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GILBERT MORGAN SMITH

1885—1959

A Biographical Memoir by
IRA L. WIGGINS

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January 6, 1885–July 11, 1959

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THE DEATH OF GILBERT MORGAN SMITH on July 11, 1959 removed from the ranks of leading American botanists a man who had written four reference books on cryptogamic botany, who had been one of six authors responsible for the successful "Wisconsin Textbook" of botany that went through four additional editions largely under his supervision, and who had served as a highly esteemed teacher of botany at two American universities and at the summer schools of several others. His books, and a number of technical papers, have been used by thousands of undergraduate and advanced students in botany, and owing to his accuracy and concise style, will continue to serve the science of botany for many years.

Nor did Gilbert Morgan Smith cease to carry on his observations and research when he retired from active teaching at Stanford University in 1950. He worked systematically and efficiently in his laboratory and the library until his failing health forced him into a hospital bed, from which he telephoned directions to his research assistant almost to the day he passed away.

Gilbert Morgan Smith was born on January 6, 1885, in Beloit, Wisconsin, where his father, Erastus G. Smith, was Professor of Chemistry at Beloit College. Both of Gilbert's parents has been born in Massachusetts and held many New England ideals and traditions, including the opinion that a sound education in the classics was the firmest foundation for successful intellectual endeavor. Erastus G. Smith had graduated from Amherst and won his Ph.D. at Göttingen.

Gilbert's mother, Elizabeth Mayher Smith, graduated from Mt. Holyoke College, so it was not surprising that his parents believed firmly in sound scholarship and a good background in Latin, Greek, and both English and continental European literature.

The cultured atmosphere of his boyhood home seemed neither to intrigue nor worry Gilbert, for according to his own statements, he considered the fields, streams, and lakes of his native Wisconsin chiefly as places to hike, swim, fish, and skate. As a boy, he held no antipathy for the forests nor for natural history, but neither did he have a strong interest in their varied aspects. He completed grammar school as a matter of course, without distinguishing himself and without falling below the average of his classmates.

High school, with its greater demands on the pupil's time, attention, and application was less attractive to him than grammar school had been, and he neglected assignments so woefully that his scholastic record was very poor. Several boyish pranks during his freshman year nearly resulted in his expulsion. Professor Erastus G. Smith, exasperated by Gilbert's unconcern about his secondary school achievements, decided that closer supervision under strict masters might improve his son's scholarship, and enrolled him in Beloit College's Academy. Gilbert remained in the Academy through two school years, with no appreciable improvement in his grades—merely because he had no real interest in the courses he had to take. His disinterest in academic accomplishments was a constant worry to his parents, so it was in a spirit of desperation that he was sent to Williston Academy in Massachusetts where his father had taught just after his own graduation from Amherst.

Still believing wholeheartedly in a classical undergraduate education, Professor Smith had his son take Greek, Latin, and French during his first year at Williston. The results there were just about the same as those obtained during the previous three years. By the end of Gilbert's first year at Williston, his father had just about decided to take him out of school and find him an apprenticeship in some trade or business. However, Dr. Joseph Sawyer, the Principal at Williston

Academy, must have sensed ability as yet undeveloped in the boy, for he suggested to Professor Smith that he be permitted to select Gilbert's course of study the following year. The elder Smith gave his son one last chance to make good scholastically, and sent him back to Williston where "Old Joe," as Dr. Sawyer was known among his students, advised Gilbert to take mathematics, German, and biology.

Perhaps "Old Joe's" confidence in him stirred a latent ambition to earn a more enviable scholastic reputation, or perhaps it was only the realization that some subjects taught in high school could be alive and fascinating. Whatever the stimulus, Gilbert no longer appeared in classes with untouched assignments. Dr. Sawyer's faith in him was justified, for at the end of the year Gilbert stood near the head of his classes in biology and mathematics, and held a passable grade in German. At last he had begun to find his pace as a scholar and had started earnestly to study biology—with a strong bent toward botany. He finished his high school work with a keen desire to enter college the next fall, an ambition he had not possessed previously.

