

# PLANT SCIENCE BULLETIN

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## Golden Jubilee Merit Citations

(At the 50th anniversary banquet, held on August 29th at Univ. of Conn., President Creighton presented Certificates of Merit to the distinguished botanists whose names appear below for their contributions to botany. As she read each name, the President read also the citation following each name. Chairman of the committee which selected the recipients of these citations was B. S. Meyer.)

HENRY ARDELL ALLARD, for his pioneer investigations of photoperiodism in plants and for his long continued contributions to our knowledge of this phenomenon and to other areas of botanical science.

EDGAR ANDERSON, for his extensive contributions to the general problems of evolution; including the species problem, self-sterility, and particularly his sponsorship of the idea of introgressive hybridization.

DIXON LLOYD BAILEY, discerning analyst and interpreter of the concepts of plant pathology, enriching influence in the lives of his associates, and outstanding contributor to the vigor of scientific study in Canada.

IRVING WIDMER BAILEY, plant anatomist and inspiring teacher, for his outstanding contributions on the structure of the cell wall and the histology of the cambium, and for his application of anatomy and morphology to problems of evolution of angiosperms.

HARLEY HARRIS BARTLETT, for his unflagging support and encouragement of the whole field of botany and its students, and for his diverse contributions to paleobotany, ethnobotany, ecology and systematics.

GEORGE WELLS BEADLE, for his long list of contributions to the cytogenetics of *Zea mays* and *Drosophila* and the tremendous impetus he has lately given to the field of physiological and chemical genetics, particularly in *Neurospora*.

ERNST ATHEARN BESSEY, who with an undeviating zeal for accuracy has fashioned our generation's magisterial presentation of the science of mycology.

SIDNEY FAY BLAKE, for his scholarly contributions to the taxonomy of the Compositae and other vascular plants, and to our knowledge of the floras of the world.

EMMA LUCY BRAUN, for her contribution to our knowledge of the origin and structure of the Eastern American deciduous forest. Her critical evaluation of the works of others, her capacity to observe correctly in the field and to interpret forcefully have given biogeographers a new point of departure.

STANLEY ADAIR CAIN, whose sensitive perception of complex environmental problems and intimate understanding of conflicting points of view have provided us with many new insights. His courage in opening up new areas has made him an outstanding interpreter and a leader of men.

RALPH WORKS CHANEY, for his notable achievements in paleobotany, which have so greatly enriched our knowledge of the Tertiary floras.

AGNES CHASE, one of the world's outstanding agrostologists and preeminent among American students in this field.

JENS CHRISTIAN CLAUSEN, for his work toward the improvement of our understanding of the nature and origin of plant species.

RALPH ERSKINE CLELAND, for his extensive researches into the species relationships and segmental interchange problems in *Oenothera* and also for his statesmanship in representing plant science at the national level.

HENRY SHOEMAKER CONARD, taxonomist, morphologist, mycologist, ecologist, bryologist, shining proof that versatility may serve only to multiply excellences, and above all a beloved teacher.

WILLIAM SKINNER COOPER, one of the creators of an American tradition in ecology. His deep feeling for the relatedness and parallel developments of geology, physiology, taxonomy and vegetation science has been a guiding light to a whole generation.

JOHN NATHANIEL COUCH, whose studies of the small, the intricate, and the odd among fungi and their relatives have come to fruition in the vivid, the significant, and the delectable.

BERNARD OGILVIE DODGE, whose perceptive researches into the taxonomy, evolution, and pathological relations of the fungi have not been surpassed, but only overshadowed, by his discovery and exploitation of *Neurospora* as a principal source of genetical truth.

BENJAMIN MINGE DUGGAR, for his outstanding researches in plant physiology, plant pathology, and mycology for over half a century and for his wise and patient counseling to many students for whom he provided inspiration, imagination, and high standards of scholarship.

ARTHUR JOHNSON EAMES, plant anatomist and morphologist, for his sustained researches on the morphology and anatomy of vascular plants and for his noteworthy contributions to our knowledge of floral development and evolution.

KATHERINE ESAU, plant anatomist and histologist, for her numerous contributions on tissue development of vascular plants and in particular for her outstanding studies on the structure, development, and evolution of phloem.

ALEXANDER WILLIAM EVANS, who to a fruitful life as the honored master of hepaticology has added a second as profitably devoted to the disentangling of the noble genus *Cladonia*.

HENRY ALLAN GLEASON, for his work on tropical and temperate floras of America, and for the ideas and inspiration which he has supplied to the field of systematic botany.

THOMAS HENRY KEARNEY, for his early theoretical contributions to plant geography, his work in cotton breeding, his systematic studies in the Malvaceae, and his part in the preparation of the Flora of Arizona.

# Plant Science Bulletin

HARRY J. FULLER, Editor

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**GEORGE WANNAMAKER KEITT**, for his many contributions to plant pathology, and in particular for his excellent researches on fruit tree diseases, for his leadership in plant pathology administration, and for his patience and kindness in counseling many students for whom he provided by illustrative example the life of a true gentleman.

**PAUL JACKSON KRAMER**, for productive investigations in various branches of plant physiology, and especially for significant contributions to our knowledge of plant water relations and tree physiology.

**LOUIS OTTO KUNKEL**, for his researches and indefatigable efforts in experimentation; for his wise counseling of associates and students, for experimental techniques and publications; and for his productive studies on the nature of plant viruses.

**DANIEL TREMBLY MACDOUGAL**, for numerous contributions over many years, to our knowledge of various phases of plant physiology and plant ecology, and especially for advances in our understanding of growth and physiology of tree species.

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**ANDREW DENNY RODGERS III**, a unique figure on the American literary scene. His biographies of well-known botanists and histories of phases of the development of botanical science are readable, scholarly, and authentic.

**JACQUES ROUSSEAU**, whose explorations of the unknown North have provided an important contribution to Pleistocene biogeography. His sympathetic interest in Indian and Eskimo folklore and ways of life, and his encyclopedic knowledge of the history of Canadian exploration have yielded a rich harvest of ethnobotanical studies.

**KARL SAX**, for his classical studies on the chromosomes of wheat, his continued interest in the chromosomes of the ornamental woody plants and his extensive contributions about the effect of irradiation on chromosome breakage and chromosome structure.

**PAUL BIGELOW SEARS**, whose pioneering efforts in pollen analysis and continued interest in geochronological problems have made him the leader of all in this field, on our continent. The keenness of his mind, the warmth of his personality, the quality of his writing, and his capacity to relate all scientific problems to man, have earned for him the distinction of an exemplary figure in American Science.

**HOMER LEROY SHANTZ**, plant physiologist, plant ecologist, and administrator of note. His contributions to the understanding of drought resistance in plants, to the ecology of grasslands, and to world wide plant geography have been laudable achievements in botanical science.

**EDMUND WARE SINNOTT**, morphologist, anatomist, geneticist, and botanical statesman, for his numerous, varied, and sustained contributions to plant anatomy, histology, evolution, and botanical theory.

**FOLKE KARL SKOOG**, for outstanding contributions to knowledge in various sub-divisions of plant physiology, especially tissue culture, hormonal regulation of plant growth, and algal physiology.

