OBITUARY

CLEMENT DEXTER CHILD

DR. CLEMENT DEXTER CHILD, professor of physics at Colgate University, died on July 15 at the Rochester Memorial Hospital after a serious operation. Born in Madison, Ohio, in 1868, Dr. Child received the A.B. degree from the University of Rochester in 1890. After two years of high-school teaching he began graduate study, and later became instructor in physics, at Cornell University, where he received the degree of Ph.D. in 1897. The next year was spent in experimental work at the University of Berlin. In 1898 he became head of the department of physics at Colgate University and held this position until his death. While on leave of absence from Colgate in 1908 he spent several months in experimental research at the Cavendish Laboratory.

Dr. Child's interest and activity in research were shown even at the very beginning of his graduate study; he had published three papers before receiving his degree. And, in spite of the demands of a heavy teaching load and the responsibility of his position as department head, he continued active in experimental research up to the time of his death. His experimental work, especially in the early years, dealt with a wide range of subjects. There were, for example, papers on the measurement of thermal conductivity, on detectors for electric waves and on the discharge of electrified bodies by x-rays. Later, his interest focused rather sharply on problems connected with electrical conduction in gases, and it is in this field that his most important work was done. His book, "The Electric Arc," published in 1913, deals in considerable detail with this particular type of electrical discharge in gases and is a recognized authority in its field.

The greater part of Dr. Child's scientific work was pioneer work, in which his experiments were planned to throw light on some phase of a new phenomenon and where his results and his interpretation of them have contributed in no small degree to scientific progress. His investigation, for example, of the discharge of electrified bodies by x-rays was undertaken at a time when very little was known either of x-rays or their discharging action. In reading his papers on this subject now, with knowledge of the developments that have come since, it is interesting to note the accuracy of his observations and the correctness of his interpretations. Perhaps the most striking instance of this sort is in connection with his important work on space charge effects. His attention seems to have been first attracted to space charge phenomena in 1903; and in 1911, when he published the derivation of the law that is usually referred to as the "Child Law," his explanation of these effects was so clear and accurate that it might be used without change to-day. A number of important practical devices involving space charge effects have their scientific foundation in Dr. Child's 1911 paper.

Dr. Child's teaching was characterized by soundness and thoroughness. The students in his classes did not find themselves under a drill master but in contact with a kindly, sympathetic man, thoroughly imbued with the scientific spirit and giving an example of intellectual honesty in all his dealings. Modest and unassuming, helpful and sympathetic, yet ready to fight dishonesty or wrong, he commanded the respect of all his associates and the sincere affection of his friends. Many of his students have gone on to successful careers in physics; but even those who have entirely forgotten the subject-matter of his classes have received permanent benefit from his example.

ERNEST MERRITT

PAUL EHRENFEST

THE sudden news of the death of Professor Paul Ehrenfest, of the University of Leiden, has given his many friends all over the world a great shock and intense sorrow. It is difficult, with the pain lying as a stone on our hearts, to try to enumerate the special virtues of his lovable character and his great mind. Perhaps they were his honesty and his strong and humble desire to help where he could. Everybody could count on his help, and it was especially for his students, not restricted to physics alone. Well known was his active and passive interest in music, with his great admiration for Bach, which started in his early childhood.

In physics, the science which fascinated him from his youth, his astonishingly clear mind enabled him to reduce all problems to their essential points ("der springende Punkt" or "Patentanspruch" as he used to say). It was this power which was the main source of inspiration for his pupils and for all who had the privilege of coming in contact with him. This and his friendliness and humility made the colloquium in Leiden such a great success, made it a gathering place for physicists of all nations. Ehrenfest was, therefore, always invited to all the important physics meetings and congresses. In this way, even more than by his own published articles, he has exerted a considerable influence on the development of modern theoretical physics.

All who were privileged to work with him will always remember his "Socratic" discussions and how helpful they were in clarifying their ideas. He disliked all unnecessary learnedness and vagueness, and knew always by means of his characteristic terminol-

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-