In the autumn of 1903 Gilbert Morgan Smith enrolled as a freshman at Beloit College, and for four years made a spotty, but above average, record. During his undergraduate career Gilbert was especially interested in botany and chemistry, and took almost all the courses Beloit College offered in those subjects. If he liked a subject it claimed a disproportionate amount of his time, and in such a subject he usually obtained a grade of A. If the course did not interest him keenly he did just enough work to obtain a passing grade, and sometimes received a D for the semester's work in that course. Few of his grades were B or C. All phases of science and mathematics appealed to him strongly, so his record won him election to Phi Beta Kappa when a chapter was granted Beloit College some years after his graduation.

When he first entered college, Gilbert Morgan Smith had no particular desire to go beyond the A.B. degree, but as he obtained fuller knowledge about botany his interest was intensified and work toward an advanced degree became attractive. Just when, or by whom, this

ambition was stirred, he was not sure. But it became so impelling that by the end of his senior year at Beloit he was keenly anxious to carry on graduate work in botany.

To make such graduate work possible, he spent two years teaching science courses in the Stoughton, Wisconsin, high school. Years latter he admitted that teaching high school classes did not appeal to him, for the very characteristics he had displayed toward the classics during his own high school days came to the fore among many of the boys and girls who enrolled in his science courses. Therefore, by the middle of his second year at Stoughton High School, with less money in his bank account than he had hoped to accumulate toward financing his graduate work, he abandoned any idea of remaining in secondary teaching. He applied for, and received, an Assistantship in Botany at the University of Wisconsin for the academic year of 1909–10.

In spite of his impatience with a high school teacher's lot while at Stoughton, Gilbert Morgan Smith traced the inception of his lifelong interest in the algae to advice received from Dr. R. A. Harper while he still occupied the high school position. Smith realized that his facility with the German language was imperfect, and in the winter of 1908 he asked Dr. Harper what he could do to improve his reading knowledge of German. Harper told him to buy a copy of Oltmann's *Morphologie und Biologie der Algen,* chop holes through the ice on nearby lakes, collect all the algae he could find, and read what Oltmann had written about them. Smith accepted the challenge, and the interest aroused during his early study of winter-collected algae remained, as he wrote, "the dominant one throughout my entire scientific career."

When Gilbert Morgan Smith began his graduate work in the autumn of 1909 he knew he wanted to work with algae, but he had no specific problem in mind. Dr. Harper assigned him a cytological problem on *Oedogonium.* According to both his own and Harper's opinions, he made little progress with the cytological intricacies of *Oedogonium,* but he did gain proficiency in precise laboratory tech-

niques, with fixing agents, with the rotary microtome, and with a microscope—all of which stood him in good stead through ensuing years. Many who studied in his laboratory after he had full charge of advanced courses profited from his familiarity with, and proficiency in, preparing superb slides and in making excellent drawings of the algae he studied.

The summer following his abortive attack on the cytology of *Oedogonium,* Gilbert Morgan Smith was asked by President Blaisdell to accept a one-year appointment at Pomona College while their botanist was absent to complete his own graduate program. Smith accepted the position, and during the week ends and in all other time free from teaching duties at Pomona, he collected and studied the fresh-water algae to be found in the general vicinity of the college. In this manner he gained a fuller knowledge of many genera, further developed his skill as a botanical illustrator, and intensified his already keen interest in fresh-water algae.

Such a large percentage of the collections he made near Pomona College were mixtures of two or more genera that he began developing techniques for isolating algae in pure cultures. At the end of the academic year at Pomona College, Smith returned immediately to Madison and continued his efforts to obtain pure cultures from the mixtures taken in the field. During the summer of 1911 he succeeded in isolating several algae in pure cultures. Among them was one that could not be assigned to any known genus. He followed the life history of the alga meticulously, and achieved the rare distinction of naming a new genus (*Tetradesmus*) in the first scientific paper he published. Subsequent papers based on algae isolated as pure cultures included accounts of the morphology of *Tetraedron* and *Pediastrum,* and a monograph on the genus *Scenedesmus* that is a classic of concise, accurate writing.

