type such as *Xanthium* can be induced to exhibit long-day response (Gilbert, 1926, 1934).

The recent observation by Melchers (1939) that a vegetative scion of tobacco is able to induce flowering in a vegetative stock in the first year of the biennial species, *Hyoscyamus niger,* presages an early and profound revision of the current form of the florigen concept. Melchers' painstaking experiments were conclusive and clearly significant statistically. With reference to the normal flowering of biennials, Melchers postulates the formation of a new hormone, tentatively designated "vernalin," at low temperatures at the end of the first season. Upon this "vernalin" in turn depends the ability to produce florigen in the reproductive photoperiod of the second year. Melchers points out that our knowledge of the reproductive physiology of biennials, such as *Hyoscyamus niger* with which he worked, is almost as nebulous as our understanding of the day-neutral group of plants. Melchers' results also contradict the suggestion previously made by Cailachian that the photoperiodic effect is proportional to the area of foliage. Melchers noted no such quantitative relationships. Recent temperature studies suggest that radical revisions are also imminent in regard to the supposed indispensability of light for inception of flowering in the so-called photophase (Roberts, 1936–37–38–39; Thompson, 1933–36; Chroboczek, 1934).

In conclusion, it would seem, on the basis of recent evidence, that the thermo- and photo-phases are not as rigidly set apart nor as irreversible as originally suggested by Lsyenko. Further, it may prove desirable and conducive to a better understanding of reproduction if the photophase is subdivided into a flowering and gametogenic stage. If the profound and rapid transformations occurring between inception of flower primordia and fertilization, namely, the phenomena of sex, are studied as intensively as vernalization and photoperiodism, they promise to contribute fully as much as the former to our understanding of reproduction. If speed and magnitude of transformation be criteria of vital significance, the gametogenic or sexual phase *per se* represents the stage of most profound alterations in the ontogeny of the higher plants.

OBITUARY

MARGARET FLOY WASHBURN
1871–1939

MARGARET FLOY WASHBURN, emeritus professor of psychology at Vassar College since June, 1937, and a member of the Vassar faculty for thirty-six years, died after a long illness at Poughkeepsie, N. Y., on the afternoon of October 29, 1939. Her illness dated from a cerebral hemorrhage suffered on March 18, 1937—on the eve of the meeting of the Eastern Psychological Association, which was held at Vassar College in observance of her approaching retirement. She was at the time of her death in her sixty-ninth year, having been born in Harlem, New York City, on July 25, 1871, the only child of Rev. Francis and Elizabeth Floy (Davis) Washburn.

Professor Washburn was one of the foremost women in American science and was long recognized as a leader in her field. Her services and contributions to psychology were many and outstanding, and she received in recognition of them the highest honors and awards at the disposal of her confrères.

In 1919–1920, when the Division of Psychology and Anthropology of the National Research Council was formed, she acted as a representative of psychology, and again in 1925–1928. In 1921, she was president of the American Psychological Association. That same year she was awarded the prize of $500 by the Edison Phonograph Company for the best research on the effects of music, an investigation, done in collaboration with a colleague in the Vassar Department of Music, on "The Emotional Effects of Instrumental Music." In 1927, she was vice-president of Section I (Psychology) of the American Association for the Advancement of Science and was the recipient of a *Festschrift* and of an honorary degree of D.Sc. The *Festschrift,* volume 39 of *The American Journal of Psychology,* was dedicated to her by its authors, thirty-two colleagues from the various editorial boards upon which she had served, "in recognition of thirty-three years of distinguished service to psychology." The degree, *honoris causa,* was conferred upon her by Wittenberg College during the International Symposium on Feeling and Emotion that was held there at the dedication of the new psychological laboratory. She was elected, in 1929, to the International Committee on Psychology (the governing body of the International Congresses) and to the Society of Experimental Psychologists; and, in 1931, to fellowship in the National Academy of Sciences (the second woman to receive that honor, Dr. Florence Sabin having been elected before her in 1925). She was president, in 1931, of the New York Branch of the American Psychological Association (now the Eastern Psychological Association) and chairman of the Society of Experimental Psychologists. In 1932, she was the U. S. delegate to the International Congress of Psychology in Copenhagen. Professor Washburn was also a member of the National Institute of Psychology, the American Philosophical Society, the New York Academy of Sciences, the American Association of University Professors and Sigma Xi.

