often serious. It originated in South America but has been carried widely around the world. It attacks many animals, but especially, like *Pulex irritans,* in addition to man it loves the pig. Many biting insects for some strange reason associate man and the pig as hosts, possibly, however, because both have hairless bodies.

Flea control again leaves us dependent primarily on personal cleanliness of living quarters of dogs and cats, with the use of mechanical protection, including more or less effective insecticides. Flea eggs are laid on floors, in nests, dust and refuse and here they pupate. Sanitary cleanliness goes far to reducing the mass attack on man. Here, as in the case of many other animal parasites, there is need of investigation for sub-parasites to destroy the parasites. Excellent work has been done in adapting certain parasitic hymenoptera to this function and the subject is full of promise.

6. *Myiasis* is a condition in which certain fly eggs are laid in wounds or natural cavities of the body, leading to tissue invasion by the maggots and a frightfully severe course clinically. Protection against flies of these types is always important, and local treatment and removal must never be delayed.

CONCLUSION

We have reviewed in summary fashion the general field of the animal parasites of man, emphasizing the factors of origin and evolution on which adequate control must be based. We have seen how fragmentary is our knowledge and therefore how difficult effective control is under present conditions. Parasitism deserves a much more prominent place in general biology and in medical education. Research fields in urgent need of cultivation are along the following lines: (1) Study of natural enemies of parasites. (2) Economic methods of control of sanitary food supply and water provision. (3) Methods of protection of potential intermediate hosts and vectors, as well as soil and water, against infection. (4) Methods of public health control based on epidemiology and biology. (5) Development of new specific remedies. (6) Better conservancy methods in rural, tropical and oriental districts. (7) Popular education, not in parasitology, but in health preservation by avoidance of specific hazards.

Our review has been in general terms. No field, however, offers greater fascination and promise for the student and the research worker. The sociologist and economist also might well devote serious study to parasite and disease control in the world as a whole, because the irrepressible tide of nationalism all over the world is rejecting foreign ideals and ideas along with foreign domination. And in the tropical and oriental countries which contain most of the world's population, a sanitary sense is distinctly a foreign ideal.

NOTE: The texts of Hegner, Faust and Ewing have been drawn on freely in order to build up a general picture of animal parasitism. The purpose has not been to present original work or ideas but to furnish a survey of the field, and to orient the student and technician. For this reason, annotations have been largely eliminated and the authors noted, as well as others mentioned in the text, have been quoted extensively. See Hegner and Andrews, "Problems and Methods of Research in Protozoology"; Hegner, Root and Augustine, "Animal Parasitology"; Ewing, "Manual of External Parasites"; Faust, "Human Helminthology"; Reed, "Tropical Diseases in the United States."

OBITUARY

GEORGE McLANE WOOD

GEORGE MCLANE WOOD, formerly editor of the United States Geological Survey, died in Washington October 26, in his eighty-first year. Mr. Wood was born in Cumberland, Maryland, but spent most of his long and useful life in Washington. He was the son of Colonel William P. Wood, who was superintendent of the Old Capitol Prison during the Civil War and organizer of the United States Secret Service. One of his brothers was the late Samuel A. Wood, for many years the well-known shipping reporter on the New York *Sun*. Mr. Wood had a public school education, but beyond that the knowledge that served him so well was self-acquired. He was an eager student to the end of his life, delving into many subjects that appealed to him—geology in all its branches, languages, philosophy, botany, and particularly the art of expression in clear, terse, forceful English. Beginning at about his eighteenth year, he did stenographic work for private concerns and the government and was regarded as one of the best and most accurate shorthand writers in the city. For a few years he was secretary to the Chesapeake and Potomac Telephone Company. His life work, however, was done in the United States Geological Survey, of which he was a member for nearly forty years.