Gilbert Morgan Smith received the Ph.D. degree in 1913 and had progressed so far beyond his high school standards of scholarship that he was appointed to an instructorship in botany at the University of Wisconsin. That same year he married Helen Pfuderer, who

shared his triumphs and his disappointments to the end of his days. The young couple found his annual salary of $1200 for the year of 1913–14 left little extra toward travel or other amenities beyond mere living necessities, so he welcomed an invitation to assist E. A. Birge and Chancey Juday in a limnological research project that carried an extra stipend of $1000 for the summer. His responsibility involved sampling the phytoplankton in numerous lakes in Wisconsin, and he vigorously prosecuted this field work through the four summers from 1914 to 1917. To carry on the sampling, he and a guide paddled a canoe behind which he towed a plankton net, then portaged to the next lake where they repeated the process. At night he set up his microscope on a table or wash stand in his hotel room and made camera lucida drawings from fresh specimens. This intensive study of the fresh-water algal forms sharpened his perception for minute characteristics among the plants coming under his microscope, and the steady practice with a camera lucida and pencil perfected a technique that would be used constantly throughout his brilliant career.

In his spare time during the university years, and in the summers of 1918 and 1919, Smith completed Part I of "Phytoplankton of the Inland Waters of Wisconsin," which was published in 1920. In this paper he described all of the know plankton algae of the region except the desmids, about which he felt uncertain and which he was unwilling to treat monographically without careful study of collections and library resources available only in Europe. He had collected hundreds of samples of puzzling and exciting desmids and was anxious to compare them with European representatives of the group.

His accumulation of desmid collections, the urge to delve into the systematic and morphological intricacies of the group, and his determination to work as rapidly as possible toward mastery of a difficult family prompted him to apply for a sabbatical leave. His request was granted by the University of Wisconsin and he sailed for Europe in January, 1920. He spent two months studying the G. S. West collections in Birmingham, followed that with a period at the British Museum working on the Ralfs collections, then went to Scandinavia

where he worked with N. Wille at Christiana and with O. Borge at Stockholm.

Fortified with his broadened knowledge of European desmids, he returned to Wisconsin with voluminous notes, hundreds of sketches, and many superbly executed drawings. He plunged into the completion of Part II of the phytoplankton monograph, covering the desmids, and published the paper in 1924. This comprehensive, two-part treatise was the first one to contain within a single publication descriptions and figures of all the plankton algae of any region, and has become a highly prized book among algologists in America and abroad.

During the years following his first trip to Europe, Smith carried on investigations of the plankton algae in the Muskoka area of Canada (1922), the Palisades Park area of New York (1924), and in the Okoboji region of Iowa (1926). These field investigations, coupled with diligent and painstaking laboratory work both on preserved and living specimens, resulted in the discovery and description of many new genera and species.

Although his algalogical research was intriguing and stimulating, and he obtained great satisfaction from producing papers that were praised by fellow botanists, Smith also held teaching responsibilities at the University of Wisconsin and discharged them conscientiously and well. In the autumn of 1917 he had been assigned general supervision of laboratory and quiz sections in the introductory course in botany. He was dissatisfied with available elementary botany textbooks and persuaded other members of the staff to join him in preparing a new text, with each author accepting responsibility for the part to be devoted to his own special field. Smith's practice of using drawings lavishly in his papers prompted him to urge more numerous and better drawings than were usually found in the textbooks of the day. He personally drew many new illustrations or adapted others from existing technical papers. The book that resulted from their combined efforts, *A Textbook of General Botany,* was mimeographed for use in the classes at the University of Wisconsin, and

tested in that form for three years. At the end of each school year the text was revised, improved, corrected, and reorganized. The refinements conceived by the six authors under this "workshop" system produced a textbook first printed in 1924, and which went through four subsequent editions. There were some changes in the list of authors in the fourth and fifth editions, but Smith carried much of the editorial work for each issue. He usually contributed numerous new drawings or diagrams with each revision, in addition to rewriting some chapters.

The year after the new textbook appeared in printed form, Smith was called to Stanford University to succeed Douglas Houghton Campbell, who had been the first Professor of Botany at that University. Smith began his duties with the west coast university in September, 1925, and devoted most of his time during that academic year to preparing lectures and laboratory exercises for courses on the bryophytes and pteridophytes, for he had not given advanced instruction dealing with those groups.

