ogy and by simple models how to make his subject as "anschaulich" as possible. With his interest in pedagogical problems, he was strongly attracted to youthful beginners, to whom he never failed to give encouragement and with whom he shared his great enthusiasm, so essential for their further progress and development.

Paul Ehrenfest was born in Vienna in 1880, where he became the outstanding pupil of Ludwig Boltzmann. He clarified the curious difficulties and paradoxes which still remained in Boltzmann's life work, the kinetic interpretation of the second law of thermodynamics. In their famous article in the *Enz. der Math. Wiss.*, Vol. IV (1911), P. and T. Ehrenfest showed conclusively that there were no inner contradictions in the work of Boltzmann. His interest in statistical theory kept him in close contact with the development of the quantum theory; Ehrenfest's "adiabatic hypothesis" was an essential step forward. Paul Ehrenfest worked in Göttingen and spent also a considerable time in Russia. In 1912 he was invited by the late H. A. Lorentz to succeed him in the chair of theoretical physics at the University of Leiden. He visited the United States in 1924 and in 1930, when he lectured at Pasadena and in the Theoretical Symposium at the University of Michigan.

The general upheaval, political and economic, of post-war Europe and especially the recent tragic fate of many of his dearest friends in Germany, depressed him deeply. Ehrenfest's death, lamented by all who knew him, is an irreparable loss to his pupils.

G. E. UHLENBECK
S. GOUDSMIT
G. H. DIEKE

## F. FÜLLEBORN

TROPICAL medicine and parasitology has suffered a great loss in the death, on September 9, of Geh. Medizinalrat Professor Dr. Friedrich Fülleborn. When the Institut für Schiffs- und Tropenkrankheiten was founded at Hamburg in 1900, he was called to head the department of tropical medicine, and on the retirement of Dr. Bernhard Nocht in 1930 he became director of the institute. Thirty years of achievement as physician, teacher and investigator led naturally to the position of administrative leadership, and he was active until stricken by a fatal heart attack.

During his student days he came under the influence of Rudolph Leuckart at Leipzig and acquired an interest in the biology of animal parasites and their pathological effects. This early interest became the directive influence of his mature years. Over a hundred published researches, especially in the field of helminthology, bear witness to a life of tireless and brilliant investigation. An outstanding figure in the field of tropical medicine, he had received many honors in all parts of the world and was an honorary foreign member of the American Society of Parasitologists.

But for those who knew him personally, and I was privileged to spend the year 1931–1932 in his laboratories, it was his nobility of character and his qualities of mind and heart that endeared him to his associates. A truly great man has left us.

H. W. STUNKARD

## RECENT DEATHS

DR. EDWIN SCHOFIELD CRAWLEY, professor emeritus of mathematics at the University of Pennsylvania, died on October 18. He was seventy-one years old.

DR. JAMES ABRAHAM FARIS, senior pathologist, in charge of cereal smut investigations, Division of Cereal Crops and Diseases, Bureau of Plant Industry, U. S. Department of Agriculture, died on September 24 at Washington, D. C., at the age of forty-three years.

DR. CHARLES C. PLITT, professor of botany at the University of Maryland School of Pharmacy, known for his microscopic investigation of drugs and the taxonomy of lichens, died at his home on October 13, at the age of sixty-four years.

*Nature* reports the death of Professor Leonard J. Rogers, formerly professor of mathematics in the University of Leeds, on September 12, aged seventy-one years; of G. M. Thomson, founder of the Dunedin Technical College and the Portobello Marine Biological Station, an authority on the natural history of New Zealand, aged eighty-four years, and of Lieutenant-Colonel R. H. Rowe, commissioner of lands, Nigeria, known for his work on the topographical and trigonometrical survey of Nigeria, on September 6, aged fifty years.

# SCIENTIFIC EVENTS

## THE TERCENTENARY OF THE ASTRONOMICAL OBSERVATORY AT LEIDEN

THE tercentenary of the Leiden Astronomical Observatory, the oldest in Europe, was celebrated on October 6 at Leiden University. A correspondent of the London *Times* reports that among those who were present at the ceremonies were Professor Stratton, England; Professor Silva, Italy; Dr. Bergstrand, Scandinavia; Dr. van Oort, United States, and Professor E. Bianchi, of the International Astronomical Union.