In his stenographic work he had already developed

a facility for smoothing out crude English, and this was discovered more or less accidentally by Professor Thomas C. Chamberlin, for whom he was writing manuscript from dictation. Mr. Chamberlin, having had a sample of the help he could give, called for more and spread the word among his colleagues. This probably gave the eventual turn to Mr. Wood's career, for it led to his appointment in the Geological Survey. He served as editorial clerk, assistant editor, and finally editor, the position he held from 1908 till his retirement in 1925. During this long period he taught the scientific writers whose work he criticized to welcome rather than resent his criticism, for they learned that it was neither pedantic nor arbitrary but was based on common sense and an earnest desire to be helpful.

The reports of the United States Geological Survey have a wide reputation for lucid, virile, straightforward expression, which is due in large part to the sincere and painstaking efforts of Mr. Wood. His greatest influence was probably exerted by the modest pamphlet in which he put his counsels into print—"Suggestions to authors of papers submitted for publication by the United States Geological Survey." This pamphlet was first published in 1909 and was revised and enlarged in 1913 and again in 1916. It was of course prepared primarily for authors of geologic reports, but its usefulness in other fields was soon demonstrated. Its 50 pages of "suggestions as to expression" have been found to apply so well to scientific and technical writing in general—indeed, to writing of any kind—that the demand for this pamphlet has been wide-spread and continuous, and instead of its long title it is generally known as "Suggestions to authors." The edition of 1916 has been reprinted seven times—the latest printing in July, 1930—and has been sent on request to government and state departments and bureaus, universities and colleges, research and engineering institutions, business executives, and countless individuals engaged in writing. It has also been highly commended by such eminent critics as Brander Matthews in America and Sir Clifford Allbutt in England.

It had been Mr. Wood's hope, after his retirement from the government service, to expand the "Suggestions" into a more comprehensive manual on technical writing. Such a project had been urged upon him by Director George Otis Smith, of the Geological Survey, and many others, and he saw clearly the widened usefulness that would be given to his condensed advice by more detailed elucidation. He had accumulated some material for this purpose, but when it became known that his services were still available he received so many requests for help that they left him no time for his own work. He was at the beck and call of any one who needed him and, though more than 75 years old, put in longer hours than he had in his official life. The larger part of this work was done in geology and allied fields. His last work for the Geological Survey was done on Henry Fairfield Osborn's monograph on the titanotheres, and Professor Osborn made arrangements for him to continue that work for the American Museum of Natural History after his retirement from government service. He prepared many of the articles on the geology of North and South America in the new edition of the Encyclopaedia Britannica. The recently published symposium "Creation by evolution" owes in no small degree the clarity and force of its articles to his skillful editing, though he preferred to remain anonymous on that work. At the time of his death he was editorial reader for the *Bulletin* of the Geological Society of America and the Arkansas Geological Survey, and one of his latest tasks was to edit a memoir on the geology of Cape Cod for the Harvard Museum of Comparative Zoology. He died practically "in harness," having been ill only three days.

No one could have been in intimate daily contact with George McLane Wood during the last twenty years of his service for the United States Geological Survey without learning to appreciate the spirit that animated him. It was a privilege to work under him, and I am honored in being permitted to pay this tribute to his memory. He scorned hypocrisy and bluff but could not do too much for any one who was earnestly endeavoring to increase the sum of human knowledge. His kindliness was a subject of common remark—he was as considerate of the humble messenger boy as of his chief. His sense of humor was keen and enabled him to take the bumps of life with a twinkle in his eye. His characteristics were well summed up by Professor Harlow Shapley, of Harvard University, who said at the funeral service that he exemplified the four things that justify the experiment of living—sincerity, enthusiasm, skill and usefulness.

BERNARD H. LANE
UNITED STATES GEOLOGICAL SURVEY

MEMORIALS

THE college of forestry of Syracuse University recently unveiled a portrait of the late Dean Franklin Moon in the faculty room of the college. Dean Moon had been connected with the College of Forestry since its beginning in 1912.

As a memorial to Francis P. Leavenworth (1858–1928), professor of astronomy at the University of Minnesota from 1897 to 1927, the University of Min-