He did his work meticulously, thoroughly, and rapidly. Students enrolled in the two advanced courses were unaware that Gilbert Morgan Smith was presenting lectures and assigning laboratory work on bryophytes and pteridophytes for the first time in his career. During the ensuing two years he was able to get some, but not much, research done, for he continued to work hard preparing lectures for courses in the morphology of gymnosperms and in the morphology of the angiosperms. The writer of this biography can attest personally that none of the students who took his courses in plant anatomy and morphology had the slightest suspicion that he was treading paths new to him. His lectures were concise and clear cut, beautifully organized, and backed with a knowledge of the supporting literature that was an object of both admiration and despair among the students.

Professor Smith never shirked preparation of classroom lectures. He read rapidly and remembered a remarkably high percentage of the material covered. He searched through papers written in Eng-

lish, French, and German to gain background and factual material on a subject under consideration. He carried out his library research for a complete course before he began preparation of the series of lectures to be used during the school term, and he had voluminous material filed under subjects that would constitute the main headings of the course—and often under the titles of individual lectures. He believed thoroughly in the efficacy of illustrations, and prepared accurate tracings of pertinent figures on tracing paper to be duplicated by the blueprint method for distribution to the members of his advanced classes. Many of these drawings were drawn directly from work done in his own laboratory, and others were based on figures appearing in the botanical literature, but modified in the light of findings resulting from his own research. Each figure drawn from a published source carried a small but clear indication of its source in the form of the original author's name and the date of the publication from which it had been taken.

Smith's lectures were as orderly as his work habits, but he seldom repeated a statement for mere emphasis—a student could ill afford to daydream in Professor Smith's classroom or laboratory. Each lecture was compact, well organized, and presented in a logical sequence that led smoothly from one subject to the next. He spoke at a moderate rate, clearly and succinctly. Oratory held no place in his lectures, and humorous anecdotes, told to get a laugh but without bearing on the subject, were shunned. Frugal use of a crisp kind of humor enlivened his lectures, but only insofar as it helped his listeners visualize a structure or condition, as, "some pollen grains have numerous, evenly spaced pores . . . like miniature golf balls."

Gilbert Morgan Smith set high standards of performance for the students in his quiz sections and laboratory. The work he assigned usually was sufficient to keep most students bent over their microscopes an hour or more after the official termination of the session. He required that all drawings made in advanced courses be "inked" before they were turned in for grading, for he believed that every prospective professional botanist benefited from such self-discipline.

He did not hold this requirement merely as an excercise in manual dexterity, but because he was convinced that almost everyone could understand an organism or a structure more completely if he had studied it carefully and intensively enough to reproduce a recognizable drawing of it. The rigorous training he gave his students during the lengthy but intensely interesting sessions paid sound dividends to most, if not to all, who elected his courses. His research and his teaching were so thoroughly interwoven that students in his classes were scarcely able to believe that good university teaching could be divorced from the professor's research.

In both elementary and advanced botany classes Professor Smith was known as a good lecturer. He was genuinely liked by his students, whether they were working toward advanced degrees in botany or merely taking courses to fulfill requirements toward an A.B. in a totally different discipline. His popularity stemmed from the clarity of his lectures, his intense interest in his subject, his unswerving fairness, and his practice of spending a part of every laboratory period in each section. He believed that as a teacher he had an obligation toward each student in his class, and that a professor who placed all of the laboratory supervision on the shoulders of a student assistant was cheating the students and the university. Yet he critically evaluated the potentialities possessed by members of his classes, and was prompt to recommend additional, stimulating work for those whose performance was above average. He believed that the good student should receive special attention, even more than the poor one, in order that the man or woman with above average capacities might have an opportunity to approach his or her fullest potentialities. Smith was insistent that his laboratory assistants should refrain from devoting most of their time to the problems of the laggards, the lazy, and the inept.

