MEMORIAL OF JACQUES LOEB[1]

IT is nearly a year since the passing of Jacques Loeb. We miss his personality, we miss the worker, but the spirit of his work still lives and dominates, for it has been impressed indelibly on the biological advances of the past thirty years.

By nature he was sensitive and timid even to the point of shyness; he avoided publicity and only infrequently appeared on our programs, so that many of us doubtless did not know him. His work, however, has touched, in a basic way, so many fields of scientific research that there are few of us indeed who are not deeply in its debt for suggestion and inspiration.

By methods as simple as they are direct and conclusive, his genius added fundamentally to so many phases of physiology and biology that it can unhesitatingly be said: "He founded 'general physiology' in America."

This is not the time nor is it the occasion to detail at length the achievements of his fearless originality or to dwell upon the biographical incidents which led to their consummation. Suffice it that he was classically schooled in youth and developed a prime interest in general philosophy and psychology. He early became impatient with the results and methods in these fields; he craved something more tangible. This he sought in the physiological laboratory of Goltz at Strasbourg. Later he also came in contact with the botanist Sachs while assistant of Fick in Würzburg.

It is in these contacts that we see foreshadowed that broad outlook on biology which led to his expositions on mammalian brain physiology, to his studies in "Comparative Physiology of the Brain and Comparative Psychology," to his contributions to the physiology of sense organs, "Forced Movements, Tropisms and Animal Conduct." We see in the philosophy which gave us his "Mechanistic Conception of Life" that he found what he sought when he entered the experimental field. His early application of physical chemistry to the analysis of life phenomena led to "Artificial Parthenogenesis" and "Salt Balance," and we see the reflection of these studies in his latest work on the chemistry of colloids and the physico-chemical properties of membranes.

The scope and fundamental nature of his work is well attested by a memorial program at one of our leading universities where papers were read on the relation of Loeb's work to botany, to zoology, to physiology, to pharmacology, to chemistry and to psychology.

[1] Read before the twelfth annual meeting of the American Societies for Experimental Biology, in affiliation with the American Association for Advancement of Science, Washington, December 29 to 31, 1924.

But a knowledge of his written word gives no index of the inspiration of personal contact of the student with Loeb, the educator; it is the constant theme of those who worked with him. What science gained when he left the academic field for that of pure research was more than offset by the limitation of his contacts with the youth who might have carried on the torch.

While all who knew him will miss the guidance of his keen mentality and straight thinking, there is a small number who have suffered a loss too great to measure—his close personal friends—who were permitted to know not only the scientist, but also the man, who saw and admired his idealism, who were cheered by his never-failing and subtle humor, who were drawn irresistibly to his simple, loving nature.

Jacques Loeb is gone; it is fitting that we honor the memory of him whose life touched so intimately our lives, whose work has so thoroughly leavened our work.

W. E. GARREY

TULANE UNIVERSITY

MEMORIAL OF THEODORE HOUGH[1]

THEODORE HOUGH was graduated from the Johns Hopkins University as a doctor of philosophy, with physiology as his principal subject, in 1893. He was the last of the group of men who received their sole training in physiology under Newell Martin. It was a school of physiology which in the period from 1876 to 1893 played an important part in the development of physiological research in this country. In point of numbers it was then contributing a larger percentage of workers in the subject than any other laboratory, and the researches published were thoroughly modern in spirit. This group of men all had a uniform training, based chiefly on a sound knowledge of the biological sciences. In this respect it resembled the Cambridge school, of which indeed it was an offshoot. Enrolled as graduate students in the philosophical faculty of the university, they acquired something of the academic spirit and scholarly attitude that characterizes devotees of the higher learning. Physiology for them was not a handmaid to therapeutical medicine, but an independent far-reaching science that touched the deepest problems of physical and spiritual existence, a science whose "waves wash the shores of the two worlds of matter and of mind." It was a congenial company of young scholars moved by an unselfish desire to promote their subject. Any new fact discovered was welcomed with

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enthusiasm and appreciation as an addition to knowledge, whether or not it seemed to have an immediate bearing on human welfare or the advancement of medical practice. Since that time medicine has become much more scientific, and workers in physiology trained in the professional schools of medicine turn to the fundamental as well as to the practical problems, although physics and chemistry rather than biology constitute the basis of preparation.