**GILBERT MORGAN SMITH**, morphologist, for his numerous contributions to cryptogamic botany and in particular for his study of life histories of marine and fresh water algae.

**ELVIN CHARLES STAKMAN**, for his illustrious international leadership in science; for his recognized world leadership in researches on the pathogens of cereal smuts and rusts and for his genius in inspiring students and workers to labor untiringly to provide food for mankind.

**GEORGE LEDYARD STEBBINS**, for his specific contributions to the cytogenetics of parthenogenesis, hybridization and polyploidy; particularly in Guayule, Kok-saghyz and the forage grasses; and his outstanding review of the whole problem of evolution in plants.

**JOHN ALBERT STEVENSON**, whose encyclopedic knowledge of the fungi of the world and the diseases they induce has with generosity and humility been placed at the service of a generation of botanists.

**KENNETH VIVIAN THIMANN**, for his extensive and preeminent contributions to the biochemical physiology of green and non-green plants, and to the physiology of plant growth.

**EDGAR NELSON TRANSEAU**, for his lifetime of support and encouragement of botanical science in its broadest sense, both in its educational and scientific aspects. He has made substantial contributions to plant ecology, algology, and to botanical education at all levels, from high school to graduate school.

**CORNELIS BERNARDUS VAN NIEL**, whose studies in the realm where kingdoms and classes scarcely exist have provided illumination for syntheses of diverse phases of biology.

**JOHN ERNST WEAVER**, for his lifetime of researches on the ecology of grasslands. His investigations have contributed to the understanding of the dynamics of vegetation and have helped provide a necessary background for new policies in range management.

**FRITS WARMOLT WENT**, for his breadth of constructive interest in botanical science and especially for his contributions in the fields of plant physiology and ecology. The first botanist to put the assay of auxins on a quantitative basis, he subsequently has added substantially to our knowledge of the hormonal relations of plants. He has also been an outstanding investigator of growth of plants under controlled environmental conditions.

**RALPH HARTLEY WETMORE**, plant anatomist and student of morphogenesis, for his numerous investigations of the developmental anatomy of vascular plants and for his studies on morphogenesis of vascular cryptogams.

**TRUMAN GEORGE YUNCKER**, for his lifetime of effective teaching at the undergraduate level, which has resulted in launching many able young scholars into careers in botany, and for effective contributions in taxonomy, especially of the Piperaceae.

# Fifty Years of Botanical Teaching

EDMUND W. SINNOTT  
Yale University

(Note: By popular request, the papers presented at the Teaching Section symposium, "Trends in Botanical Teaching," on August 28, 1956, at Storrs, are being published in slightly abbreviated form in this organ. Two papers are presented in this number, the two remaining papers in the January 1957 number, if the consensus of members is that PSB should be continued. Dr. Sinnott's paper was first on the symposium, Dr. Palmquist's third.)

A significant fact about our meetings this year is that the problems of teaching have such an important place on the program. Not only the AIBS but the AAAS, the NAS, the NRC, the NSF and various other alphabetical agencies are now concerning themselves with the problems of science teaching. This matter has lately assumed national importance because of the growing deficit of men and women trained in the sciences.

As botanists we are particularly interested in the teaching of our own science, and our concern with it is shown by the establishment of a section in our society to serve as a center for the discussion of teaching problems. Fifty years ago such concern was much less evident. Botany had only recently become a science in the modern sense, and botanists devoted their meetings almost wholly to reports of research. Formal recognition of teaching problems was rare. Many of the best botanists of early days, however, such as Asa Gray, C. E. Bessey, W. J. Beal and L. H. Bailey were good teachers and gave much attention to their students.

The first official recognition by botanists of the importance of teaching seems to have been in 1900 when the Society for Plant Morphology and Physiology appointed a committee to formulate a high-school course in botany acceptable to the College Entrance Examination Board. This committee, consisting of Professors W. F. Ganong, F. E. Lloyd and H. C. Cowles, presented four reports between 1901 and 1908. The first examination was held in 1902. The course they outlined was an inclusive one consisting of three parts: Anatomy and Morphology, Physiology and Ecology, and Plant Groups and Classification. The importance of high-school work in botany was thus recognized early. This committee was taken over by the Botanical Society of America when the latter was organized and in 1907 was made its standing committee on education. It apparently did nothing further.

The next milestone was the address of Prof. W. F. Ganong as retiring president of the Botanical Society at the Boston meeting in 1909. Prof. Ganong was the first botanist of note to devote himself almost entirely to teaching problems and he suffered somewhat in reputation thereby among certain of his colleagues. He wrote several texts, perfected a set of apparatus for physiological experiments and developed a notable greenhouse teaching laboratory at Smith College.

His address, "Some Reflections upon Botanical Education in America" (*Science* 31: 321-334, March 4,

1910), has a very modern tone. It pleads for a more humanistic teaching of botany, and points out four reasons why botanical teaching is often unsatisfactory: (1) we do not develop the scientific spirit in our students; (2) we give more thought to our subject than to our students; (3) we trust too much in systems and too little in persons, and (4) our methods of training teachers of botany are wrong.

At the botanists' dinner during the Minneapolis meeting in 1910 there was an informal discussion of teaching problems. Prof. Bessey warned against expecting too much of our young teachers at first. He urged the importance of choosing good people for teaching. Prof. Caldwell emphasized the need for research on problems of botanical education, and the necessity of good teaching in high schools. Dr. Clements pleaded with his colleagues not to discourage prospective botanists by giving them a host of technical terms. He advocated doing away with lectures, texts and quizzes and would confine botanical instruction to laboratory and field work. Dr. Coulter defined a good teacher as one who puts the fewest obstructions in the way of the student. Dr. Newcombe believed that we try to give the student too much subject matter and too little opportunity to work for himself. A report of this discussion was published in *Science* 33:633-649, April 28, 1911.

After 1910 there was a considerable period in which little formal attention was given to teaching problems. Many of the younger botanists, however, were interested in these matters and held numerous informal discussions about them. Among these were L. C. Petry, E. N. Transeau, H. H. Bartlett, E. J. Kraus, G. M. Smith, J. R. Schramm, H. C. Sampson, E. L. Stover and a number of others. A Round Table on teaching was held at the Philadelphia meeting in 1926. Before this a questionnaire was sent out to a considerable number of botanical teachers. This asked (1) whether there should be an organized effort by the Botanical Society to encourage better teaching either by an annual session or a section devoted to this subject or by the setting up of a committee; (2) what are the best methods to make our students familiar with plant science—lectures? texts? discussions? personal conferences? laboratory? field work? and (3) how can we best inculcate the valuable by-products of a course in botany? This Round Table led to some interesting discussion but no very definite conclusions.

Among other informal sessions devoted to botanical teaching may be mentioned one at the International Botanical Congress at Ithaca in 1926 and another at the summer meeting of the Society at Dartmouth College in 1929. One session of the General Section of the Society at the Nashville meeting of 1927 was devoted to problems of teaching.