Beginning in the fall of 1928 Professor Smith devoted all available working time to writing a book covering the fresh-water algae of the United States, for he thought he could make a greater contribution to phycology by following such a course than he could by continuing in-

tensive work on the algae of various circumscribed areas. The task to which he applied himself was a gigantic one, but he made steady progress, day by day and week by week. *The Fresh-water Algae of the United States* came off the press in 1933. That the book was successful and filled a long-felt need among botanists is indicated by the fact that the second edition came out in 1950, the same year Gilbert Morgan Smith retired from active teaching. Although other algologists have added importantly to the phycological literature since 1933, the book is still useful and is eagerly sought by young botanists interested in algae.

Only one short break had been taken from searching the literature and writing the text for the book during the five-year period. He made a second trip to Europe in the summer of 1930, and spent an inspiring week in Prague with A. Pascher, then went to Cambridge to attend the Fifth International Botanical Congress. That was one of the few summers he did not teach at the Hopkins Marine Station during the fourth quarter of the academic year.

For many years Gilbert Morgan Smith had believed that students taking courses in the morphology of plants below the level of the seed plants were handicapped by the lack of a general text in English covering the lower groups. Consequently, as soon as the manuscript for *The Fresh-water Algae of the United States* was finished, even before proofreading was completed, he began searching the literature, collecting data, preparing original illustrations, and writing the text for such a book. For five years he devoted most of his free time to this task—but never to the neglect of his classes. He found it necessary to include more than he had originally intended, so the finished book, *Cryptogamic Botany,* became a two-volume reference work rather than a text for a one-year course.

More than usual credit is due Gilbert Morgan Smith for persistently devoting his time, thought, and energy to preparing the manuscript and illustrations for *Cryptogamic Botany,* for he suffered a keen disappointment at the very beginning of his labor on the book. There had been a "gentlemen's agreement" among members of the

Department of Botany that upon the retirement of Dr. George J. Peirce, Professor Smith would be recommended as the new head of the department. A departmental recommendation to that effect was forwarded to the President of the University in the spring of 1933, but Smith's appointment was blocked by the head of another department. Smith refused to be crushed. He continued to teach his courses, took over part of the teaching burden of a colleague by giving lectures and supervising laboratory sections in general biology after the Departments of Botany and Zoology were merged in 1934, and pushed forward his work on *Cryptogamic Botany*. Only a few days after he learned that his appointment to the headship of the Department of Botany had been rejected, he told this writer, "I refuse to be squelched. I won't resign. If that is what some people want, they will be disappointed. I'll teach my share of the courses, carry out such committee assignments as may be given me, and spend the rest of my time doing research and writing books." He held steadfastly to that course until his retirement.

Gilbert Morgan Smith's move to Stanford also involved him in giving a course in marine algae at the Hopkins Marine Station during each summer for many years. This work drew him into careful study of the marine algae of the Pacific Coast, a study that he enjoyed greatly, although it could not wholly take the place of the fresh-water algae. Each summer, during the decade that his *Fresh-water Algae of the United States* and his *Cryptogamic Botany* textbooks were being written, was spent at the Marine Station. Each summer he taught a course, collected industriously, and studied the sea weeds. These investigations resulted in publication of several papers and the accumulation of many ecological, morphological, and taxonomic notes and observations. Smith was not one to overlook the possibility of utilizing the by-products from his teaching and field work, so as the material forms continued to grow and his familiarity with the marine algae increased, he began to organize these data for another book. As usual, he drew many plates to illustrate species previously unillustrated or those poorly depicted in earlier papers. He combed

through extensive series of papers, corrected, emended, and enlarged descriptions of certain genera and species. This labor resulted in the publication of *Marine Algae of the Monterey Peninsula, California* in 1944. In some respects the title of the book is misleading, for although theoretically limited to a relatively small area, it includes descriptions of and notes on nearly 80 per cent of the marine algae native to the west coast of the United States.

