notes on the weather and the planting, cultivation and harvesting of plants in his vegetable garden were of regular recurrence.

It was not until he attended Tufts College that his attention was turned to biology. First planning to be a forester, he came under the influence of Professor F. D. Lambert and became interested in the algae, to the extent of describing two new species during his senior year. He also studied zoology under Professor J. S. Kingsley.

The death of his father during his last college year prevented Frank's immediate entrance upon graduate work. An opportunity to teach zoology at Massachusetts Agricultural College in the summer of 1913 turned the tide of his biological interests finally in favor of zoology, rather than forestry or botany. In the vicinity of Amherst he had his first opportunity for extensive field work, and the three years spent there cast the mold of his later career.

In the spring of 1916 he was awarded a fellowship at the University of Michigan. Beginning his studies at the Biological Station of the university that summer, he received the degree of doctor of philosophy in 1919—the first Ph.D. earned under Professor, now President, A. G. Ruthven.

His interests had gradually centered upon snakes, their distribution, natural history and taxonomy. This trend was fostered by his assistantship in the natural history course given by Professor J. E. Reighard, and by his first position after completing his graduate work, that at the U. S. National Museum, where he was associated with Dr. Leonard Stejneger during the year 1918–1919.

Dr. Blanchard returned to Michigan as an instructor in 1919, and some years later, on the retirement of Professor Reighard, he took charge of the vertebrate natural history course, which has long been a unique part of the training in zoology at Michigan. His keen interest in accurate and significant observation in this course and in his own research attracted to him an enthusiastic group of graduate students. A number of those who earned the doctorate under him are now carrying on to the best of their several abilities along the lines of true scientific inquiry which he had so earnestly charted for them.

The research productivity of Dr. Blanchard was marked by its continuity. From the date of his doctorate, no year passed without a publication from him. There are at least fifty of these contributions, which range from critical reviews to important books. The large work, an illustrated "Manual of the Snakes of the United States, Canada and Lower California," on which he was engaged up to the time of his last illness, in collaboration with his student, Dr. Howard K. Gloyd, remains to be completed by his associate. The papers of Dr. Blanchard are largely on snakes, but there is a long series on the four-toed salamander, *Hemidactylium scutatum,* which show the same insistence on accuracy and relation to other things which characterizes all his other work.

One of the high lights in his scientific life was the sabbatical year 1927–1928, which he spent with his family in New Zealand, Australia and Tasmania. His recovery of the "lost frog of Tasmania," *Crinia tasmaniensis,* which for fifty years after its description was known only from the type specimen in the British Museum, and his study of its life history, with that of other Tasmanian frogs, was responsible for his only paper on foreign forms.

A later sabbatical semester enabled Dr. Blanchard to travel in the Southwest, with Dr. Gloyd, to gather material for their projected "Manual." If this excursion, because of the unfavorable time of the year, netted fewer reptiles than he had hoped, it yielded a surprisingly large crop of amateur herpetologists and other naturalists. Probably no zoologist has so assiduously sought out the non-professional workers and beginners in his field. He went far out of his way to visit them, carrying encouragement, and at the same time profiting from their efforts.

Though Dr. Blanchard published nothing on birds, he enthusiastically taught courses in ornithology both at Ann Arbor and at the Biological Station on Douglas Lake. Characteristically, he carried into this field the same extreme care which he so strongly evinced in his herpetological work. It is evidenced by the extensive series of notes which he left at the Biological Station and by the quality of his graduate students who have become accomplished ornithologists.

Shortly before his death Dr. Blanchard learned that in the forthcoming revised edition of "American Men of Science" his name was to be accompanied by the coveted star, which would mark him as one of the approximately one thousand leading scientific men of this continent. His colleagues feel a keen satisfaction in this confirmation of their judgment of him by the vote of his peers the country over. He is survived by his widow, Dr. Frieda Cobb Blanchard, assistant director of the botanical garden of the University of Michigan, and their three children.

A. FRANKLIN SHULL

DEPARTMENT OF ZOOLOGY
UNIVERSITY OF MICHIGAN

HAROLD BENJAMIN FANTHAM

THE untimely death from septicemia of Professor H. B. Fantham, Strathcona professor of zoology and head of the department at McGill University, Montreal, Canada, in his sixtieth year has removed from among us a zoologist of great research ability, an inspiring

teacher and an organizer and administrator of very great capacity. He passed away on October 26, 1937.