In 1934 a meeting was held at the Iowa State College to celebrate six decades of modern botany, with particular reference to the coming of Prof. C. E. Bessey to Ames in 1870. Among other events was a stimulating session on the teaching of general botany at which twelve papers were read by persons particularly interested in this subject. These were later published in Volume 1 of the Iowa State College Journal of Science in 1935.

At the Boston meeting of the Botanical Society in 1933 a standing committee on teaching was proposed and tentatively named but little action seems to have followed. At the St. Louis meeting of 1935, however, a committee for this purpose was formally set up consisting of ten botanists with Prof. E. L. Stover as chairman. This committee reported at the Atlantic City meeting in 1936 and was then authorized to study the teaching of botany in the colleges and universities of the United States. This task was made possible of accomplishment by a grant of \$5,000 from the General Education Board. Dr. Clark W. Horton aided the committee as research assistant.

This committee distributed widely an extensive questionnaire and, on the basis of returns from this, published in 1938 a notable report entitled "An Exploratory Study of the Teaching of Botany in the Colleges and Universities of the United States." This was followed in 1939 by a report by Dr. Horton, sponsored by the committee, entitled "Achievement Tests in Relation to Teaching Objectives in General College Botany." Both these reports, deserving of wide reading today, are still available from Dr. Ernest L. Stover at Eastern Illinois State College, Charleston, Illinois.

This committee was discharged in 1947, when the section on Botanical Teaching was formally organized. As a result of the ensuing discussion of teaching problems a Committee was appointed at the New York meeting of the Society in 1949, under the chairmanship of Prof. Sydney S. Greenfield, to study the role of botany in American colleges and universities. This committee reported at the annual meetings in 1950, 1951, and 1952. Among its final recommendations was the appointment of a Standing Committee on Education, which was done in 1952. Prof. V. A. Greulach is the present chairman of this committee.

One of the accomplishments of the committee has been the inauguration of Plant Science Bulletin, the first issue of which, under the editorship of Harry J. Fuller, appeared in January, 1955.

This brief historical account makes clear the growing concern of botanists during the past fifty years over problems of botanical teaching. Interest has centered in three main questions: (1) What are the objectives of the general course in botany? Should it primarily give

knowledge and appreciation of plants, inculcate the scientific attitude, train for research, prepare for professional work or combine various of these objectives? (2) What methods should be employed—lectures, text books, laboratory, field work, discussions, or others? (3) What should be the content of the elementary course? This has obviously been affected somewhat during recent decades by the advances in genetics, physiology, biochemistry and other subjects but the main problems still continue. Beyond this is the perennial question as to whether botany should be combined with zoology in a course in biology.

This historical account emphasizes the fact that the problems of fifty years ago were much the same as those which we still discuss today. Most of them are by no means settled. Does this mean that we have failed to make progress toward better botanical teaching and a clearer recognition of the importance of botany in higher education? Certainly one would wish that we might have advanced further in these matters. The inertia of botanical teachers and of college curricula have hindered the coming of many changes which would have been salutary.

In some respects, however, very definite progress has been made. First, botanical teaching is now recognized as a highly respected part of our profession, as shown by the great interest and support it commands. Botanists no longer have to discuss teaching almost surreptitiously, or at least with only informal recognition at our meetings. Second, there is general acceptance of the fact that much can be gained by conference and experiment. Some methods and some types of courses have been clearly shown to be superior.

One general conclusion, however, that we can draw from our experience is that it is both impossible and undesirable to regiment our teaching and run all teachers and students into the same mold. There are many kinds of good courses and of methods for good teaching. Institutions and their problems differ, and there are differences among teachers and among students. Whatever methods *work* in attracting good students, arousing their interest and training them well are to be encouraged. The main problem is to find and train *good teachers* who have interest in their work and in their students. They will make almost any system succeed. The teacher should be a spark plug and not simply a fuel pipe.

History should give wisdom for the future. What has it done for us? At least it has shown clearly what our problems are and has staked out the road we must follow. When we celebrate the centennial of the Botanical Society of America fifty years from now, we shall have made, I am sure, some very substantial progress along it.

# Stimulation of Interest Among Undergraduates in Botany

EDWARD M. PALMQUIST

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At the beginning of a summer quarter at the University of Minnesota during the last war, about fifty naval officer trainees were told to register for a course in general botany. As they assembled around the registration table I overheard two of them greet each other as follows:

"Hi-ya Grady, are you taking Botany too?"

"Yeah," the Commander said, "Take Botany." "I don't get the idea but here I am."

"But Grady what good is it? What do we do in Botany?"

"Oh I guess we'll grab a little bee somewhere and tear him down," said Grady.

Early one spring morning a few years ago as I worked in my garden, my new neighbor, a university professor, approached with a long stick, on the end of which was a huge slug.

"What is this thing?" he asked, "It isn't a snake is it?"

"No, it's a slug, which I believe is more closely related to the snails."

"Well thanks," he smiled with some relief, "I knew you could tell me because it is in your line. You're a botanist aren't you?"

These incidents are cited to support my thesis that people in general do not have a very accurate picture of what botany is or what botanists do. The student, Grady, thought bees, or maybe all "bugs" were the business of botanists; my neighbor too had us dealing in the animal kingdom. To be sure, these are extreme cases, but even among those who associate us with plants there are many with far fetched ideas about what we do. The impression is still widespread that a botanist is largely occupied with wandering through fields and woods, a tin box slung over one shoulder and trowel in hand, gathering plants to be dried, pasted on sheets of cardboard, and given polysyllabic Latin names.

There seems also to be a general impression that the study of botany is, in terms of practical usefulness, about on a level with the study of Greek coins, or Sanskrit. This, paradoxically, in spite of the fact that a large share of our people earn their livelihood by dealing directly with plants or plant products.

The popular concept of botany also has an aura of femininity. Dr. Sinnott has mentioned the eloquent statement of this aspect of botany in the preface of Mrs. Lincoln's textbook of last century. Even today some student advisers feel that if a young lady in college is required to take a course in a biological science it should be botany rather than zoology. The basis for this, I believe, is that pulling apart the petals of a flower, or

even cutting sections of a stem, is less traumatic to sensitive natures than dissecting an earthworm or a frog.

All these elements of botany in the public image give the teacher of introductory college botany an advantage, in terms of stimulating student interest in his subject, over the teacher of introductory courses in other subjects. The student on entering his first course in botany, with his preconceptions in accord with the popular image of the subject, does not expect much. How different the expectations of the student on entering his first course in psychology; now at last he will be given the word on how to win friends and influence people. Pity the poor psychology professor; he can't possibly live up to expectations. The professor who teaches General Botany, on the other hand, can give his students many pleasant, unexpected surprises. They are like the dinner guests who, sitting with their host, expected beans and bread, and then were served *filet mignon* with all the trimmings.

The teaching botanist in an introductory college course has two responsibilities to his profession with respect to the generation of student interest: (1) to stimulate the minds of the general students whose predilections in other directions or lack of aptitude preclude them from consideration as prospective career botanists, and (2) to so heighten the interest of the relatively few with high aptitude for work in botany that they will give serious consideration to it as a career field. The successful teacher makes some progress toward both of these goals which I shall treat briefly in turn.

