OBITUARY

SAMUEL WESLEY STRATTON
1861–1931

DR. SAMUEL WESLEY STRATTON died suddenly at his Back Bay home of coronary occlusion on October 18, at the age of seventy. He had just dictated a tribute to Thomas A. Edison, whose death occurred a few hours before. His tribute to Edison reads in part: "It seldom has fallen to the lot of any one man to be of such service to humanity. The world mourns that great benefactor." The tribute might very well have been written for Dr. Stratton.

Dr. Stratton was born in Litchfield, Illinois, July 18, 1861, the son of Samuel and Mary B. (Webster) Stratton. He was graduated from the University of Illinois in 1884 with the degree of bachelor of science, and afterward went through the usual steps from instructor to professor in physics in this institution. In 1892 he left his alma mater to become associate professor and later professor of physics at the University of Chicago, where he remained until 1901, when he was forty years old.

During these years he had gained a perspective not only in science but in its broader outlook. He was keenly interested in research. I remember, as a cub instructor and research worker at the University of Illinois, seeing some of his personal research material, such as a collection of orifices for the study of the laws of liquid flow, and other special equipment according to his own ideas. He was fascinated with the work of Michelson and throughout his life yearned to do similar work himself. At forty he was not marked as a genius either as a teacher or as a research worker, but he had made many friends and had extended his understanding of human nature and human values.

While he was a student at the university he lived meagerly with Frank A. Vanderlip, who has since become the well-known banker and philanthropist. Stratton worked in the machine shops to partly defray his expenses. He recognized these as a godfather and he never lost his fondness for machine shops or new developments in machine tools. His warmth for machines was somewhat akin to his unconscious warmth toward persons who had befriended him. All during his administration at the Bureau of Standards, he not only took pride in developing a most up-to-date and efficient shop, but he also had his own personal shop where he could handle and play with tools. Many times he retired to this as a retreat, as others would go to a mountain top. Even at the Massachusetts Institute of Technology he had his personal complete shop, and I have seen most estimable testimony in his work that in his last year his hands had lost none of their skill. In the early days he frequently entertained his shop force at dinner and in the evening. He always deprecated the loss of a skilled machine worker to the white collar class. Like Carlyle, he was aware that machine tools are basic in human contest with the forces of nature. He saw Michelson's continued dependency on the precision of his shop work.

His school friend, Mr. Vanderlip, became Assistant Secretary of the Treasury from 1897 to 1901; through his instrumentality Dr. Stratton was invited to formulate the project for the development of the weights and measures work, then under the control of the Treasury Department. Almost single handed he engineered through the enactment of March 3, 1901, which created the Bureau of Standards. This at once showed his native ability as a politician and statesman. He was, naturally, invited by Secretary Lyman J. Gage to become the first director. His vision of the usefulness of such a bureau was so clear that during his entire administration he was not handicapped by the organic act, setting forth the functions and scope of activity.

Dr. Stratton, like most great men, was modest, even approaching shyness. He did not like to give lectures or talks or to make a conspicuous appearance at public affairs, yet no task was shirked if it seemed important to the bureau. Organization was his genius. Quickly he learned the key men at the Capitol, their interests and their proper approach. He formed an intimate acquaintance with Eliott Woods, an able political figure, the superintendent of the Capitol, who figuratively gave him the keys to the back doors. Woods was a devotee of science, who found the subject a happy playground. He had a continuous set of demonstrations in a group of rooms, showing x-rays, Geissler tubes, spectra of various kinds, and similar exhibits with equipment surpassing that of many a college laboratory. Dr. Stratton assisted him in setting up many of these. Mr. Woods often invited the Senators, Congressmen and their wives to tea or evening receptions, when regular and special demonstrations would be staged. It is not surprising that these guests, many of whom had never seen a science laboratory, should be fascinated with the display of the forces of nature—more mysterious than those in detective stories. Moreover, Mr. Woods was a genial host and he never missed a good opportunity to say that such wonderful things were developed at the Bureau of Standards and, of course, giving more than faint praise to Dr. Stratton. With a Congress that was never science-minded, one can readily see the advantage of such interventions. Likewise, the clerk of the appropriations committee of the House became a

