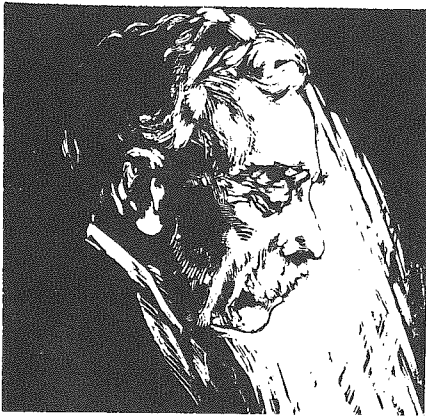

Newsletter of the **FRIENDS**
OF THE
FARLOW

Number 19

October 1991

R. K. Edgar, editor

FARLOW'S STUDENTS



Recently I was asked an innocent question: "Who were William Farlow's students?" Confidently, I set my lips listing: Thaxter, Setchell, But, as I continued I sensed my brother, the Socratic philosopher, whispering in my ear: "Would you define a dog by parading Lassie, Rin-Tin-Tin and others before me?" My listing slowed and yielded to my pondering. What entitles one to the name "student"? Philosophers!

A trivial solution exists: Farlow's class rosters define who his students were. But simple exposure to ideas would seem insufficient to claim their reception and mere reception insufficient to claim their effects. I expect teachers to leave *marks* in their students, in the intellectual problems they find important and pursue, in the organisms with which they work and in the methodology they apply to their problems. Having effects would seem to nestle near the core of the teacher-student relationship.

Netting Farlow's students requires a justified collection and analysis of *marks*, not simply the recitation of names in received lists. During an initial foray from this perspective, I discovered the distribution of one set of *marks* in a highly select group of individuals so interesting that I felt compelled to share it.

Asa Gray retired from teaching at Harvard in 1873, the same year that Louis Agassiz, his zoological counterpart, died. Farlow began teaching the following year. His botanical colleagues were Charles Sprague Sargent, a horticulturist, and George Lincoln Goodale, a plant physiologist. Between 1874 and 1896, the period in which Farlow was actively teaching, Harvard University granted 43 doctoral degrees in natural history (encompassing geology, zoology and botany). I judged one reasonable sign of Farlow's influence on individuals in this set would be *publications in cryptogamic botany*. Consequently, I inventoried the publication records of these 43 doctoral graduates and collected the following list of 15 *marked* individuals. The list, presented without analysis, includes for each select individual highly abbreviated notes on the title of the Harvard doctoral dissertation and its year, a brief listing of subsequent institutional affiliations, and a few, select publications reflecting a cross-section of professional contributions.

R.K.E.

Edward Asahel Birge (1851-1950) ON CRUSTACEA CLADOCERA COLLECTED IN ... CAMBRIDGE, MASS, 1876 AND MADISON, WIS., 1877, ('77). Wisconsin '79-'25. Notes on Cladocera, '79-'01. *The Inland Lakes of Wisconsin - The Dissolved Gases ...*, '11; ... *The Plankton ...* (with C. Juday), '22; The heat budgets of American and European Lakes, '16.

Edward Angus Burt (1859-1939) THE DEVELOPMENT OF THE RECEPTACULUM IN THE PHALLOIDEAE, '95. Middlebury '95-'13, Missouri Bot. Gard. '13-'25. The Phalloideae of the United States, '96; The Theleporaceae of North America, '14-'24; Some North American Tremellaceae ..., '21; Higher fungi of the Hawaiian Islands, '23.

Charles Benedict Davenport (1866-1944) OBSERVATIONS ON THE BUDDING IN *PALUDICELLA* AND SOME OTHER BRYOZOA, '91. Harvard '92-'96, Chicago '99-'01, Carnegie Inst. Stn. Exp. Evol., Cold Spring Harbor '04-'34; Eugenics Record Office '10-'34. The fauna and flora about Cold Spring Harbor, L. I., '98. *Statistical Methods with Special Reference of Biological Variation*, '99; *Experimental Morphology*, '99; *Heredity in Relation to Eugenics*, '11.

Bradley Moore Davis (1871-1957) CONSIDERATION OF THE CARPOSPORIC TYPE OF REPRODUCTION, '95. Chicago '95-'06; Mar. Biol. Lab., Woods Hole '97-'06, Univ. Pennsylvania '11-'14, Univ. Michigan '19-'41. Fertilization in *Batrachospermum*, '96; The origin of sex in plants, '01; Fertilization in the Saprolegniaceae, '05; A Biological Survey of the Waters of Woods Hole and Vicinity, '13; Cytological ('09-'11) [&] genetical ('10-'14) studies in *Oenothera*; Life histories of the red algae, '16.

Byron David Halsted (1852-1919) THE AMERICAN CHARACEAE: CLASSIFICATION AND DESCRIPTION OF AMERICAN SPECIES OF CHARACEAE, '78. Iowa Agric. Coll. '85-'89, Rutgers & N. J. Coll. Exp. Stn. '89-'19. The Asparagus rust, '98; Breeding sweet corn, '05; The fungous foes of the farmer, '97; The poisonous plants of New Jersey, '99; Forest trees of New Jersey, '06; The planting and care of shade trees, '09.