Besides publishing nearly 200 scientific articles and

reviews, Professor Washburn translated Wundt's "Ethical Systems," 1897, and wrote two books: "The Animal Mind," 1908, and "Movement and Mental Imagery," 1916. "Animal Mind" went through three more editions, every one thoroughly rewritten and enlarged (1917, 1926 and 1936). The first edition was translated into Japanese in 1918. "Movement and Mental Imagery," a development of her article in G. Stanley Hall's *"Festschrift"* in 1903, marked her break with Titchener's doctrine and her espousal of a motor theory of consciousness for which she was thereafter widely known. Between 1905 and 1938, she published in *The American Journal of Psychology* sixty-eight studies from the Vassar Psychological Laboratory. During this period she also gave unsparingly of her time to editorial work. She was co-operating editor of *The American Journal of Psychology,* 1903–1925 and co-editor since 1926; cooperating editor of the *Psychological Bulletin,* 1909–1915; associate editor of the *Journal of Animal Behavior,* 1911–1917; advisory editor of the *Psychological Review,* 1916–1930, and associate editor of the *Journal of Comparative Psychology,* 1921–1935.

Professor Washburn was an able and accomplished woman, the product of a good inheritance and a good environment. In her autobiography, published in 1932 in Volume II of the "History of Psychology in Autobiography"—a series of biographies to which the foremost psychologists in the world were invited to contribute—she tells that her ancestry was Dutch and English: Long Island and Westchester County Quakers and Maryland Cavaliers, with a dash of Connecticut Yankee. Most of her ancestors were in America before 1720. She was a precocious child. Though she did not enter school until she was seven years old, she had learned to read and write long before then. As a child, as throughout her life, she was an omnivorous reader. Her first school was one conducted in the home of a retired Presbyterian minister by his accomplished daughters. From them she learned the rudiments of mathematics and acquired a good foundation in French and German. When she was eleven years old, her father was called to the rectorship of the Episcopal Church in Kingston, N. Y. There she attended the public schools. Her progress was rapid, and she was graduated from the Kingston High School at fifteen years of age, in 1886. That fall she entered Vassar College. Due to a lack of Latin, which was required for college entrance at that time, her first year was spent in the preparatory department. In 1891, she was graduated from Vassar with the acquisition of an abiding interest in science and philosophy.

Hearing of the psychological laboratory that had just been opened by Cattell in Columbia University, she determined to become his pupil—though the graduate school at Columbia was then closed to women. Characteristically she persevered in her determination to be admitted to his classes and finally succeeded, as a result of special permission by the trustees of the university, in registering as a "hearer." Thus she was a pioneer in the struggle for equal educational opportunities for women. Cattell treated her as a regular student and permanently fixed her interest in psychology. As no fellowship was available to her at Columbia, she applied for and was granted a fellowship in the newly established Sage School of Philosophy at Cornell University. In 1892, she became Titchener's first doctoral student. After a year at Cornell, Vassar College awarded her an M.A. degree *in absentia* for work done under Titchener. A year later, in June, 1894, she obtained the Ph.D. degree from Cornell University. Her doctoral dissertation, "The Influence of Visual Associations on the Spatial Perceptions of the Skin," was published by Wundt in German in his *Philosophische Studien*—the first foreign study printed in that journal. Miss Washburn's doctoral minors were ethics with Schurman and philosophy with Albee, Hammond and Thilly.

In the fall of 1894 she went to Wells College as professor of psychology, philosophy and ethics. She remained there for six years. Then followed two years at Cornell as warden of Sage College—that is, head resident of the women's dormitory—and, during the second year, as lecturer in psychology. She gave two courses: social psychology, based on Wundt's "Völkerpsychologie," and animal psychology, which was to remain a life-long interest. Finding the duties of warden ("concerning oneself with the behavior of other people") uncongenial, she accepted at the end of two years the offer of an assistant professorship with full charge of the department of psychology at the University of Cincinnati. Though conditions there were to her liking, she could not resist the call of her *alma mater* and so went to Vassar College in the fall of 1903 as associate professor of philosophy. Her duties were at first divided between philosophy and psychology, but in 1908, psychology and philosophy having been divorced, she became professor of psychology and head of the newly created department.

Professor Washburn was an indefatigable and persistent worker. Except for the summers of 1913–1917, when she taught in the summer school of Columbia University; the spring of 1928, when, on sabbatical leave, she took a Mediterranean cruise; and the summers of 1929 and 1932, during which she took short trips to England and Copenhagen—she never was far nor long away from her work in her laboratory and study at Poughkeepsie. That she was also an inspiring teacher is attested by the growth of her department, by the many studies that came from her

laboratory and by the number of her students who continued in psychology.