The Rector Magnificus, Professor D. van Blom, de-

livered the opening speech, after which the director, Professor Willem de Sitter, sketched the history of the observatory, which was founded by Golius, the pupil of Snellius, in 1633 and refounded in its second period in 1851 by Kaiser when astronomy was reorganized on modern lines.

In an interview Professor de Sitter, who has now been director for twenty-five years, said that an agreement was made by the Leiden Observatory in 1923 with the Johannesburg Observatory by which a member of the Leiden Institute has since been working in Johannesburg. Three years ago the Rockefeller Foundation made a gift of $100,000, a portion of which was allotted for the purchase of a large modern spectroscope to be made in England. A second, smaller spectroscope is being built in Holland and both instruments will be ready and delivered next year.

The teaching of astronomy at Leiden dates from soon after the foundation of the university in 1575, but it was not until 1633 that, thanks largely to the efforts of Dr. Rudolf Snellius, the famous tutor of Prince Maurice of Orange and first professor of mathematics at Leiden, the university authorities recognized the claims of the new science and built the first observatory—a wooden tower on the roof of the university buildings.

Snellius himself had not lived to see it—he died in 1629—but it was his large wooden quadrant which was placed, first in the open air on the roof of the tower, later in a special room with a sliding roof. The first apparatus was scanty and primitive—a couple of globes out of the library and half a dozen miscellaneous instruments. A wooden quadrant with which the first observations of any importance were made in 1658 is still preserved at the observatory.

During the seventeenth century the observatory gradually developed in size and importance, and in 1689 moved into a new building specially constructed to house a copper sextant which cost the authorities over 1,000 guilders.

The first professor of astronomy, Willem 's Gravesande, was appointed in 1717.

## NEW GERMAN GEOGRAPHICAL PUBLICATIONS

*The Geographical Journal* notes that two new German series have commenced publication recently. Both are devoted largely to the geographical aspects of settlement in relation to environment. The Geographical Institute of Berlin University is issuing *Berliner Geographische Arbeiten*. The first, by W. Hartke, deals with changes in the human geography of northeast France brought about by the war devastation and reconstruction. His general conclusion is that all recent developments in agriculture, economic life and distribution of population were foreshadowed in pre-war days, though their quickening may be attributed in most cases to the war. Areas of heavy depopulation are markedly associated with those areas in which fighting was most severe. Urbanized areas show great increases, largely owing to the universal drift to the towns—in contrast to the rural districts, some of which showed a 30–40 per cent. decrease between 1911 and 1926. The structure of the population also shows changes, as the influx from the rest of France and from abroad has been large. In the second part, H. Winz attempts to draw a complete picture of the cultural geography of the Upper Inn valley from personal observation and research in archives. Most of his space is given to the development of settlement from prehistoric times, leading up to a consideration of the present distribution. Outstanding features, which react upon each other, are the reversion of tillage to meadow-land and depopulation. In some districts one quarter of the land went out of cultivation between 1860 and 1928, owing, in some instances, to the advent of alternative sources of livelihood.

The second series, published by the Geographical Institute at the University of Kiel, begins with a monograph by H. Wenzel on the basin of Ak Shehr. This area, in the southwest of the high interior steppe lands of Anatolia, depends for its prosperity upon the streams and springs fed by the northeastern slopes of the Sultan Dagh range. The author therefore pays special attention to the hydrology and irrigation system. The district of Ak Shehr, according to the 1927 census, has a population density above the average for inner Anatolia, slightly more than 20 per square km. Actually, about 62 per cent. is concentrated in the west, around the town. There are three elements: "Turks" in a wide sense, the old population whose methods and villages have persisted unchanged for centuries; a few settled nomads on the slopes; and, mostly in the northeast, immigrants from Russia since 1865 and more lately from the Balkans. They appear to have numbered about 2,400 in 1927, of whom about 900 gave Greece as their country of birth. These immigrants have had a very favorable effect upon agriculture in introducing new methods and technical skill—especially in the making of artesian wells. In the second monograph of the series, Charlotte von Trotha narrates the development of rural settlements along the coast near Köslin, Pomerania. Several types of village forms are found here, including the "round." The writer attacks the view that these are solely of Slav origin, seeking to explain their form in relation to their geographical environment. One of the original documents reproduced is a portion of a large-scale map dated 1588.