## 1. *The general students.*

The run-of-the-mill students, who are not likely prospects as career botanists, can be a source of utter discouragement to the neophyte teacher. In his first professional year, the beginning teacher learns that some of the students in his class have less than his degree of interest in plants. He learns that his classes include a large fraction of students whose orientation does not appear to be "academic"; they did not enroll because of a burning desire to learn about plants, but rather because the course fulfills a science requirement or, if there is an agricultural college in school, because it is prerequisite to courses in practical plant sciences.

Many students entering a general course appear to be neutral, but some are negative. While perhaps not formally challenging the teacher to "reach" them, some appear to consider it a sign of weakness to show interest in learning, and often outwardly affect an attitude of studied boredom.

These general students, the neutral and the negative, need the warm and liberalizing influence of a professionally mature, but not necessarily old, and interested teacher who has a real mastery of his subject and is excited about the facts and ideas he is teaching. By

"excited" I do not mean exuberant or gushy, but rather with an unaffected and contagious sense of the importance and implications of his subject.

The subject matter of introductory botany provides ideal material for such a teacher. It is almost entirely new to the general student, and as understanding of such phenomena as photosynthesis, respiration, cell division, inheritance, infection, and evolution grows, so does understanding of their import. To the degree that a teacher develops interest in such phenomena, he contributes to the liberal education of the general student and at the same time raises his profession in public esteem.

Whereas some of the botanist's colleagues in the social studies and humanities are largely limited in their classes to "talking about" their subjects, the botanist, along with other scientists, deals with ideas related to material "things" that can be seen. The botanist does not follow the philosophy of Thomas Carlyle who said, "The true university is a collection of books" but heightens the presentation of his subject matter by the use of appropriate materials in laboratory and classroom demonstrations illustrating the research spirit. Institute, supported by a grant to the Society from the National Science Foundation, was held at Cornell University under the direction of Harlan Banks. It was attended by about sixty teaching botanists from colleges in twenty states.

With this aliquot of our corps of teaching botanists concentrated in one lecture hall, and anticipating the preparation of this paper, I could not resist the opportunity to gather some relevant data. The participants in the Institute graciously wrote brief answers to the following questions:

- (1) What was the most important factor in awakening your early interest in plants?
- (2) What was the most potent single influence that led you to adopt botany as a career field?
- (3) In working with students, what particular activities have you found most likely to capture their interest in botany?

Of the 53 answers to the first question: 22 reported that their early interest in plants was awakened directly by contacts with them in informal day-to-day childhood activities; 19 reported that their early interest in plants was generated by participation in planned programs, especially through courses in school and boy scout work; and 12 reported that their early interest was awakened by a particular person, usually a teacher or parent.

The 53 answers to the second question, "What was the most potent single influence that led you to adopt botany as your career field?" may be summarized as follows: A particular teacher—25; a general liking for plants—13; the offer of a graduate assistantship—7; their recognition of the economic importance of plants—3; a particular course in botany—2; parents or friends—2; that he was "drafted" by his department (biology) chairman—1.

tion to performing well in the classroom, these professors appeared to take a warm, personal, almost paternal, interest in their students.

Apart from doing a skillful job in formal course work, the teacher of an introductory botany or biology course can stimulate the interest of his most able students by becoming personally acquainted with them. He can augment it by giving close attention to their individual course projects, aiding them in developing the skills and techniques necessary for successful work on their projects, and providing the most interested ones a place to work in the botany building even if only a table in a corner.

Highly able students who show a predilection for particular kinds of work in botany can be further encouraged by specialists on the staff who may not have a part in the introductory course. The teacher of the introductory course can strengthen the interest of his most able students by arranging for them to meet and discuss their work with other members of the staff.

Earlier this month it was my privilege to visit the first Summer Institute for college teachers of botany sponsored by the Botanical Society of America (BSA) and pointing to fields yet unconquered.

The economic importance of plants gives the teaching botanist an advantage. Some students see interest only in what they deem "practical" and many with less limited outlooks, are attracted to the role of plants and plant products in the life of man. An introduction of our science to students should not be "man-centered" nor centered around the utilitarian, but neither should it ignore the practical importance of plants completely.

Finally, the teaching botanist has a wealth of vivid narrative he must tell. None of the popular historical novels, even the best seller, is based on events more dramatic or of greater significance than some of those in the history of plant science. Factual stories of Hooke, Leeuwenhoek, Priestley, Pasteur, Darwin and Huxley are fascinating as well as instructive.

## 2. Highly able students.

Almost any class in introductory botany or biology will include a few students who have greater ability or aptitude for work in some phase of the science than their teacher has. No teacher, except the most firm egotist, can fail to recognize this. In advancing the profession, spending time with such students is the most profitable investment a teacher can make.

In the study reported in *The Origins of the Scientific Mind* by Knapp and Goodrich, an attempt was made to determine the common characteristics of the professors whose records indicated that they were markedly successful in motivating capable undergraduates to take graduate work in their science. While the personal traits and instructional procedures of these teachers were diverse, the combination of characteristics shared most generally were those in the complex pattern designated by psychologists as the "father figure."

These answers, if at all representative of the profession as a whole, emphasize the importance of teachers in recruiting career botanists. Many of the twenty-five extolled the teacher mentioned; this high esteem was warmly expressed, as exemplified by one respondent who wrote that his teacher, ". . . did such a wonderful job that he became more or less my idol."

In response to question 3, about twenty different class activities were listed as likely to capture student interest in botany. Some of these were more commonly listed than others. The most frequently mentioned, and the number of teachers, of 53, that mentioned them were as follows: Field work and the identification of plants—26; experiments in plant physiology—17; first hand study of *living* plants—16; economic importance of plants—12; individual student projects—10; greenhouse work, especially plant propagation—6.

These categories are, obviously, not mutually exclusive, and the activities described by the respondents were classified on the basis of their primary intent. There was wide endorsement of independent work by students as a method for generating interest. As stated in one answer, "Suggest to them an elementary, but sound problem they can solve by their own collections, anatomical study, or physiological experiments—a problem on which they can receive and use guidance, yet one on which they can come to a conclusion of their own. . . . and the pontifical word 'research' need not enter the picture."

Considering positive means to stimulate student interest in botany almost automatically leads to the consideration of practices that deaden such interest. A number of such negative practices were mentioned on the questionnaires. Individual discussions with other collegè teachers and with students have also brought out habits that tend to alienate interest. Among these are the following:

1. Appearing before a class without sufficient planning. I was told of one professor who left his research laboratory reluctantly at the sound of the class bell, and appearing before his class in plant physiology said, "Now tell me, what did I talk about last time?" Then, on being told, "Oh yes, I remember. Now class, what would you like me to talk about today?" The late Dr. Irion once said, "If a teacher plans merely to cover certain topics, that is what he usually does; that is, he buries them."
2. Assuming that students have much more background or preparation for a topic than they actually do.
3. Adopting the rôle of an oracle. Interest is not generated by teachers who answer *why* questions by explaining "This is true because I said so," and still less by those who brook no questions at all.
4. Evading students out of hours. One professor of general botany, now no longer teaching, refused to have his name painted on his office door because he didn't want his students to find him.
5. Showing partiality in grades or otherwise.
6. Reading long tracts in class. Several graduate students recalled as the dullest of

all their professors one who in taxonomy classes read page after page from Gray's Manual, including the keys.

