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WILLIAM ALBERT SETCHELL

1864–1943

BY

D. H. CAMPBELL

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William A. Setchell

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William Albert Setchell was born April 15, 1864 in Norwich, Connecticut, son of George Case Setchell and Mary Ann (Davis) Setchell. His father was a native of Norwich, his mother was born in Trowbridge, England, from which her father, George Washington Davis, moved when she was a small child.

Professor T. H. Goodspeed in his biographical sketch of Professor Setchell¹ says that Dr. Setchell, at an early age showed a strong interest in natural history which later became centered in botany. While a student at the Norwich Free Academy he studied Gray's Lessons in Botany, and spent much time in collecting and studying the flora of the country about Norwich. He made the acquaintance of Mr. George R. Case, deputy collector of Internal Revenue of the Norwich district, and together they undertook the preparation of a local flora to include all plants within a radius of ten miles, to be identified by Gray's Manual. These were to be arranged according to the flowering season. This list of Norwich plants was published in 1883, the year he entered Yale.

At this time Yale had no organized department of botany, although Professor Daniel Cady Eaton, a recognized authority on ferns, was a member of the Yale faculty.

Setchell in the course of his collecting excursions had discovered a fern, *Asplenium montanum*, far west of its hitherto known range. This incident had attracted Eaton's notice and aroused his interest in the young botanist. As there was no special provision in the college for special work in botany, Eaton offered Setchell the privileges of his own library and collections which were in his own house. To quote from Goodspeed's sketch, Setchell wrote "I occupied a table in the

¹ *William Albert Setchell*, a biographical sketch, University of California Press, Berkeley, 1936.

corner of his (Eaton's) combined library, herbarium and study room, a good library, a good herbarium, a very sympathetic instructor".

It was not remarkable that Setchell's interests, for a long time, were centered in the taxonomic problems in botany. The biological influences which were becoming so potent in some of the botanical work in the western institutions, had not yet reached New Haven.

The last two decades of the 19th century marked a radical change in research and teaching in the biological sciences. This was largely the result of the opening of Johns Hopkins University, and the emphasis on research in the universities where graduates from Johns Hopkins were active.

In botany another equally strong influence was operating from the translation of the great textbook of Julius Sachs, by which most botanists in England and America became acquainted with the work of the great German botanists of the last half of the 19th century. Students became more familiar with the textbooks of Bessey and Coulter, based on the German texts, than with Gray's Manual, and were more interested in morphology and physiology than in taxonomy. During the 80's and 90's many American botanists went to Germany for botanical study especially with Strasburger at Bonn, and Pfeffer at Leipzig.

At the end of his senior year at Yale, Setchell had decided to continue his studies in algae, and through the recommendation of Professor Eaton, and the aid of Professor W. G. Farlow, he received a fellowship at Harvard which provided for study in zoology and botany. Setchell did some work in E. L. Mark's laboratory but his principal interest was his studies of the algae under Farlow's direction. Professor W. G. Farlow had been appointed to the new chair of cryptogamic botany at Harvard on his return from Europe, where he had studied with De Bary at Strasburg and with Bornet and Thuret in France. Farlow did much to advance the study of algae and fungi in the United States, and attracted many students.

Setchell's three years of graduate work with Farlow were of very great value to him in directing his future investigations in algae.

While at Yale Setchell, through Eaton, became acquainted with Mr. Isaac Holden of Bridgeport, an amateur botanist interested in sea-weeds. Setchell joined Holden in collecting the marine algae of the region and later, in association with Frank S. Collins of Malden, Massachusetts, issued a series of dried specimens, which finally reached fifty-one fascicles, under the name *Phycotheca Boreali-Americana* (1895-1919). In the later numbers, Dr. N. L. Gardner, a colleague of Setchell's at Berkeley, was an important contributor.

Gardner took a graduate course at Berkeley under Setchell, received his Ph. D., and later became a member of the faculty and collaborated with Setchell in much of his later work.

At the time Setchell was pursuing his botanical studies at Harvard, there was a number of students, mostly working with Mark, with whom he became associated. Among these were men who later became noted in their professions, including Kingo Miyabe, W. C. Sturgis, G. H. Parker, H. H. Field, C. B. Davenport, H. B. Ward, and C. H. Eigenmann. There were others who were not scientists but whose interest in music, art, and literature was shared by most of the scientific group, and no doubt stimulated Setchell's interest in more general cultural subjects—as might be expected with Boston next door.

Setchell received his Ph. D. in 1890 in biology, and from 1888 to 1891 was assistant to Dr. Farlow. From 1890 to 1895 Setchell acted as instructor at Woods Hole, and continued his researches principally in the Laminariaceae.