fast and useful friend to the bureau. From him was learned the proper course to steer appropriations, the idiosyncrasies of the members—and even good stories. I am sure it was a genuine friendship, for Dr. Stratton was accustomed to visit his burial place. He also became acquainted with the minor as well as the major clerks in the offices of the leaders. I remember his saying that sometimes he thought the Congressmen and Senators got more for their money in employees hired through patronage than could be obtained by any system of formal examination. He was a born democrat. He maintained a manner of respect toward these minor employees as he did toward his chauffeur, his cook or the head of another bureau. He seldom intruded on the time of the leaders like Uncle Joe Cannon, but he could always get their attention when it seemed a matter of public interest. The demands of these for special favors from the bureau were rare, although the director treated every request with utmost courtesy. If it were a personnel appointment of doubtful value, he would, perhaps, visit the Senator or Congressman, and express appreciation for thinking of the bureau, and then explain the nature of the work and the necessary qualifications and the great difficulty of finding suitable candidates. Thus the conversation revealed the candidate's deficiency and the request was usually withdrawn; the institution was a little better understood on the Hill and the director lost no ground. Needless to say, he made it known that all opportunities for service within the bureau's field were courted.

His human approach to a formal hearing before the appropriations committee was interesting. I remember on one occasion he took some samples of optical glass and other pretties and laid them out on the table. The committeemen thought they understood these and enjoyed the entire story. The ice was broken and the hearing proceeded easily.

Dr. Stratton's heart and home was the Bureau of Standards. His dynamo of energy and ability was running there as constantly almost as the one in the power plant. He started many researches and took almost as much personal interest in dozens of researches as if he were personally directing them. He was busy getting a new testing machine or other equipment, and after that busy finding a suitable means of housing it. The bureau was always needing either equipment to fill out some building or department or some building or land to house the equipment. Thus it grew. The director was ready to advance on many fronts and he advanced where the way was open and reinforced the intrenchments where the way seemed closed. But he was faithful to Congress, as he was also faithful to the bureau and its staff.

Likewise the director was continually on the lookout for worthy research and testing work, and so the staff always seemed overburdened. Consequently he was ever on the lookout for able and qualified men. He was ever alert either to give a research opportunity to a man or to get a man for an opportunity. The bureau loomed up to him like a mountain, so that there rarely seemed to be any equally good place for an effective scientist. His hold on his staff was almost uncanny. Many a man with full intention of leaving could not make the getaway. When I was acting director one of the division chiefs came into the office with his resignation all written and final. He admitted my accusation that he would not have had the courage to submit his resignation to Dr. Stratton.

His personal characteristics counted as much for his leadership as did his understanding of men. I became acquainted with him during the war when it was frequently necessary to seek assistance from the bureau in many ways. He was always eager to render help and if he saw the necessity that certain work should be done he would go ahead, forgetting about costs and pay and the like. It was of much more concern to do worth-while work than it was to do a good accountants' job. When my war work was over, I was standing shaking hands with him and expressing a quick, informal appreciation for the help of the bureau. Within less than a minute he completely surprised me with an invitation to become his assistant. He explained that the position had been authorized for three years, but that he had not found the right man, and further, I could do him great service. Beyond that there was no urging, but he knew I was hooked, and after taking a month that seemed like playing between life and death I landed. Within a few months I was designated as acting director in his absence. He would usually evaluate a man in his first five-minute contact and rarely found a material revision necessary. In case of such revision, it was just too bad for the man. There was never any criticism and rarely any direct instruction to those he trusted. His intuition was remarkable. The purpose of the visitor to his office was usually clear before the first sentence was completed. This gave him advantage as well as pleasure. Sometimes he could get a good laugh when the game went against him.