The effect of such practices on student interest is so obvious it is hard to see how any mature botanist could follow them and expect to attract students to his field. Perhaps we should spell out a decalog for botany professors. I recommend the following:

#### TEN COMMANDMENTS FOR THE TEACHING BOTANIST

1. Thou shalt have no other goals before leading students to learn.
2. Thou shalt not take unto thy class any dried or pickled plants, or graven images thereof, when living specimens can be found.
3. Thou shalt not take the name, "Great Scientist," unto thyself, nor be vain.
4. Remember the sabbatic leave, if any; take it regularly to keep thee wholesome.
5. Honor thy students and thy colleagues, and respect them as equals except only in thy special field.
6. Thou shalt not kill—the enthusiasm of thy students by over-burdening them with trivial busy-work.
7. Thou shalt not commit adulteration of student grades, even for a pretty face or pressure from the parents or the Department of Athletics.
8. Thou shalt not steal—away from the laboratory classes, leaving them solely to student assistants.
9. Thou shalt not bear false information to thy students, nor bluff, nor improvise before them.
10. Thou shalt not covet the zoologist's space, nor his budget, nor the bright man students and the maid students he receiveth from the premedical and nursing programs, nor any other thing that is zoological.

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#### PERSONAL

Samuel J. Golub, for the past 8 years assistant prof. of botany at Brandeis Univ., has been appointed Senior Research Associate at Fabric Research Laboratories, Inc., Dedham, Mass. In his new post, Dr. Golub will be concerned with relations of microorganisms and fungi to textile fabrics, the morphology of natural fibers, and other biological problems centering upon natural fibers.

Recent deaths of botanists: W. W. Garner, USDA, Washington, D.C.; B. M. Duggar, Lederle Lab., Pearl River, N.Y.; A. G. Tansley (Corresponding Member of Bot. Soc.), Grantchester, England; A. R. Bechtel, Wabash College, Crawfordsville, Indiana; Fred R. Jones, Univ. of Wisconsin, Madison, Wis.; Patrick Butler, Biol. Labs., Harvard Univ., Cambridge, Mass.; C. L. Shear, USDA, Monroe, La.; Ivar Tidestrom, USDA and Catholic Univ., St. Petersburg, Fla.; W. W. Lepschkin, Nat. Naval Med. Center, Bethesda,

Md.; E. M. Gilbert, Univ. of Wis., Madison, Wis.; Roy E. Clausen, Univ. of Calif., Berkeley, Calif.

Univ. of Michigan has made the following appointments in Botany to begin with the 1956-57 academic year; Charles B. Beck, Instructor in Botany; Wm. S. Benninghoff, Assoc. Prof., to head program in plant ecology; Peter Hyypio, Instructor in Botany and Research Assoc. at Bot. Gardens; Peter B. Kaufman, Instructor in Botany and Research Assoc. at Bot. Gardens; Rudolph M. Schuster, Asst. Prof. of Botany and Curator of Bryophytes in Univ. Herbarium.

Leland Shanor has resigned his professorship at Univ. of Illinois to become Professor and Head, Dept. of Biology, Florida State Univ., Tallahassee, as of Sept. 1, 1956.

George W. Martin, professor-emeritus, State Univ. of Iowa, has been appointed Visiting Prof. of Botany at Univ. of Ill. for 1956-57 to handle work in mycology.

Edward M. Palmquist, who has been Program Director for Education in Sciences, National Science Foundation, has returned to the Univ. of Missouri and has acquired a new portfolio, that of Associate Dean of the College of Arts and Sciences.

#### BOTANICAL AWARDS

The George R. Cooley Award of \$500 for outstanding papers published in 1955 on southeastern flora of the U. S. was shared by Robert F. Thorne, State Univ. of Iowa, and Robert L. Wilbur, N. Car. State

College. Dr. Thorne's paper, "The Vascular Plants of Southwestern Georgia," was published in *Amer. Midland Naturalist*, Dr. Wilbur's "A Revision of the North American Genus *Sabatia* (Gentianaceae)" in *Rhodora*. The George R. Cooley Award of \$100 for the outstanding paper presented before the Amer. Soc. of Plant Taxonomists at its meeting held with AIBS meetings at Storrs went to Henry J. Thompson, UCLA, whose paper was "A Genetic Approach to the Taxonomy of *Mentzelia lindleyi*."

The Darbaker Award for excellence of publication in phycology was made to Robert W. Krauss, University of Maryland, primarily for his work on metabolism of *Scenedesmus* and other microscopic algae. The amount of the award made at the Storrs meeting was \$200.

#### BOT. SOC. TEACHING BULLETINS AVAILABLE

"An Exploratory Study of the Teaching of Botany in the Colleges and Universities of the U. S.," published in 1938 by the Bot. Soc. Committee on Teaching of Botany in American Colleges and Universities, and "Achievement Tests in Relation to Teaching Objectives in General College Botany," published in 1939 by the same committee, are still available to members who would care to have one or both. Order them from E. L. Stover, Dept. of Botany, Eastern Illinois State College, Charleston, Illinois. There is no charge for these, except for postage; send Dr. Stover 10c in stamps if you want both bulletins, 7c in stamps for one.

## *Programs of Interest to Botanists at AAAS Meeting, New York, Dec. 26-31, 1956*

#### FUNDAMENTAL CONCEPTS AND UNITS OF SCIENCE

##### AAAS General Symposium:

Thurs., Dec. 27, 2:00 p.m., Ballroom, Hotel Statler:

1. Opening discussion by Panel which includes Paul Weiss, Head, Lab. of Developmental Biology, Rockefeller Inst. for Med. Res., N. Y.
2. Addresses by invited speakers: a. Physical Sciences. Jerrold R. Zacharias, Director, Lab. of Nuclear Sci., Mass. Inst. of Tech. b. Biological Sciences. Ralph W. Gerard, Mental Health Res. Inst., Univ. of Michigan. c. Social Sciences. Robert MacLeod, Sage Prof. of Psychology, Cornell Univ.

Fri., Dec. 28, 2:00 p.m., Ballroom, Hotel Statler:

3. Fundamental Concepts and Units of Science: A Synthesis. Michael Polanyi, Prof. of Social Studies, Univ. of Manchester, England.
4. Concluding discussion by panel and speakers.

##### AAAS-Gordon Research Conferences.

Silver Anniversary Dinner and Address by Glenn T. Seaborg. Dec. 27, evening.

SECTION E—GEOLOGY AND GEOGRAPHY. *Symposium (3 sessions)*: Recent advances in Geochronometry, cosponsored in part by Sections F, G, H. J. Laurence Kulp, Lamont Geol. Obs., Columbia Univ. Dec 26 and Dec. 27, 28 mornings.