James Ellis Humphrey (1861-1897) THE SAPROLEGNACEAE OF THE UNITED STATES, '92. Johns Hopkins '92-'97. On the anatomy and development of *Agarum turneri*, '86; Fungous diseases of plants, '89; The comparative morphology of fungi, '91; Amherst trees, '92; Transl., Zimmermann's *Botanical Microtechnique*, '93.

Charles Atwood Kofoid (1865-1891) CLEAVAGE IN *LIMAX* [MOLLUSCA], '94. Oberlin '88-'91, Michigan '94-'95, Illinois Biol. Stn. '95-'00, Ill. Nat. Hist. Surv. '98-'00, California '00-'36. The plankton of the Illinois River, 1894-1899, ('01-'03); Mutation in *Ceratium*, '09; The free-living unarmored Dinoflagellata, '21; Dinoflagellates: the Dinophysidae, '28.

Kingo Miyabe (1860-1951) THE FLORA OF THE KURILE ISLANDS, '90. Hokkaido '84-'27. On the life-history of *Macrosporium parasiticum*, '89; Laminariaceae of the Kurile Islands, '33; Contributions to the Flora of Northern Japan, '33-'36; On the significance of the Schmidt line in the plant distribution in Saghalien, '37.

George Howard Parker (1864-1955) THE COMPOUND EYES IN CRUSTACEANS, '91. Harvard '88-'55. On the morphology of *Ravenelia glandulaeformis*, '87; Report on the organisms... found in waters of the state [Massachusetts], '89; The fur-seals of the Pribilof Islands, '17; *Smell, Taste and Allied Senses in the Vertebrates*, '22; *Animal Colour Changes and the Neurohumors*, '48.

Herbert Maule Richards (1871-1928) ON SOME POINTS REGARDING THE MORPHOLOGY AND PARASITISM OF CERTAIN UREDINEAE, '95. Harvard '91-'95, Columbia '98-'28. Notes on *Zonaria variegata*, '90; On the development of the spermatogonium in *Caecoma nitens*, '93; Respiration in wounded plants, '96; *Ceramothamnion codii*, a new rhodophycean alga, '01; Acidity and gas exchange in cacti, '15.

William Albert Setchell (1864-1943) ON THE LIFE HISTORY OF *SACCORHIZA DERMATODEA* (DE LA PYL) J. AG., 1890. Harvard '88-'91, Yale '91-'95, Mar. Biol. Lab., Woods Hole '90-'95, California '95-'43. Critical Notes on the New England Species of *Laminaria*, '00; Regeneration among kelps, '05; Parasitic Florideae, '14-'24; The temperature interval in the geographic distribution of marine algae, '20; Inheritance in *Nicotiana tobacum*, '22; *Marine Algae of the Pacific Coast of North America* (with N. L. Gardner), '25.

William Codman Sturgis (1862-1942) ON THE CARPOLOGIC STRUCTURE OF THE COLLEMACEAE AND ALLIED GROUPS, '90. Conn. Agric. Exp. Stn. '92-'01, Yale '01-'02, Colorado Coll. '04-'14. Common fungus diseases and their treatment, '92; Edible and poisonous fungi, '96; The Myxomycetes of Colorado, '07.

Roland Thaxter (1858-1932) THE ENTOMOPHTHOREAE OF THE UNITED STATES, '88. Harvard '86-'88, '91-'32, Conn. Agric. Exp. Stn. '89-'91. American Laboulbeniaceae, '90-'93; New Indo-Malayan Laboulbeniales, '15; Extra-American Dipterophilous Laboulbeniales, '18; A revision of the Endogoneae, '22.

William Trelease (1857-1945) OBSERVATIONS ON SEVERAL ZOOGLLOEAE AND RELATED FORMS, '84. Harvard '83-'85, Washington Univ. (St. Louis) '85-'12, Missouri Bot. Gard. '89-'12, Illinois '14-'26. A list of works on North American fungi (with W. G. Farlow), '87; Bacteria from a botanical standpoint, '88; Morels and puffballs of Madison, Wisc., '88; Myrmecophilium, '89; *The Yuccaeae*,

'02; Alaskan species of *Sphagnum* '04; Cryptogamic Botany of Alaska ... [Harriman Expn.], '04; *Agave* in the West Indies, '13; *American Oaks*, '24; The Piperaceae of northern South America, '50.

William McMichael Woodworth (1864-1912) CONTRIBUTIONS TO THE MORPHOLOGY TO THE TURBELLARIA, ON THE STRUCTURE OF *PHAGOCATA GRACILIS* LEIDY, '91. Harvard '89-'05. The apical cell of *Fucus*, '88; Contributions to the morphology of the Turbellaria, '91-'97; Transl., Korschelt & Hedier's *Textbook of the Embryology of the Invertebrates*, '95-'00; Some planarians from the Great Barrier Reef ..., '99.