After publishing the *Marine Algae of the Monterey Peninsula, California* Professor Smith returned to a field of research from which he had departed thirty years earlier—a study of algae in pure culture. He had never lost completely his interest in that phase of his early investigations, and was anxious to test some of the observations on sexuality in *Chlamydomonas* reported by F. Moweus. Smith had mastered techniques for isolating algae in pure culture following his year at Pomona, and so lost little time in getting cultures into the laboratory and separating the mixed cultures into several pure ones. Within a year he had cultured algae from over 700 samples of soil from many parts of the United States, had isolated numerous colonies of *Chlamydomonas,* and had found mating types in several of his colonies. Eventually he had both sexes of over a dozen species of the genus isolated, knew a good deal about their genetic makeup, and was able to demonstrate the spectacular mating activities of these unicellular algae on a few hours' notice. He readily admitted that he published relatively little along the lines reported by Moweus, because most of the results obtained were negative when he repeated the earlier worker's experiments. However, strains of one isolate, that of *Chlamydomonas reinhardii,* were used by several geneticists and others interested in pure cultures of algae, and their work with his strains resulted in publication of several important papers.

Still another type of investigation occupied Gilbert Morgan Smith for several months during the final four years he spent on active duty as a faculty member at Stanford. He was a member of the Scientific Survey of Bikini in 1946 following the atomic test detonations in that area. He spent six weeks collecting and studying the marine

algae from habitats varying in distance from the center of the blast area. His findings were not published, but were incorporated in a report submitted to the sponsoring government agency.

In 1949 he further advanced his knowledge about the South Pacific and its algal flora when he attended the Seventh Pacific Science Congress in New Zealand. He attended the Congress as an official delegate from the United States, and made the most of the opportunity to see as many coastal habitats as possible. His interest in the southern hemisphere was so aroused that he made several subsequent trips south of the equator.

Professor Smith retired from active teaching at Stanford University on August 31, 1950. He welcomed emeritus status, for it gave him more time to devote to his research on the physiology of sexual reproduction in *Chlamydomonas* and to travel extensively. Retirement permitted him to travel leisurely, and to penetrate regions that held appeal for him and Mrs. Smith, as well as to regions where he could collect interesting algae.

The first few years of retirement also gave him time to revise some of his books, and he brought them up to date by reconciling them with results of his own and other botanists' investigations. His eminence in his fields of research brought numerous requests for his services on committees, in editorial capacities, and as a speaker in symposia. He edited the *Manual of Phycology,* published in 1951, and was one of the botanical editors of the *Encyclopaedia Britannica* right up to the time of his death. The second edition of *The Freshwater Algae of the United States* appeared in 1950, and the fifth edition of *A Textbook of General Botany* came out in 1953. The second edition of *Cryptogamic Botany* was published in 1955.

Travel to distant parts of the world fascinated him, for he had an insatiable curiosity about the physical appearance of different parts of the world, and about the customs and character of their inhabitants. He possessed the ability to see behind much of the façade of modern cities and to sense the underlying mores of the people. Whereas his trips to Europe in 1920, 1930, and 1950, plus two each

to Hawaii and New Zealand, had been wholly or chiefly to serve his professional needs, those made after 1950 catered more to his own and Mrs. Smith's pleasure and enjoyment than to botanical research. In 1951 he and Mrs. Smith visited Japan and the Philippines, and developed a keen and lasting interest in the Orient. In 1953 they toured Africa, and with moderate encouragement, Dr. Smith would discourse fascinatingly on the beauties and wildness of part of the continent, about the customs of the native peoples, and on the problems facing the white populations in certain areas. The following year, 1954, the Smiths devoted several weeks to South America, and in 1956 spent most of the winter in Thailand.

Both Gilbert and Helen Smith enjoyed travel tremendously. Both were excellent ballroom dancers and both played bridge enthusiastically and well. They participated in both pastimes aboard transoceanic ships, and several cups indicating victories in bridge tournaments on such trips were among mementoes on a corner of Professor Smith's desk. Aboard ship Gilbert Smith banished research problems and university duties and devoted his full attention to social activities and "loafing." An abrupt shift from a hard-working scientist to a well-informed conversationalist, charming dancing partner, and excellent bridge player was an easy one for him to make, for he had established an unusually orderly routine early in his career.

All through his years of academic and research activity the work week began for him a few minutes before eight on Monday morning, and for years he met an eight o'clock class three times a week from September until June. If not in a class or laboratory, he was at his desk or in the library, working steadily from eight until midmorning. At about ten o'clock he was accustomed to taking a short break, during which he would walk down the hall, chat for three or four minutes with a colleague or a graduate student, smoke a cigarette, abruptly turn on his heel and briskly return to his desk and typewriter. About ten minutes before noon he walked to the Union, where, during the last fifteen years of his teaching career, he sat with four or five congenial colleagues during the lunch hour.