##### SECTIONS F AND G—BIOLOGICAL SCIENCES:

*Symposium*: Biochemistry of the Cell Nucleus (Sect. F. and Genetics Soc. of Amer.) A. W. Pollister, Columbia Univ. Dec. 28, morning.

Speakers: A. W. Pollister, Cecilie Leuchtenberger, J. Herbert Taylor, Max Alfert, George T. Rudkin.

*Symposium*: Some Unsolved Problems in Biology, program of Sect. G. cosponsored by the Soc., Sect. F, and Amer. Soc. of Pl. Physiol. Speakers: Bernard D. Davis, Barry Commoner, A. E. Mirsky, K. W. Cooper. Dec. 28, Morning.

*Symposium (2 sessions)*: Problems of Aging in Plants and Animals, joint program of Sects. F, G,

and I, cosponsored by Amer. Soc. of Zool., Atomic Energy Com., and Brookhaven Nat'l Lab. Howard J. Curtis, Brookhaven Nat'l Lab., Paul J. Kramer, Duke Univ., Conrad G. Mueller, Columbia Univ. Dec. 29, morning and afternoon. Speakers: A. I. Lansing, W. J. Robbins, Albert L. Delisle, N. W. Shock, Hardin Jones, H. A. Blair, Irving Lorge.

#### AMER. SOC. PLANT PHYSIOLOGISTS:

Contributed papers in plant physiology jointly with Sect. G, cosponsored by the Society of General Physiologists and the Bot. Soc. Dec. 30, morning.

#### ECOLOGICAL SOCIETY OF AMERICA:

*Symposium: Values in Human Ecology.* George B. Happ, Principia College. Dec. 28, morning.

*Symposium: Ecology of Grasslands.* Herbert C. Hanson, Catholic Univ. Dec. 27, afternoon. Contributed papers in plant ecology, cosponsored by Sect. G. Dec. 27, morning. Invited papers: Social Significance of Ecological Research. Murray F. Buell, Rutgers Univ. Plants, Dec. 29, morning.

#### NEW YORK ACADEMY OF SCIENCES:

*Symposium (2 sessions): New Ideas on Spontaneous Generation,* cosponsored by Sects. F and G. Ross F. Nigrelli, New York Acad. Sci. Dec. 26. Speakers: Robert C. Warner, Stanley L. Miller, Sidney W. Fox, Harold Blum, Seymour H. Hutter, Addison Gulick, George Wald, David Harker, Carl C. Lindegren, Philip H. Abelson, S. Granick.

#### SOCIETY FOR THE STUDY OF EVOLUTION:

Contributed papers. Dec. 27, 28, mornings; Dec. 29, afternoon.

*Symposium: Biotic Communities in the Past and Today,* cosponsored by Amer. Soc. of Naturalists, Soc. of Vert. Paleontology, and Sections F and G. Harlan Lewis, Univ. of Calif., Los Angeles. Dec. 29, morning. Speakers: Jens C. Clausen, Erling Dorf, J. T. Gregory, Paul Sears.

#### SECTION G—BOTANICAL SCIENCES:

*Symposium: Genetics of Fungi,* jointly with Mycological Soc. of Amer. Lindsay S. Olive, Columbia Univ., and Alma W. Barksdale, N. Y. Bot.

Garden. Haig Papazian, Patricia St. Lawrence, Alec Carr, H. E. Wheeler.

*Botanists Dinner,* in honor of Bot. Soc. of Amer., and address by Paul J. Kramer, Vice-President elect of AIBS and VP for Sect. G. Dec. 27.

#### TORREY BOT. CLUB:

Contributed papers, general botany, jointly with Sect. G. David Keck, N. Y. Bot. Garden. Dec. 27, morning.

Exhibit of spores formed in tetrads—fungi, mosses, ferns, higher plants. Clara S. Hires, Mist-air Labs.

#### SECTION O—AGRICULTURE:

Contributed papers. Dec. 27, 28, mornings, eves. *Symposium (4 sessions): Grasslands in Our National Life,* cosponsored by Sects. G and K, Amer. Soc. of Range Management, Amer. Meteorological Soc., Ecol. Soc. of Amer. Howard B. Sprague, et al., Penn. State Univ. Dec. 29 and 30, mornings and afternoons.

#### AMER. SOC. OF RANGE MANAGEMENT:

*Symposium: Range Management.* F. G. Renner, Soil Conservation Serv., USDA. Dec. 28, afternoon. Speakers: Wesley Keller, John I. Schwendiman, Charles E. Poulton, C. W. Tomanek, H. G. Reynolds, Arnold Heerwagen.

#### COM. ON AGRICULTURAL METEOROLOGY, AMER. METEOROLOGICAL SOC.:

*Symposium: Agricultural Meteorology and Grasslands.* John Mather, Drexel Inst. Lab. of Climatology, Centerton, N. J. Dec. 28, afternoon.

#### GENERAL EVENTS:

AAAS Pres. address by George W. Beadle, and Reception. Dec. 28, evening.

AAAS Smoker. Dec. 29, 8:30-11:00 p.m.

AAAS Annual Exposition of Science and Industry. Dec. 26-30, inc.

AAAS Science Theatre. Dec. 26-30, inc.

Coupons for sleeping accommodations and advance registration will be found in *Science* and *Scientific Monthly*.

## Bot. Soc. Council Meetings, Univ. of Conn., August 1956

### SUMMARY OF SECRETARY'S MINUTES

Results of ballots for officers were reported and approved: President—George S. Avery; Vice-President—Paul Weatherwax; Member of Editorial Com.—James Bonner. (These were later approved as 1957 officers of Bot. Soc. by members at an open business meeting of the Society) . . . Council approved publication of a new Yearbook about Jan. 1, 1957 and instructed Secretary to obtain bids for printing. Item of \$2200 in 1957 budget set aside for this, but Secretary indicated that he might get the job done for less . . . Treasurer

reported on membership as of Aug. 15: total members 1868 (regular—1606; grad. student—222; family memberships—26; life memberships—14) . . . Treasurer presented an interim report which was approved by the Council, later presented to and approved by members at open business meeting . . . Bus. Mgr. of Amer. Jour. Bot. presented an interim report which was approved by Council, later by members at business meeting (both reports included in detail in the minutes) . . . Editor of Amer. Jour. Bot. reported statistical information on papers received, published, etc. and

