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ERWIN F. SMITH

DR. ERWIN F. SMITH, scientist of the United States Department of Agriculture, whose death occurred on April 6, was one of the chosen few who are given to do great things. The continuous emanation of outstanding contributions to useful knowledge from his laboratories testified, not only to the fruitfulness of his individual efforts, but was significant also of his ability to stimulate and draw out the best talent of the group of unselfish workers with whom he was associated. Considering the modern trend toward individualism in scientific work, this was a mark of high distinction and an outstanding characteristic of the man. One was always impressed by the tone of quiet and unassuming energy and efficiency which prevailed among his devoted coworkers in the laboratory of plant pathology. The guiding hand of real genius was evident in every detail of the multitude of activities carried on there, touching as they did upon all phases of the science which he had advanced more than any other man.

Dr. Smith was almost an ideal representative of that type of inspired scientist who could suppress all desire for worldly advancement in order to devote all of his physical resources and his splendid intellectual equipment to the attainment of scientific truth. His home life as judged by the luxurious standards of modern conduct was almost ascetic in its simplicity, his books, the tools of his trade and the other accessories of scientific research being the only items of considerable expense which he never denied himself. He spared no outlay for these things and surrounded himself with them to have at hand the necessities for uninterrupted study during what would ordinarily be the hours of leisure. An interesting commentary on Dr. Smith's evaluation of the requirements for the type of life he led is found in the fact that his modest home was illuminated in the style of the past generation and that in this day of universal transportation on rubber tires he preferred to walk. Only during the last few weeks of his life, when he must have felt his physical powers waning and undoubtedly had a premonition that conservation of his strength was essential, did he make use of taxicabs to convey him to and from the laboratory.

This unusual man never allowed himself to be drawn into the purely social functions which only too often are the tribute levied by the idle upon the time of the workers of the world. He knew the necessity

for conserving his energy for the great work to which he had dedicated his life and his daily routine of working, eating and sleeping was planned with the utmost care to permit a concentration of his magnificent mental equipment upon the daily attack on his research problems. Some fifteen years before his death, Dr. Smith discovered that two sparing meals per day were sufficient to sustain him at the maximum efficiency and he rigidly adhered to this practice until the end. While his abstemiousness was not forced upon the attention of others, it is noteworthy that he never used tobacco or intoxicants. An almost perfectly ordered life enabled him to carry on with increasing effectiveness far beyond the time when most Americans are forced to submit to the inevitable penalty for too strenuous and ill-planned application to their tasks.

The personal appearance of Dr. Smith, especially his face with full white beard, was striking. His countenance was easily recognizable as that of a scholar, full of reflective force and studious determination. The expression of benign good humor which generally characterized him was fully justified by a helpful, kindly disposition. Especially was he unfailing in extending help and advice with patient courtesy to students who sought his laboratory to take advantage of the opportunity for improvement in their methods and point of view by contact with one of the greatest exponents of the young science of plant pathology. No one who was able to convince Dr. Smith of his sincere interest and intelligent grasp of his problems was ever denied full and complete liberty to study the methods of work in the laboratory where standards of technique in plant pathological investigations were so largely developed. Foreign students, of whom an unending stream came from Europe and Japan to the laboratory of plant pathology, some of them for prolonged visits, were assured of a hearty welcome and courteous treatment during their sojourns. Evidence of the generosity of his spirit is not confined to extending aid and stimulation to scientists in these purely intellectual associations, but many times he rendered assistance of a more substantial sort when the need arose.

His scientific attainments, which are well known to the world, open up the almost inexhaustible topic of Dr. Smith's traits of character. Early in life he had shown great determination in wringing an education from an unsympathetic world in the face of discouraging obstacles. It was necessary for him to find employment to earn means for attending both high school and college, and he did not graduate from the University of Michigan until he was thirty-two years of age. The quality of persistence despite handicaps, however great, enabled him to complete difficult assignments with marked success after he was appointed to the Department of Agriculture in 1886, the year of his graduation. A masterful experimentalist and an indefatigable worker, his early work in the department soon attracted attention. All his researches, brilliantly conceived and executed, were marked by a thoroughness that left no room for disagreement with his results. He soon established a reputation for complete accomplishment and very rarely were his researches marred by premature or conjectural conclusions. Vague conceptions and baseless speculations that so often obscure explorations of the unknown are not to be found in his clear-cut contributions. Notwithstanding, he found himself at times confronted with hostile skepticism, notably the antagonism of the distinguished German scientist, Alfred Fischer, who maintained purely on *a priori* grounds that the tissues of growing plants were an environment unsuited to the growth and development of bacterial organisms. By his complete and convincing refutation of this viewpoint, Dr. Smith extended his reputation beyond the limits of the United States and became the acknowledged international leader in the field of bacterial diseases of plants. In his later years, after his work on crowngall had led him to note the remarkable analogy between plant and animal overgrowths, it was evident that he was eager to pursue to an ultimate conclusion the question of possible bacterial causation in connection with one of the world's greatest unsolved problems, that of human cancer. In advancing this work he attracted the attention of medical experimentalists and stimulated research that may serve to finally elucidate the origin of this dreaded disease. Consistent with his usual caution in not accepting results unless adequately repeated and with the most rigid scrutiny of methods, he was intensely interested but not carried away when it was announced late in 1925 from Dr. Blumenthal's laboratory in Berlin that an organism isolated from human breast cancer had produced tumors when inoculated into plants and rats. The possible identity of the organism causing plant and animal tumors was apparently never in his mind, but the remarkable similarity in ontogeny and structure of the various types of overgrowths in the plant and animal kingdoms convinced him that the animal tumor, as he had proved with the analogous plant tumor, is originated by infection with a parasitic organism. In common with all of his scientific endeavors this work typifies his zeal in the service of mankind, the conservation of food crops or the alleviation of human suffering having been always uppermost in his thoughts and in fact to him was the principal justification for his existence. Whatever may be the outcome of his venture into the field of animal pathology, his place in the annals of the science of