By one o'clock he was again at work; he took a break in the middle of the afternoon similar to the one in the morning. By half-past five he had finished his stint for the day, and when he left his combined office-laboratory, he left his professional and academic problems as completely as though he were a totally different person. He never took work home over which to slave or worry at night, nor did he return to his desk or to the library after hours. His thoughts from 8 A.M. to 5:30 P.M. were concentrated on his lectures, his plans for a laboratory assignment, library work, a research program, or his writing. From 5:30 P.M. until 7:30 the next morning he played bridge, danced, entertained guests, attended concerts, and rested. His scientific and social activities were thoroughly separated. While at his typewriter, microscope, or drawing board, he rarely allowed anyone to interrupt him for more than a few minutes. He answered questions courteously and promptly, but with a manner that effectively discouraged the garrulous.

This extraordinary orderliness marked every phase of his research, his writing, and his thinking. He planned a paper, a lecture, or a book with meticulous thoroughness, kept separate folders for materials dealing with each chapter, and did most of his library research before he began serious writing. After the preliminary ground work had been laid, the references traced down and checked, he went to work on a production-line basis, and, as one of his colleagues expressed it, "thought in paragraphs." He rarely removed a sheet of paper from his typewriter to begin anew when a sentence failed to round out. Rather, if he ran into difficulties, he simply tapped x's over the awkward part, and continued. His first draft was usually a semifinal one, and a clean copy was produced mainly by typing on fresh paper those parts of the original not covered with the x's. Careful planning carried over into proofreading. Each lot of proof was read promptly and carefully. There was no delay in publishing routine that could be blamed on Professor Smith. Almost within hours of reading the last page of proof, he had the index completed. When he was about to sail for New Zealand in 1948, he arranged with

a colleague to act as his literary executor if anything happened to him, and had a detailed schedule of steps to be taken to insure publication of the second edition of *The Fresh-water Algae of the United States* if he were unable to carry out his program of final writing and proofreading.

Gilbert Morgan Smith regularly participated in botanical affairs of the country, not so much by submitting papers to botanical journals as by going to meetings at which botanists gathered. He consistently attended the winter meetings of the American Association for the Advancement of Science, and those of the Botanical Society of America. The regional meetings of the Botanical Society, held in June, were effectively barred for him by his teaching commitments during the summer quarter. His regular attendance at the "Christmas Meetings" was prompted by no desire to seek election to office, nor by a desire to sit through long sessions devoted to presentation of papers. Rather, he enjoyed the opportunity to chat with old friends, renew acquaintances with those who came to the meetings less frequently than he, and to meet young botanists embarking on professional careers. Often, when asked if he had heard a particular paper, he would say frankly, "No. I learn more by sitting in the lobbies or halls talking with people than I could by listening to formal papers."

After preliminary greetings to an old friend he often quipped, "What is the latest gossip at your university?" Yet Gilbert Morgan Smith was no gossip-monger. He might criticize another scientist for inaccurate reporting or for conclusions based on inadequate experimentation and observations, but such criticism was never malicious, was completely objective, and very often expressed directly to the individual being taken to task.

Gilbert Morgan Smith did not like lobbying, maneuvering, and jockeying for official recognition in organizational politics, and forthrightly said so. When asked to serve on a committee or to preside at a session, he either refused immediately or accepted the responsibility without false humility or reluctance. If he accepted the duty he could be counted on to carry out the task efficiently and

with little apparent effort. He organized any session over which he had supervision as thoroughly as he did the materials for his lectures and his books. He accepted such duties more frequently than he declined them, and this willingness to share in the burdens of operating a society earned him the respect of his colleagues and inevitably carried him into several national offices.