stated that, on the average, about 6 months intervene between receipt of a ms. and its publication . . . Editor of Pl. Sci. Bull. reminded Council that two-year trial period of that organ would expire with Oct. 1956 number. Council authorized him to seek, via questionnaire, reaction of members to its continuance and, on basis of this reaction, to recommend to Exec. Com. of Council the continuation or abandonment of PSB . . . Brief reports were received from chairmen of 8 Sections . . . W. C. Steere announced that 50 botanists had been invited to prepare special papers for the Golden Jubilee vol. of Amer. Jour. Bot., that 12 had sent mss. to him, that others were promised, and that McGraw-Hill Book Co. would publish these special mss. in book form in 1957 . . . The president announced her appointment of Victor Greulach as chairman of the Committee on Education, a subcommittee of which, with Marie Taylor as chairman, is preparing a current list of botanical films for publication in Pl. Sci. Bull. . . . B. S. Meyer, chairman of the Committee on Merit Awards, reported on the work of this committee. Council commended Dr. Meyer and his committee, decided to appoint a new committee for 1957, with one hold-over member . . . The president as chairman of the Com. on the 1959 Int. Bot. Congress, reported that it will cooperate with the Canadian committee in preparation for the Congress . . . Harlan Banks reported on the Institute for Teachers of Botany in Small Colleges, held at Cornell, summer 1956, and supported financially by NSF, presented a prospectus for a second such institute to be held also at Cornell, in 1957. Council approved this prospectus. Council suggested that similar institutes might be held in future summers in other parts of U. S. . . . Council discussed problem raised by some taxonomists who charge that page-restriction rules of Amer. Jour. Bot. discriminate against their papers, expressed sympathy with their feeling, but took no decisive action, pending further study of the question . . . Chairman of Membership Committee reported on its activities, expressed belief that best potential pool of new members was graduate student group . . . Committee on Corresponding Memberships recommended election of 4 foreign botanists to such memberships; Council and, subsequently, members at business meeting approved this recommendation (see another section of this Bulletin) . . . Committee on Guidance has prepared a booklet on Plant Science Careers. Exec. Com. of Council was authorized to arrange for printing and distribution of this booklet . . . Committee on Darbaker Award recommended that 1956 award go to R. W. Krauss, Univ. of Md. Check presented to Dr. Krauss at Bot. Soc. banquet . . . Chairman on AAAS Coop. Com. on Teaching of Science and Math. presented a brief report, incorporated in the minutes . . . Bot. Soc.'s representative to AAAS, Ronald Bamford, presented report, incorporated in minutes . . . Council approved affiliation of Bot. Soc. with newly organized Council for Basic Education . . . Bus. Mgr. of Amer. Jour. Bot. presented proposal for microfilming back-issues of Journal. Council suggested

that he investigate also possibility of using microcards for this purpose. Action postponed, pending further investigation . . . Term of Bus. Mgr. expires this year; discussion held concerning possible replacement; no action taken . . . Harlan Banks proposed that Bot. Soc. seek funds to establish summer grants to aid teachers in smaller colleges in working summers in labs. of prominent research botanists. Council approved proposal . . . Treasurer presented proposed budget for 1957; approved by Council and later by members at open business meeting . . . Bus. Mgr. of Amer. Jour. Bot. presented proposed budget for 1957; approved by Council and later by members at open business meeting.

#### NEW CORRESPONDING MEMBERS

At its meeting at Univ. of Connecticut, the Society elected the following foreign botanists to Corresponding Memberships in the Society: Andre Lwoff, Head, Dept. of Microbial Physiology, Pasteur Institute, Paris, France; W. H. Schopfer, Director, Botanical Institute, Univ. of Bern, Bern, Switzerland; Martin Cardenas, Prof. of Botany, Univ. of Cochabamba, Cochabamba, Bolivia; Jean Feldmann, Sorbonne, Paris, France.

#### WANTED—SCHMEIL BOTANY CHARTS

The Botany Department at Yale is interested in obtaining a set of Schmeil Botany Charts, especially those of fern, pine, leaf, wheat rust, and mitosis. If you have any extra Schmeil charts which you would be willing to sell, please write to Oswald Tipppo, Osborn Botanical Lab., Yale University, New Haven, Connecticut.

#### GOLDEN JUBILEE FUND

Donors to this fund, intended to defray partially the expenses of the Golden Jubilee ceremonials, were H. H. Clum, Harriet Creighton, B. O. Dodge, Louise T. Dossdall, H. J. Fuller, Sydney Greenfield, W. I. Illman, Conrad V. Morton, Hilda Rosene, Wm. Randolph Taylor, and Ralph Wetmore. In addition, the fund received a sizeable donation from Hugh Iltis from sales of extra copies, long stored at Univ. of Wis., of Proc. of the Ithaca Congress. (The Treasurer is still receiving donations to this fund.)

#### NEW BOTANY QUARTERS AT INDIANA UNIVERSITY

The botany department of Indiana University recently moved into the newly completed Jordan Hall of Biology, which it shares with the bacteriology and zoology departments. Built at a cost of \$5,750,000, including equipment, the air-conditioned structure contains greatly improved facilities for teaching and research, 42 constant temperature rooms, shops for metal and wood working, x-ray and electron microscope rooms, and laboratories for radioisotope work. The herbarium, of library stack construction, has a capacity

of 250,000 sheets, and greenhouse space attached to the building covers 13,600 square feet. The library, which currently receives more than 600 periodicals, has a shelf capacity for 75,000 volumes and a reading area seating more than 80 persons. Excellent accommodations are provided for graduate students, including single rooms for advanced students. In addition to Jordan Hall facilities, the botany department maintains an experimental field of eight acres, with laboratory and greenhouse. Jordan Hall was dedicated June 8, 1956.

#### DATURA RESEARCH MATERIAL AVAILABLE

The Smith College Genetics Experiment Station was discontinued at the end of 1955, a year after the death of Dr. Albert F. Blakeslee, its founder and director since 1942. For many years the investigations of Dr. Blakeslee and his colleagues at Smith College, and earlier at the Department of Genetics of the Carnegie Institution of Washington, had resulted in the announcement of many new facts and principles resulting from new chromosomal varieties of *Datura* with duplicated chromosomes or chromosome sections. However, there are many unfinished research problems and opportunities for investigations with *Datura* in genetics, cytogenetics, plant physiology and morphology. The ten herbaceous species of *Datura* provide an excellent opportunity to study many angles of the species problem: hybridization, compatible and incompatible crosses, the barriers to crossability. Tetraploid, as well as diploid lines of most species as well as chromosomally different races are available. In *Datura stramonium* there are available many  $2n + 1$  types, nearly a hundred different chromosomal races (Prime types), as well as many gene types. Some races have been maintained by selfing for more than forty generations. The National Science Foundation has recently made a grant to Smith College to finance the assembling of the data on *Datura* genetics and related problems, and its publication in a monograph on *Datura*. This will be in charge of Amos G. Avery, and the principal contributors will be Dr. Sophie Satina, and Dr. J. Rietsma. *Datura* is almost an ideal plant for research. It is easy to grow either in the greenhouse or field; selfing and crossing are simple and a large number of seed is produced. As many as four generations a year have been obtained in special instances although two or three are usual. It is also readily propagated by cuttings or grafting. Seed of all the species and of most of the races and types have been grown and placed in controlled cold storage. These are available to any investigator who desires to continue some phase of the *Datura* research. Application should be made to Dr. H. H. Plough, Amherst College, Amherst, Massachusetts indicating the seeds desired and the general nature of the investigation planned. Seeds will be mailed promptly.

Committee of the Genetics Society of America for the Preservation of A. F. Blakeslee's *Datura* material:  
H. H. Plough, Chairman; R. E. Cleland; M. Demerec; P. C. Mangelsdorf; E. W. Sinnott.

