elsewhere. The plan of the fund embodies the wish that the late Professor Richards so often expressed during the many years of his untiring service as secretary of the society. Contributions should be sent to the secretary, Dr. Colin G. Fink, Columbia University, New York City.

THE new observatory on the Rechenberg, near Nüremberg, Germany, has been completed in time for the celebration of the three-hundredth anniversary of the death of Johannes Kepler. In connection with this event there will be an exhibition of objects connected with his life and work.

SCIENTIFIC EVENTS

THE CENTENARY OF THE ROYAL GEOGRAPHICAL SOCIETY

ACCORDING to the London *Times* the Royal Geographical Society celebrated its centenary on October 21 and 22. Since the society was founded 100 years ago under the patronage of King William IV its work has been followed with interest by successive Sovereigns and members of the Royal Family. The Duke of York, representing the King, who is patron of the society, inaugurated the centenary celebrations, and the Prince of Wales, vice-patron of the society, presided at the centenary dinner. The occasion was noteworthy as marking the use, for the first time, of the lecture theater and library, which have been added to the society's house. There were present at the various ceremonies in connection with the centenary representatives of the principal geographical societies throughout the world and delegates from many other scientific institutions.

On the afternoon of October 21, the Duke of York, representing the King, received fellows of the society and delegates from other bodies in the new hall which seats 850 people. The delegates of the Société de Géographie of Paris and of the Gesellschaft für Erdkunde of Berlin—societies which have already celebrated their centenaries—read addresses. The new buildings of the society were then declared open. On Tuesday evening the society held its centenary meeting in the new hall, when Sir Charles Close, the president, Mr. Douglas Freshfield, Sir Francis Younghusband and the Marquess of Zetland, past presidents, and Dr. H. R. Mill, vice-president, spoke on the history of the society.

On October 22 a series of short papers on "The