As the years passed and his reputation grew, he was invited to participate in numerous symposia and to serve in various capacities in international as well as national organizations. Twice he was a sectional officer during an International Botanical Congress. His participation in the Pacific Science Congresses began in 1937 and continued until after his retirement. He was scarcely a "joiner" but did affiliate himself with those organizations that he believed helped advance the science of botany, and to which he could contribute something of value. Among the professional and scholarly societies in which he held membership were the following:

The National Academy of Sciences, to which he was elected in 1948; the American Academy of Arts and Sciences; the American Microscopical Society, in which he was elected to the presidency for the year of 1928; American Association for the Advancement of Science; Botanical Society of America, which he served as Vice-President in 1942 and President in 1944; the Phycological Society of America, serving as that organization's first President in 1947; and the Western Society of Naturalists, in which he served as Vice-President in 1954. He was a member of the Scientific Survey of Bikini in 1946; a United States delegate to the Seventh Science Congress in 1949; Vice-President for the section on Morphology at the Seventh International Botanical Congress at Stockholm in 1950, and Honorary President of the Section on Phycology at the Eighth International Botanical Congress in Paris during the summer of 1954.

Gilbert Morgan Smith's associates in phycological research respected his high competence as a taxonomist and student of the life histories of algae. It was only natural that they should show their esteem by naming various taxa in his honor. The following list, al-

though perhaps incomplete, is indicative of the international scope of his influence and reputation, for they are species proposed by algologists from several countries: *Hymenena smithii* Kylin, *Gymnogongrus smithii* Taylor, *Pseudostaurastrum smithii* Bourrelly, *Chlamydomonas smithiana* Pascher, *Dactylococcopsis smithii* R. and F. Chodat, *Tetradesmus smithii* Prescott, *Debarya smithii* Transeau, *Gloeochloris smithiana* Pascher, *Polysiphonia flaccidissima* var. *smithii* Hollenberg, and the genus *Smithora* Hollenberg.

He received an honorary Doctor of Science degree from Beloit College in 1927.

Probably only those who lived and worked daily beside Gilbert Morgan Smith can fully appreciate the great strength of character he displayed during the months of declining health immediately preceding his death. As his bodily strength waned physical effort became an increasingly difficult burden, yet he remained cheerful, mentally alert, and genuinely interested in the plans and research of his associates. He had tasted the fruits of his labors during a moderately long and eminently useful life and their flavor was sweet to his tongue. He knew he had made worthy contributions to the science of botany and his chief regret—if regret he held—when his labors ended was that there was not still more time and strength to devote to the solving of a few more problems as yet unanswered.

Gilbert Morgan Smith was sincerely loved by his friends, relatives, associates, and students during his life. He is sorely missed and keenly mourned, and still clearly and affectionately remembered after his death.

KEY TO ABBREVIATIONS

Abstr. 5th Internat. Bot. Cong.=Abstracts from the Fifth International Botanical Congress
Am. J. Bot.=American Journal of Botany
Ann. Bot.=Annals of Botany
Arch. Protistenk.=Archiv für Protistenkunde
Ark. Bot.=Arkiv für Botanik
Biogr. Mem. Nat. Acad. Sci.=Biographical Memoirs of the National Academy of Sciences
Bot. Gaz.=Botanical Gazette
Bot. Rev.=The Botanical Review
Bull. Torrey Bot. Club=Bulletin of the Torrey Botanical Club
Carnegie Inst. Wash. Pub.=Carnegie Institution of Washington Publication
J. Indian Bot. Soc.=The Journal of the Indian Botanical Society
Pl. World=The Plant World
Proc. Calif. Acad. Sci.=Proceedings of the California Academy of Sciences
Proc. 5th Internat. Bot. Cong.=Proceedings of the Fifth International Botanical Congress
Proc. 7th Internat. Bot. Cong.=Proceedings of the Seventh International Botanical Congress
Proc. Nat. Acad. Sci.=Proceedings of the National Academy of Sciences
Roosevelt Wild Life Bull.=Roosevelt Wild Life Bulletin
Trans. Am. Micr. Soc.=Transactions of the American Microscopical Society
Trans. Wis. Acad. Sci. Arts Lett.=Transactions of the Wisconsin Academy of Sciences, Arts and Letters
Wis. Geol. Nat. Hist. Surv. Bull.=Wisconsin Geological and Natural History Survey Bulletin

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