#### BOTANY AND THE PRESS

The Hartford, Conn., Courant carried this UP item on page 2 of its August 29th edition:

##### "Botanist Fooled By Poison Ivy

Storrs, Aug. 28 (UP)—The president of the Botanical Society of America presided over its golden jubilee meeting today with red face and arms. Dr. Harriet Creighton of Wellesley College blushingly admitted to fellow plant experts that her arms were itching because while searching for a lost golf ball she wandered into a bed of poison ivy."

The moral: Never get Rhus-ty on your poison ivy!

#### AAAS BOOK ON ARID LANDS

Members of Bot. Soc., which designated an official representative to the International Arid Lands meetings held in New Mexico in April-May 1955 under AAAS auspices, will be interested to know that the papers presented at that symposium have been published in book form. This volume, "The Future of Arid Lands," edited by G. F. White, Dept. of Geography, Univ. of Chicago and containing 34 papers on botany, zoology, meteorology, agriculture, etc. of arid lands, may be purchased from AAAS (price \$5.75 to AAAS members by prepaid order, \$6.75 to others). The volume contains also a list of 31 recommendations made concerning arid lands and their problems by members of the symposium.

#### CHANGE OF TITLE AND COVERAGE

Council of Biological and Medical Abstracts, Ltd. (London) has changed the title of its Journal from *British Abstracts of Medical Sciences* to *International Abstracts of Biological Sciences*. This journal will henceforth publish abstracts of a wider range of subjects than those of medical sciences alone and will publish translations of Russian papers appearing in Soviet Biological Abstracts and in Soviet Abstracts of Biological Chemistry, to be published simultaneously with their appearance in Russian. Inquiries may be sent to Pergamon Press, Ltd., 122 E. 55th St., New York 22, N. Y.

#### IMPORTANT!

The Council of Bot. Soc. would like your advice to help it determine whether or not to continue publication of *Plant Science Bulletin*, the two-year trial period of which ends with this number. Will you, therefore, check the appropriate space below, clip this coupon, and send it to the editor, H. J. Fuller, 203 Nat. Hist., Univ. of Illinois, Urbana, Ill. Add suggestions or criticisms if you wish.

- Plant Science Bulletin* should be continued.
- Plant Science Bulletin* should be abandoned.

## *Institute of Botany at Cornell University, Summer 1956*

Harlan Banks of Cornell reported at length at the Bot. Soc. meeting at Storrs on the 1956 Summer Institute of Botany for Teachers at Small Colleges, held at Cornell. This institute, sponsored by Bot. Soc., supported by a National Science Foundation grant, and directed by Dr. Banks, had several objectives: to improve the subject-matter competence of botany teachers in small colleges, especially in recent scientific advances in botany; to strengthen the capacity of these teachers to stimulate their students to consider careers in botany; to give these teachers personal contact with leading research scientists, with a view to increasing their interests in botany; to stimulate these teachers to initiate or continue research activities in botany in their several institutions. Brochures and application forms were sent to majority of colleges and universities listed in Education Directory of U. S. Office of Education; large universities were excluded from this mailing list. Notices of the institute were sent also to a number of scientific journals which print news items. By April 15, 1956, 110 applications had been received, plus numerous letters of inquiry. A week later the selection committee (Pres. Harriet Creighton of Bot. Soc., Ralph Wetmore, and Harlan Banks) made awards. Forty-nine full stipends or \$300 were made and one was split between 2 applicants, making a total of 51 awards. Dependency allotments were disbursed among the 51 applicants. By the end of April, all recipients had been notified and all accepted the awards. In addition to the stipend-holders, 14 other botanists attended all or some of the sessions. Twenty participants reported that their home institutions contributed to their expenses. Participants came from 29 states, D. C., and 3 provinces of Canada.

The scientists who gave lectures, conducted demonstrations, and led discussions were: E. C. Abbe (Univ. of Minn.), Ernest Ball (N. Car. State College), R. S. Bandurski (Mich. State Univ.), Harold Bold (Vanderbilt Univ.), Robert Emerson (Univ. of Ill.), A. W. Galston (Yale), E. M. Gifford, Jr. (Univ. of Calif., Davis), David R. Goddard (Univ. of Penn.), Herbert E. Mason (Univ. of Calif., Berkeley), G. M. Smith (Stanford), K. V. Thimann (Harvard), and D. S. Van Fleet (Univ. of Missouri). The program consisted of three lectures each morning, Monday through Friday, with laboratory sessions 3 afternoons per week, conducted by each of the lectures for the week. Afternoons were used for special events: a trip to Bausch and Lomb Optical Co. plant at Rochester, picnics and field trips, visit to the experiment station at Geneva, special lecture-demonstrations by Cornell faculty members, and a chicken barbeque (apparently the only fowl aspect of the institute!). Several paleobotanical field trips were held on Saturdays, and a camping-collecting trip to the Adirondacks was made by 20 participants. Somewhat less rigorously scientific jaunts were made to Niagara Falls, Corning Glass Works, Farmers Museum, and Baseball Hall of Fame by some participants.

Most faculty and student participants were housed in a Cornell dormitory. Marie Taylor (Howard Univ.) was chairman of a committee on educational problems, which discussed textbooks, lab. manuals, sources of Kodachromes, photographic techniques, educational films, etc. At the end of their committee sessions, members drew up an exchange list of plant materials which they could make available to other members throughout the year. Several exhibits of scientific equipment were set up at the institute by Bausch & Lomb and by the Will Corporation. In addition, several publishing companies and university presses arranged exhibits of their books in plant sciences. At the end of the session a free-for-all discussion acquainted Director Banks with reactions, suggestions, etc., about the institute.

A final banquet, held on Aug. 9, was attended by President Creighton of Bot. Soc. Super-salesmanship raked in 18 new members for Bot. Soc. (Treasurer's note: Thank you!). Kind words were said about *Plant Science Bulletin* (Editor's note: Thank you!) Recognition of attendance in the form of letters sent out by Dr. Creighton to administrators of the participants' colleges has been accomplished.

Summary: participants in the institute, both staff and students, expressed unanimously enthusiastic endorsement and appreciation of the activities of the institute, with commendation of Dr. Banks and Dr. Taylor for their work. So successful was the institute that Dr. Banks has applied to National Science Foundation for a grant to finance a 1957 Summer Institute of Botany, to be held again at Cornell, if the request is granted by NSF.

It is the opinion of the Editorial Board of *Plant Science Bulletin* that Dr. Banks deserves a turgid and orusing vote of thanks from all members of Bot. Soc. for his heroic efforts in planning, in arranging for the financing of, and in directing the work of the institute. Equally deserving of expressions of gratitude are those scientists whose lectures and discussions aided in the successful outcome of the session.

### **INCREASED CHARGE FOR STAIN CERTIFICATION**

The Board of Trustees of the Biological Stain Commission has found it necessary to increase the price of Certification Labels by 5 cents effective September 1, 1956. This will result in a change from the current charge of 15 cents to a new charge of 20 cents per bottle to the purchasers of Certified Stains. This price increase has been necessitated by increasing costs in the operation of the Commission, and is the first such increase in almost 20 years. (Conway Zirkle)