Dr. Fantham had a distinguished university career and held the degrees of M.A.Cantab. (Christ's College) and D.Sc. London (University College). He was a fellow of University College, London.

From 1904 onwards, Dr. Fantham was continuously engaged in university work. He held academic positions in the Universities of London, Cambridge and Liverpool and did war service as parasitologist, first with the Western Command and then in Egypt, Salonika and Malta, until he was invalided. In 1917 he became the first professor of zoology and comparative anatomy in the new University of the Witwatersrand, Johannesburg, South Africa, which post he held from 1917 to 1932. He built up a magnificent department and research school there. He served on the senate of the university, and was four times elected annually as dean of the faculty of science—no small tribute to his ability and integrity—and served for one year on the council of the university. In 1932 he became Strathcona professor and head of the department of zoology at McGill University. Under his guidance and inspiration, the zoology department attracted many students, and its numbers more than doubled. Recognizing the unique opportunity afforded by the numerous lakes and rivers for research in freshwater biology, he developed that work and soon had a number of students keenly interested therein.

Throughout his career, Professor Fantham devoted much time to research, and his many papers on parasitic protozoa, on soil protozoa, on eugenics, heredity and race admixture are well known. Practically every branch of protozoology is the richer from his contributions. He was a most consistent, logical and meticulous worker, who never spared himself. He had published over one hundred research memoirs, as well as books and magazine articles.

He was twice vice-president of the Royal Society of South Africa, was grand president of the South African Association for the Advancement of Science in 1927 and South Africa Medallist in 1931. He was one of the few non-medical fellows of the Royal Society of Medicine, was a fellow of the Zoological Society of London, the Cambridge Philosophical Society, Royal Society of Tropical Medicine and Hygiene, American Society of Parasitologists, American Association for the Advancement of Science, vice-president of the Eugenics Research Association and corresponding member of the Société pathologie éxotique of Paris. While he was in Canada, he was a regular attendant at the meetings of the American Association for the Advancement of Science and much appreciated this opportunity of meeting his fellow zoologists.

Dr. Fantham was much beloved by his students wherever he taught. He never spared himself on their behalf, and his home and library were always at their disposal. He was an artist of far more than average ability, a good speaker and public lecturer, very musical and with extremely wide interests. His fellow scientists mourn his early passing, which has left a gap that can not be filled.

RECENT DEATHS AND MEMORIALS

DR. GARDNER CHACE ANTHONY, dean emeritus of the Engineering School of Tufts College, died on November 28 at the age of eighty-one years.

PROFESSOR JOSÉ COMAS Y SOLA, director of the Fabra Observatory of the Academy of Arts and Sciences in Barcelona, died on December 2 at the age of sixty-nine years.

SIR CHARLES BRIGHT, London, an authority on telegraphy, died on November 20 at the age of seventy-three years.

THE death is announced of Dr. Ludwig Plate, who was the successor of Haeckel as professor of zoology at Jena and director of the Phyletic Museum. He had made extensive journeys to South America, the West Indies and Ceylon.

SIR GEORGE LEE, engineer-in-chief of the British Post Office and president of the British Institute of Electrical Engineers, unveiled on November 24 a mural tablet at the house where Alexander Graham Bell was born at 16 Charlotte Street, Edinburgh.

THE Physical Institute of the Moscow State University held on November 14 a memorial session for Lord Rutherford, who died on October 19. Professor Kapitsa, a member of the Academy of Sciences of the Union of Soviet Socialist Republics, who was a close collaborator for fourteen years, gave an address on his memories of Lord Rutherford.

SCIENTIFIC EVENTS

RESEARCH IN THE AMERICAN CHEMICAL INDUSTRY

ACCORDING to an article entitled "Facts and Figures of the American Chemical Industry," published by *Chemical and Metallurgical Engineering*, during the current year chemical manufacturers have spent $20,000,000, and chemical process industries several times this amount for research. It is pointed out that research in this field is of unlimited benefit in serving the public welfare, not alone in promoting health with