Hers was strictly an undergraduate department. As far as graduate study was concerned she was a proponent of coeducation. She wrote in her autobiography, "I deprecate graduate study for women at any but coeducational universities." True to her convictions, she encouraged her students to go to such universities for their final training. Many did, and wherever they went—to California, Columbia, Cornell, Harvard (Radcliffe), Illinois, Indiana, Iowa, Michigan, Ohio State, Yale—they made splendid records.

Professor Washburn's life and work should be an inspiration to women as it is a testimonial to the value of the equality of educational opportunity for which she determinedly strove.

KARL M. DALLENBACH

CORNELL UNIVERSITY

OSCAR HENRY PLANT

ON October 1, 1939, Dr. Oscar Henry Plant, professor of pharmacology in the College of Medicine of the University of Iowa, apparently in good health and at the height of his career, passed away suddenly, following an attack of coronary insufficiency. He is mourned as a teacher, a scientist and a man.

Dr. Plant was born at Lawrence, Kansas, on September 30, 1875, the only son of Thomas Henry and Anna Stewart Plant. Early in his boyhood his family moved to East Texas. As educational facilities there were limited, he spent his winters with his grandparents in Topeka, Kansas, where he attended the public schools.

Dr. Plant joined his father when the latter removed to Galveston, and his high-school work was completed in that city. At the age of fourteen he determined to enter the field of medicine. With this object in view, he spent all his spare time and vacations working as an assistant to a Galveston pharmacist. This experience was a factor in directing his interest toward the field of pharmacology, to which he contributed so much in his later years. He entered the Medical School of the University of Texas in 1897 and graduated with the class of 1902, being compelled to drop out for one year to replenish his finances.

When a senior in medicine, Dr. Plant was selected by Dr. W. S. Carter, then professor of physiology, as an instructor in that department. To Dr. Carter's help and influence may be attributed his choice of a teaching career and the inspiration for his great success.

After graduation, Dr. Plant entered upon a five-year period of active practice in Galveston, retaining, however, his instructorship in physiology. In 1907 he decided to follow teaching as a career and became assistant professor of physiology.

Prior to this time instruction in pharmacodynamics had been carried on by the lecture and text-book method. Realizing a deficiency in this method, Dr. Plant undertook, on his own initiative, to conduct experimental demonstrations of the action of drugs on animals. His resourcefulness and ingenuity in this important field were always a source of wonder to his associates. His experiments were always worked out to the minutest detail, so that students never had any difficulty in properly performing the laboratory work. His most noteworthy contribution to research while at Texas was a study of fat absorption from Thiry-Vella loops, published in the *American Journal of Physiology*.

In 1911 Dr. Plant was called to the University of Pennsylvania as instructor in pharmacology under Dr. A. N. Richards. He was advanced to an assistant professorship in 1914 and to the rank of professor in 1918. He was associated with Dr. Richards in the well-known research on kidney function carried on by Dr. Richards and his colleagues.

In 1920 Dr. Plant was appointed professor and head of the department of pharmacology at the University of Iowa, in which position he continued until his death. The facilities for the laboratory teaching in pharmacology were very meager, so with characteristic energy he set about organizing the courses and building up what became in a comparatively short time one of the outstanding teaching laboratories of the United States. At the same time he developed an extensive research program. His outstanding contributions were studies of the action of morphine on the alimentary tract and his fundamental work on the problem of morphine addiction. Other contributions were studies on the cardiac action of camphor and a series of papers on the effects of carminatives.

Dr. Plant was a member of the American Physiological Society and the American Society for Pharmacology and Experimental Therapeutics. He was treasurer of the latter society from 1929 to 1934, vice-president from 1935 to 1936 and was elected president in 1939. He was also a member of the Society for Experimental Biology and Medicine and the American Association for the Advancement of Science. He was intensely interested in all organized scientific activities and gave his unstinted time and devotion to their welfare. His election to the presidency of the American Pharmacological Society is best proof of the high esteem in which he was held by his colleagues in the society. For the past few years he served on the Board of Editors of the *Journal of Pharmacology and Experimental Therapeutics* and the *Proceedings* of the Society for Experimental Biology and Medicine. Papers submitted to him for criticism always received the most careful attention. In addition to his many other duties, he devoted much