Hough's graduation dissertation was upon "The escape of the heart from vagus stimulation." While still a student he investigated the vexatious question of the physiology of the external intercostal muscles and solved the point neatly and completely by the use of the idea, introduced by Martin, that the inspiratory muscles must contract synchronously with the diaphragm and the expiratory muscles alternately with it. After graduation he was appointed instructor in biology with Sedgwick at the Massachusetts Institute of Technology. He was of material assistance to Sedgwick in developing the excellent course in biology for which the institute has been noted, and later the two of them collaborated in the publication of a book on physiology, hygiene and sanitation which in its particular field was a noteworthy and valuable contribution.

During his period of residence in Boston, Hough was in charge also of the biological work in the newly founded Simmons College. In 1907 he was called to the University of Virginia as professor of physiology and later served also as dean of the medical school. He filled both positions at the time of his sudden death on November 30, 1924.

He was one of the early members of the American Physiological Society and for many years was a faithful attendant and a frequent contributor at its meetings. His scientific work was not large in volume, but it was admirable in quality. In his Boston days his researches were devoted mainly to points bearing upon muscular work and fatigue, owing doubtless to the fact that he was engaged as a lecturer in a school of physical training. His somewhat infrequent papers from the University of Virginia dealt chiefly with problems of respiration. Hough was a well-trained physiologist fully acquainted with the literature and technique of his subject. He was very thorough and accurate in his work and was animated by the highest ideals. I can well believe that the medical students of the University of Virginia received from his hands an instruction in physiology as sound and as modern as could have been obtained at any university in the world. His qualities of mind and character easily explain why his colleagues pressed him into service as dean of the medical school. In this position he was as successful as in his teaching work. He took an active part in the national conferences on medical education and devoted a large part of his time and energy to the maintenance and development of his own school through some periods of storm and stress. While the University of Virginia must have profited greatly through his efforts it is, of course, a matter of some regret to his brother physiologists that administrative duties deprived him in large measure of the opportunity for investigation for which he was so well qualified by his training and by his ability. Those of our society who were his friends and comrades will ever remember him for his integrity and sincerity of character, his high ideals of scientific work and his cordial, manly personality.

W. H. HOWELL

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SCIENTIFIC EVENTS

SCIENTIFIC EXPEDITIONS PLANNED BY FIELD MUSEUM OF NATURAL HISTORY FOR THE YEAR 1925

THE Field Museum of Natural History, of Chicago, has completed arrangements to send into the field during the year 1925 fourteen important expeditions. While several of these expeditions are in continuation of investigations that have been conducted by the institution during the past three years, most of the new undertakings are for original scientific research in fields not heretofore explored by the museum. With one exception, the funds provided for these explorations have been contributed by Captain Marshall Field, through whose generosity the museum in 1922 was encouraged to make arrangements for extensive researches in various parts of the world, covering a period of five or more years. The beginning of the year 1925 finds the following expeditions either in the field or making arrangements for departure.

The museum has commissioned Dr. A. L. Kroeber to collect archeological material in Peru and Bolivia. Dr. Kroeber's initial researches will most likely be at Tiahuauac, on Lake Titicaca, high in the mountains between Peru and Bolivia. Although the Spaniards found the Incas ruling this territory, it has since been agreed that their dynasty was a comparatively young one, probably originating in the fourteenth century. Incomplete investigations made by various institutions have disclosed much that is mythical regarding the pre-Incas races. Sufficient material evidence has been discovered, however, to prove that civilizations existed as long ago as 1,400 years before the Incas.

The archeological expedition in Mesopotamia, conducted jointly by Field Museum and Oxford University, under the leadership of Professor Stephen Langdon, during the past two years, will continue its