While at Harvard Setchell published several papers. The first was a study in the structure and development of a fresh-water alga *Tuomeya fluviatilis*, an important contribution in comparative morphology and his first investigation except in distribution of algae, and taxonomy. His thesis for the Ph. D. was a morphological study but dealt with a kelp *Saccorhiza dermatodea*, a characteristic species of the northern New Eng-

land coast. He also made a study of a peculiar aquatic fungus *Doassansia*.

A year after receiving the doctorate he was appointed assistant in botany at Yale, and later to an assistant professorship. During this period he became interested in the problems of the distribution of the marine algae, especially kelps. He was especially concerned with the role of temperature, as a primary factor governing their distribution. In 1895 he was called to the University of California as professor of botany and this undoubtedly strongly influenced his future career.

As professor of botany and chairman of the department, he also had the position of botanist to the California Agricultural Experiment Station which later developed into its present great organization at Berkeley and Davis. Under Professor E. L. Greene, his predecessor, the department included Marshall A. Howe, instructor, who later became a member of the staff at the New York Botanical Garden, and a member of the National Academy of Sciences. One of Greene's assistants, W. L. Jepson, still remains in Berkeley as professor emeritus, and an authority on the flora of California.

The transfer of one's home from New England to California involves many changes in one's life, both physical and psychological. Fifty years ago the journey across the continent seemed a much more serious undertaking than it does today. To one who makes this journey for the first time, one's scale of distances undergoes a rapid change. "The West" no longer includes everything beyond the Hudson River, and one learns that Honolulu is a thousand miles nearer to San Francisco than is New Haven.

The Pacific coast is a strange country to one who sees it for the first time. The mild climate, the lofty mountains, and the rugged coast and huge waves are a great contrast to most of the Atlantic coast. The vast evergreen forests clothing the mountains are very different from the forests of the East.

To the botanist California is known as one of the richest floral regions in the world, and Setchell must soon have realized the immense new field opened to him in the Pacific sea-weeds,

some of which, like the giant kelps, attract the attention of the most casual tourist. The climate too, gives the botanist an uninterrupted twelve months for his out-of-door studies.

Moreover, all the lands of the vast Pacific area are accessible directly from San Francisco, and after the three thousand mile journey across the continent, one looks ahead to possible visits to some of these fascinating places. Although California has been politically American for nearly a century, geographically it really is nearer to Mexico, to which it formerly belonged, than to the eastern United States; and there are still many evidences of the Spanish era.

The University of California was founded in 1868, but although it had on its faculty men of recognized standings like John and Joseph La Conte, Hilgard, and others, the college remained small, and was little known outside California. There were several small sectarian colleges, like Santa Clara College, but these offered little competition with the State University.

In 1891 Stanford University opened with Dr. David Starr Jordan as president. Jordan, as president of the University of Indiana, had been successful in reorganizing that college and was already known as an energetic reformer in educational affairs; and Senator Stanford selected him to head the university founded as a memorial to his only son.

The establishment of another university in the Bay Region was not too warmly welcomed at Berkeley, but the new university undoubtedly did stimulate the activities of the State University. In 1899, with the appointment of Benjamin Ide Wheeler as president, a new era began at Berkeley and the State University started its extraordinary development which carried it to its present brilliant position in the front rank of the nation's great universities.

At the beginning of Wheeler's regime, Setchell was active in the organization of the university as a member of various committees, administrative and academic.

Goodspeed writes "He was one of those who interpreted the academic atmosphere of Harvard and Yale in terms of western ideals. He was both official and unofficial advisor to members

of the student body, and their appreciation was expressed in his early election to membership in their honor societies”.

In 1895 when Setchell reached California, Berkeley was a small town on the eastern shore of the bay opposite San Francisco. In many ways Berkeley resembled the small college towns in New England and elsewhere. There were several men in the faculty, both from Yale and Harvard, and Setchell probably soon adjusted himself to his new environment.

However, looking across the bay, and reached by a short ferry trip, one could see San Francisco and the Golden Gate, opening into the Pacific and to all the wonder lands of that vast ocean.

Fifty years ago, San Francisco was the only major city in the United States west of the Mississippi, and the recognized metropolis of the whole region west of the Rocky Mountains. Throughout the Pacific coast it was “The City”, with a very marked atmosphere of its own, and its superb location and picturesque social life made it unique among the country's cities.

The cosmopolitan population and sensational history were unequalled by any other American city, except possibly New Orleans. The European element in the population was large, and many prominent citizens were of French, Italian, Spanish, or German origin, and the numerous Chinese added a distinct flavor of the Orient. The many foreign restaurants were also a feature of the city, which in many ways was more like a Continental city than like the typical American ones.

Many of its leading citizens were graduates of famous universities, American and European, and there was a general appreciation of music and art. From the days of Mark Twain and Bret Harte there were many capable writers and painters, some of whom became famous. The city was accustomed to the visits of all the world-famous actors and musicians, who were always liberally patronized.