plant pathology which he helped to elevate to a profession of high standing will endure for all time. In this line of endeavor nature's obedient response to his interrogations is well evidenced by a survey of the astonishing number of publications he has contributed, 167 original and 73 reviews, a total of 240.

It is not necessary to say to the friends of Dr. Smith that his culture was far more than plant pathological. An inherent love of the more refined embellishments of our civilization, especially literature, served to further distinguish this many-sided man. A patron of all the arts, he was a master of lucid composition and a gifted poet. A book of verse published privately in 1915, containing 197 sonnets and other original poems, together with understanding and sympathetic Latin translations from the German, French and Italian languages, is an achievement of his creative ability, practically unknown except to the small circle of friends among whom the limited edition was circulated. His fondness for the beautiful city of his adoption was not confined to a detached admiration of its charm. As a member of the Arts Club of Washington he actively served with the enthusiastic and disinterested groups of public-spirited citizens in movements designed for preserving its natural beauty and enhancing it with architectural adornments in keeping with the vision of L'Enfant.

A glimpse into his home disclosed a veritable treasure house of art objects and a superlative library selected with discriminating taste during a long lifetime of profound meditation on the serious things of this life and the hereafter. Dr. Smith was not a churchman in the sense of regular display of piety, but he was deeply religious and his faith as revealed in his written records constitutes an answer to the challenge of the fundamentalists who see in the interpretations of science an undermining of the structure of Christianity.

At a time when he could look back over the course of a long life rich in service to his fellowmen and just following the spontaneous tribute to his genius by his fellow scientists at the Philadelphia meetings of the American Association for the Advancement of Science he passed into the state which can not be voiced more fittingly than in his own words:

QUIETUDE: A PRAYER

God of all flesh, when these my days are sped
Let me but hear the music of the spheres
Or see, far off, the progress of the years
And I shall be greatwhile content though dead;
For to their heavenly music I am wed
And thrill with subtile thrills, nor yield to fears.
Thy great To-morrow wipes away all tears
And there, as here, Thy law shall be our bread.
Then let me dwell in some great quiet place
Where I may brood in peace on time's deep things
And all the mystery that round man clings;
Far off, mayhap, have glimpse of one sweet face;
And catch the tones of twanging golden strings
Whereto Thy myriad million stars keep pace!

E. W. BRANDES

UNITED STATES DEPARTMENT
OF AGRICULTURE

COLLEGE LIBRARIES AND CHEMICAL EDUCATION

WHETHER we would have it or no, the purpose of the small college is changing. A decade ago the graduate of a college was thought to be fitted with the requisites of a cultural, liberal education, to be ready to begin his life work as a good citizen. Within a generation, however, has come an era of specialization. Everywhere we see the demand for the expert worker, the professional man who has devoted from two to four additional years to train himself in a special way in a particular field.

The small college has stood staunch in its desire to supply the liberal education and perhaps it has done well in maintaining this position. On the other hand, many of the large universities have shifted the emphasis from undergraduate work to graduate study. Still others have tried to develop both side by side. Few of the small colleges have kept astride with the inevitable consequences of such a situation. The few who have are sending an increasing number of their graduates to these universities to complete their training. As an example of this, it is the boast of Pomona College that over seventy per cent. of her graduates have taken subsequent professional training. It has become the evident duty, therefore, of the small college to prepare its men, not only to enter such graduate schools, but also to meet successfully the ever-increasing intensity of competition found there. This in addition to supplying a broad cultural education. This duty has brought with it a number of problems of first magnitude. One of the biggest of these is the problem of adequate library facilities.

It is the purpose of this paper to discuss this problem with special reference to the student whose college major is chemistry. The answer to the question of what books a library in chemistry should contain will be found excellently answered in a book, containing a list of 1,600 books, each one judged by experts as to importance and value. This book, edited by Patterson and Crane, will soon be available. The problem of the purchase of new books as they appear is one which must be answered anew for each