Dr. Stratton had an unusual personal interest in his staff, possibly because he had no family of his own. At Christmas there was a Christmas tree and presents for the children of the staff members, and in the late spring he gave a children's party. There was a merry-go-round, a live pony to ride, an organ grinder and a monkey, pink lemonade and balloons. Dr. Stratton observed what went on. He thought children much more fun than monkeys. His pleasure lasted long after the party was over. It was a joy

to him to have one of his secretaries married to one of his research staff right in his own home. He had an especially keen interest in the younger folk. Remembering his own appreciation of work during his college days, there was instituted a system of apprenticeship for ambitious boys, so that they could continue their education. He could not understand those boys who wanted a job at the bureau and who did not continue to take advantage of the educational possibilities. It reminded him of the nice slick pigs that quickly transformed into scraggly or razorback hogs. He had a wealth of such illustrations that seemed to me rather better than the ones by Shakespeare, and he very rarely used the same one twice. Some of these he manufactured himself, others he received from his friend at the meat market where he usually did his daily shopping. His democracy was somewhat like that of our former President who obtained stories from his cobbler. His educated and distinguished pals know where he got some of the others.

Among his bosom friends were the dearest souls imaginable, such as Brashear and Swasey, whom he first joined through common interest in optics and machine work. He also had a particular fondness for the quiet and modest research workers. Several afternoons a week he would walk around visiting these men and bringing a cheer that was invaluable. On his visits to the bureau during the interregnum his only advice to me was to look after the interests of some of these workers.

Dr. Stratton also was anxious that the staff members should continue their personal advancement. Thus he was instrumental in establishing within the bureau an almost complete educational system. Many a doctor's dissertation has been worked out at the bureau and accepted at leading universities. As a recruiting ground for workers in industrial research, it is doubtful if any university surpassed it. The director was ardent in his desire to have the science at the bureau serve the industries of the country. He devised a system of industrial research fellowships to augment this service and to keep the well from going dry.

It is generally known that the Bureau of Standards started long after similar institutions in Europe and that in the twenty-two years it became recognized as a leading institution. The bureau is truly a monument to Dr. Stratton, although I never saw him more perturbed than the time a member of the House openly accused him of spending public money to erect a monument to himself.

Dr. Stratton found it very difficult to leave the bureau to accept the presidency of the Massachusetts Institute of Technology. Because of the industrial situation at the time, all New England joined in the call of the institute and it was thus irresistible. His good work there, eight years as president and finally chairman of the corporation, is well known. It was most fitting that a memorial meeting was held at the bureau simultaneously with the services at the institute.

His friends were planning a national dinner to honor his seventieth birthday, but his spokesman gave assurance that this could not be acceptable. Dr. Stratton was not a master publicity man of the kind known to high-pressure salesmen, but immortality has come to him because of his work and by the many touches from his warm and wise personality. His influence on science and industry in this country has been so great and so ramified that any superlative would be inadequate. His recognitions were many. He received the degree of doctor of science from the University of Pittsburgh in 1903; the same degree from Cambridge University (England) in 1909; the LL.D. from Harvard in 1923 and later from Yale; and the Ph.D. from Rensselaer Institute in 1924. He was a member of Tau Beta Pi, Sigma Xi and Phi Beta Kappa. For years he was an officer in the Naval Reserve, and he was in active service during the Spanish War. He was a commander of the Legion of Honor. The Elliott Cresson Medal of the Franklin Institute was bestowed upon him. His membership included the National Academy of Sciences, the National Research Council, the American Physical Society, the Optical Society of America, the Franklin Institute, the Philosophical Society of Washington, the Washington Academy of Sciences, the American Society of Mechanical Engineers, the American Institute of Electrical Engineers and the International Committee of Weights and Measures. Among his club memberships may be listed the Cosmos, Chevy Chase and Army and Navy, of Washington, D. C., the Algonquin, Union, Tavern, Engineers, and University, of Boston, and Union Inter-Allee of Paris.

His duties in organizations, as president, as chairman, trustee, committeeman, or member of board, were too numerous to describe here. These generally carried a public duty, in science, industry, government, in a society, a public institution or even in a judiciary group. He gave to these himself wherever possible. On occasion it was necessary for me to substitute and report to him in such groups as the National Advisory Committee for Aeronautics, the Ice Patrol Board, the Industrial Conference Board, the National Screw Thread Commission, the President's Interdepartmental Patents Committee and the like. Sometimes he would hold similar responsibilities because of his sense of personal obligation. I know he continued to attend the trustees' meetings of the New York Museum of Science and Industry because he could help me. He

seemed to regard a personal obligation as a privilege, and he was rarely conscious that he had more than done his part.