From an early period there was a marked interest in scientific activities, and in the early 50's the California Academy of Sciences was established and became the most important center of scientific activity on the Pacific coast. A legacy from James

Lick, who also endowed the Lick Observatory, enabled the Academy to provide a building, and support a considerable staff of scientific workers, and funds for the publication in excellent form of the results of their investigations.

There was a competent staff of botanists and a valuable herbarium, and the Academy was the principal center of botanical work in the state. Setchell undoubtedly found the resources of the Academy of great help in his early days at Berkeley. The president of the Academy at that time was Dr. H. W. Harkness, well known for his studies in a curious group of subterranean ("hypogaeous") fungi, (truffles and related forms). Setchell met Harkness, and became interested in his work.

Setchell's interests in San Francisco were not restricted to fungi. He was by no means unaware of the many attractions of the city, aside from its scientific advantages, and it is not unlikely that these at times may have diverted him from his strictly professional interests.

Setchell's first year at Berkeley was evidently a very busy one, as shown by the list of his publications for 1896. He published several papers in the Laminariaceae (kelps) in which he was always much interested. There are many extraordinary genera of these big brown algae peculiar to the Pacific coast. In 1897 he published a textbook, *Laboratory Practice for Beginners in Botany*. Among his most important investigations were studies of the factors determining the distribution of the Laminariaceae.

The immediately following years seem to have been less productive, but in 1899 he made his first trip to Alaska, and made extensive collections. He described the algae of the Pribilof Islands in President Jordon's report on the fur-seal islands of the Alaska region.

In 1903, in collaboration with Dr. N. L. Gardner, was issued by the University of California Press, the first volume of *Algae of Northwestern America*, which must be ranked as Setchell's most important contribution to American botany. The last volume of this important work appeared in 1925.

In 1920, Setchell was engaged by the Carnegie Institution of Washington to conduct certain investigations in the Samoan Islands. This first visit to the South Seas had a marked influence upon his future work and he developed a strong interest in the biological problems of the southern Pacific, especially the distribution of insular floras both marine and terrestrial, coral reef formations, especially the role of Coralline algae, in reef building, and various problems concerned with plant distribution. As director of the botanical garden of the university, he made a collection of the commercial varieties of tobacco, and other species of *Nicotiana*, grown from seed from many sources. These showed much uncertainty as to nomenclature. Continued experiments resulted in the establishment of a collection of stable and correctly named species and varieties. Setchell spent much time in studying the results of hybridizing these forms of *Nicotiana*, and the cytogenetics of the genus *Nicotiana* was carried on later by Goodspeed and R. E. Clansen of the university.

Setchell's numerous collecting trips began in 1896, his first year in California. With Dr. W. L. Jepson, then an assistant in the department, he made a wagon trip from Berkeley to the Santa Cruz Mountains on the coast south of San Francisco, and then to the San Joaquin Valley and the Yosemite. Collections were made of the vascular plants, fungi, and fresh-water algae. Two years later he visited Yellowstone Park, and made a special study of the thermal algae. In 1900 he spent the summer in Hawaii. Three years later, on sabbatical leave, he made a round-the-world trip, visiting important herbaria in Europe, and later visiting Egypt, India, and New Zealand, and collecting material, especially marine and thermal algae. He visited Europe later for further study of types of algae in the most important herbaria.

In 1920 Dr. Setchell married Mrs. Clara B. Caldwell, of Providence, and during the next twelve years made several extensive journeys on which his wife accompanied him and was associated with him in his botanical investigations. These journeys included visits to many islands of Polynesia—Hawaii,

Samoa, Tahiti, Fiji—also New Zealand, Australia, including the Great Barrier Reef, South Africa and Java. The great collections of material accumulated from these extensive journeys were, of course, of enormous value in his investigations. Mrs. Setchell evidently made a favorable impression on Setchell's associates at Berkeley, and she took an active interest in his work, both at home and when traveling. "She assisted her husband in the organization and classification of his library, notes, and collections, and later having perfected herself in micro-technique, in the researches which he had in progress."² She died several years before her husband, but he himself was an invalid for several years before he died.

Setchell's investigations made in Samoa on his first trip, for the Carnegie Institution, developed a new interest in the biological problems relating to the marine algae, and these problems became an important feature in his subsequent expeditions to most of the important South Sea Islands, as well as Australia and New Zealand, South Africa and Japan.

He thus collected algae in all these regions, and his first-hand knowledge of the algae of most of the Pacific area was probably unequalled by any other student of these important organisms.

In these extensive travels he became acquainted with the land floras, as well, and some of the problems connected with their distribution. The great importance of his work was recognized by his colleagues everywhere. His explanation of the factors dealing with the distribution of the kelps and his demonstration of the important role of the coralline algae as reef-builders are examples.

The recognition of his standing as a botanist was shown by his election to membership in all the leading American scientific societies, and also in many foreign ones.