F. C. BROWN

RECENT DEATHS

DR. JOHN WHITRIDGE WILLIAMS, professor of obstetrics at the Johns Hopkins University Medical School since 1893 and dean of the school from 1910 to 1923, died on October 22, at the age of sixty-five years.

DR. JOSEPH MERRITT MATTHEWS, authority on textile chemistry and dyestuffs, died in San Diego, California, on October 12, aged fifty-seven years. For some years Dr. Matthews was professor of chemistry and dyeing in the Philadelphia Textile School.

MR. HENRY LORENZ VIERECK, an authority on the Hymenoptera, was killed in an automobile accident at Loudonville, Ohio, on October 9. Dr. Viereck was fifty years old.

COLONEL JOHN S. A. JOHNSON, professor of applied mechanics and experimental engineering and director of the experiment station at the Virginia Polytechnic Institute, was recently found shot to death in his bedroom at his home on the campus. He was fifty-three years old and had been professor at the institute since 1900.

SCIENTIFIC EVENTS

THE NEW FEDERAL CITRUS FRUIT LABORATORY IN TEXAS

DR. HENRY G. KNIGHT, chief of the bureau of chemistry and soils of the U. S. Department of Agriculture, recently announced that a new citrus laboratory of the bureau, for which funds were appropriated by the last Congress, will be established in the citrus-growing territory of the Rio Grande Valley at Weslaco, Texas, on the state-owned land of the Texas State Experiment Station for the study of citrus fruit culls and their by-products.

The selection of a site on the agricultural experiment station grounds at Weslaco was made upon recommendation of Dr. F. C. Blanck, in charge of the food research division of the bureau of chemistry and soils, and Mr. E. M. Chace, of the bureau's fruit and vegetable laboratory at Los Angeles, California, with the approval of Director A. B. Conner, of the Texas Agricultural Experiment Station.

The chambers of commerce of Weslaco and Mercedes, Texas, have agreed to erect a suitable building for the citrus work of the bureau. In recommending this site for the bureau's by-product work with citrus fruits, the department specialists said: "We feel that the selection of Weslaco is absolutely logical and that it offers special advantages, because of the effective cooperation with the state experiment station which it makes possible and because our work at Weslaco will be located in the center of the citrus-growing territory of Texas."

Director Conner, of the Texas Agricultural Experiment Station, in commenting on the establishment of the federal work in the utilization of citrus by-products, says: "The location of this proposed laboratory at the substation ought to be mutually advantageous to agencies working in behalf of the citrus industry. With the concentration of both federal and state activities at this one station, it will receive increased recognition as a center of research for the Texas citrus-producing industry."

Dr. Knight states that work will begin on problems of citrus-fruit utilization at the bureau's new laboratory as soon as the buildings are completed and the equipment is installed, and that the first year's work will center largely upon problems of grapefruit utilization. The laboratory, he says, will study the composition of different varieties of Texas grapefruit to learn what stage of maturity is most favorable for preservation. Other studies will center upon utilization of waste from canneries and juice factories, and the feasibility of preparing grapefruit oil, pectin, naringin and other valuable constituents from oil and waste material.

The assistance which similar laboratories of the Department of Agriculture have rendered citrus-fruit growers of California and Florida in solving problems of by-product disposal has led to the extension of this work to Texas, fruit growers of that state having made repeated requests for such aid. Total plantings of citrus in Texas amount to approximately 6,650,000 trees, of which about one half are in bearing. This represents an acreage of about 90,000, with grapefruit accounting for three fourths of the total.

PSYCHIATRIC EDUCATION

IN order to meet the growing demand for trained workers in psychiatry and mental hygiene the National Committee for Mental Hygiene has created a new division of psychiatric education, Dr. C. M. Hincks, director of the committee, has announced in a statement sent out by Science Service.

"The dearth of competent psychiatrists is becoming a major issue in human welfare," a committee of the American Psychiatric Association, which has been studying the problem, has concluded.

"It is no longer merely a matter of overcrowded mental hospitals in which the patients receive but momentary attention from the mental specialists. We are confronted by a matter amounting to a national emergency," their report stated.