Setchell died in Berkeley, April 5, 1943, ten days before his seventy-ninth birthday.

² Goodspeed, *loc. cit.*

SPECIES OF PLANTS NAMED FOR
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Algae

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(Prepared by T. H. Goodspeed and Lee Bonar)

KEY TO ABBREVIATIONS

- Am. Anthropol. = American Anthropologist.
Am. Jour. Bot. = American Journal of Botany.

- Am. Nat. = American Naturalist.
 Ann. Bot. = Annals of Botany.
 Ann. Mo. Bot. Gard. = Annals, Missouri Botanical Garden.
 Ann. Rept. Marine Biol. Lab., Wood's Hole, Mass. = Annual Report, Marine Biological Laboratory, Wood's Hole, Massachusetts.
 Ber. Deuts. Bot. Ges. = Berichte der Deutsche botanischen gesellschaft.
 Biog. Mem. Nat. Acad. Sci. = Biographical Memoirs, National Academy of Sciences.
 Bot. Gaz. = Botanical Gazette.
 B. P. Bishop Mus. Bull. = Bernice Pauahi Bishop Museum, Bulletin.
 B. P. Bishop Mus. Occas. Pa. = Bernice Pauahi Bishop Museum Occasional Papers.
 Bull. Soc. Botanique = Bulletin, Societe botanique de France.
 Bull. Torr. Bot. Club = Bulletin, Torrey Botanical Club.
 Carneg. Inst. Wash. Pub. = Carnegie Institution of Washington Publications.
 Compt. Rend. Somm. Séances Soc. Biogéogr. = Compte rendus Sommaire des séances Societe de biogéographie, Paris.
 Det. Kgl. Danske Videikeb. = Det Kongelige danske videnakabbemes.
 Fern Bull. = Fern Bulletin.
 Flora Mid. Calif. = Flora of Middle California.
 Hong Kong Nat. = Hong Kong Naturalist.
 Inst. Alg. Res. Hokkaido Imp. Univ. = Institute of Algological Research, Hokkaido Imperial University.
 Johns Hopk. Univ. Circ. = Johns Hopkins University Circular.
 Jour. Mycol. = Journal of Mycology.
 Jour. Wash. Acad. Sci. = Journal, Washington Academy of Sciences.
 Just. Bot. Jahresbr. = Just's Botanischer Jahresbericht.
 Mem. Nat. Acad. Sci. = Memoirs, National Academy of Sciences.
 Mid-Pacific Mag. = Mid-Pacific Magazine.
 Monog. des Oscill. = Monographie des Oscillariées (Nostocacées Homocystées) Paris, 1893.
 Proc. Am. Acad. Arts and Sci. = Proceedings, American Academy of Arts and Sciences.
 Proc. Am. Philos. Soc. = Proceedings, American Philosophical Society.
 Proc. Biol. Soc. Wash. = Proceedings, Biological Society of Washington.
 Proc. Calif. Acad. Sci. = Proceedings, California Academy of Sciences.
 Proc. Linn. Soc. N. S. W. = Proceedings, Linnean Society of New South Wales.
 Proc. Nat. Acad. Sci. = Proceedings, National Academy of Sciences.
 Proc. 3d Pan-Pac. Sci. Congr., Tokyo = Proceedings, Third Pan-Pacific Scientific Congress, Tokyo.
 Proc. 4th Pac. Sci. Congr., Java = Proceedings, Fourth Pacific Scientific Congress, Java.

- Proc. 5th Pac. Sci. Congr., Victoria and Vancouver = Proceedings, Fifth Pacific Scientific Congress, Victoria and Vancouver.
Records, Am. Soc. Nat. = Records, American Society of Naturalists.
Rept. Nov. Spec. = Repertorium novarum specierum regni vegetabilis.
Rept. Work Agr. Exp. Sta., Univ. Calif. = Report, on Work of the Agricultural Experiment Station, University of California.
Rev. Algologique = Revue Algologique.
Rev. Sudam. Bot. = Revista sudamericana de botanica.
Rev. Syst. Surv. Melobesiae = Revised systematical survey of the Melobesiae (Norske videnskabers-selskab. Skrifter, 1900).
Siboga Exped. Mon. = Siboga-expeditie Monographie.
Sierra Club Bull. = Sierra Club Bulletin.
Trans. Conn. Acad. = Transactions, Connecticut Academy of Arts and Sciences.
U. C. Agr. Exp. Sta. Circ. = University of California Agricultural Experiment Station Circular.
U. C. Pub. Bot. = University of California Publications, Botany.
Univ. Arskkr. N. F. = Lund Universitet Arsskrift.
Univ. Chron. Berkeley = University of California Chronicle.
Year Book Carneg. Inst. Wash. = Yearbook, Carnegie Institution of Washington.

1883

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1884

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