BRYOPHYTE RED LIST

Since the dawn of civilization, bryophytes, which include mosses, hepatics and hornworts, have been used by man as medicines, fuel, and ornamentals, and in Asia, they are even employed in agronomy and industry. Yet, often time, they are not given due attention by professionals and lay people. Although a few species can become weedy and widespread, many occur only in highly threatened habitats like tropical rain forests and temperate wetlands where they are most diverse. With the continuous destruction of their habitats in many parts of the world, their existence has become imperiled.

In response to this global threat of loss of bryophyte species, the International Association of Bryologists (IAB) created a standing committee named the IAB International Committee for Endangered Bryophytes in September of 1990 to study the problem(s) and recommend solution(s). In March, 1991, the same IAB committee was also appointed as the Bryophyte Specialist Group of the IUCN Species Survival Commission under the chairmanship of Dr. G. B. Rabb.

Currently, this IAB/IUCN committee consists of seven members representing various regional interests and studying different bryophyte groups. They are Drs. T. Hallinback (Sweden, committee chairman), R. E. Andrus, (USA), N.

Hodgetts (United Kingdom), T. Pocs (Hungary), B. C. Tan (Philippines/USA), H. Streimann (Australia) and C. M. Matteri (Argentina).

In a meeting held in Exeter, Scotland, on the 19th of July, 1991, the committee chairman, Dr. T. Hallingback, reported the results of a survey conducted the previous year among members of IAB asking for information on the situation of declining bryofloras in various parts of the world. After an invigorating discussion, the committee decided to undertake two imminent tasks: 1) preparation of a world red list of bryophytes and 2) identification of "hot spots" of bryophyte diversity in the world. Both lists are scheduled to be completed at the end of 1992 for presentation and approval at the bryological meeting to be held in Japan in August of 1993 during the 15th International Botanical Congress.

Dr. B. C. Tan, who studies the systematics of the SE Asiatic moss flora and manages an ongoing project entitled Bryoflora of China (English edition) at the Farlow Herbarium, was asked to take charge of the preparation of the first world red list of bryophytes. Subsequently, a set of guiding principles was laid down by the committee to help identify the immediately endangered bryophytes in the world. Briefly stated, the species chosen should represent proven endemics surviving in a threatened habitat and with very restricted distributions.

Since little study has been conducted on the ecobiogeography of bryophyte species on a worldwide basis and also to enlist participation of regional experts and family monographers, a questionnaire is, at present, being prepared for distribution through IAB to solicit information on the topic. All responses received will be entered into a database at the Farlow Herbarium and will be used to generate the red list. The database will be updated each year with new information gathered from reports and publications. With its large holdings of bryophyte specimens and literature in bryophyte systematics, the Farlow Herbarium is the ideal institution for monitoring globally the fast-changing status of endangered bryophytes.

BENITO C. TAN

LILIAN HORSFORD FARLOW

"Horsford's Bread Preparation saves time, simplifies the whole process of bread-making, saves labor, and reduces the chances of failure to a minimum....It is certain that for rolls, biscuits, griddle-cakes, and the whole list of 'Breakfast and Tea Cakes,' the 'Bread Preparation' is superior to yeast or soda."

Practical Housekeeping, ca. 1860

What, you may ask, has "Horsford's Bread Preparation" to do with the concerns of the Farlow Herbarium or of cryptogamic botany? Before that connection is revealed, let us cast our minds back to American kitchens of two hundred years ago, when cooking and, specifically, baking were far different activities than what they are today. Until the end of the eighteenth century, all leavening in breads and cakes was produced either by the strenuous beating (by hand!) of air into eggs or by the addition of yeast, methods which restricted both the kinds of baked goods that could be produced and their ease in preparation. By the 1790's, however, the discovery of pearlsh (potassium carbonate), a refined form of potash which produced carbon dioxide in bread dough, and the supply of cheap wood in the New World from which to extract it made possible its exportation to Europe - 8000 tons of the leavening in 1792 alone.

Pearlash and saleratus (sodium bicarbonate or baking soda), with their resulting strong after-tastes, remained the sole sources of "quick" leavening until the 1850's when baking powder (sodium bicarbonate with a powdered acid and starch added) was produced, first by Preston and Merrill of Boston. In 1861, Eben N. Horsford, Rumford Professor at Harvard, published an article on "The theory and art of bread-making: a new process without the use of ferment" in which he advocated "mix[ing] together with the flour a dry, highly acid phosphate of lime.... prepared from the only practicable source of it, the bones of beef and mutton."

Fannie Merritt Farmer, in the introduction of her *Horsford Cookbook* of 1895, declared Prof.

Horsford's compound to be one which "not only does not produce any bad effect [as alum and cream-of-tarter-based powders were believed to do] but is actually of direct and certain benefit to the system."

In addition to a new formula for baking powder, Professor Horsford had a daughter, Lilian, who in 1900 married the fifty-six-year-old Harvard professor of cryptogamic botany, William G. Farlow. Upon her death in 1927, the Lilian H. Farlow bequests to the Library and Herbarium were established. They read as follows:

To the Herbarium:

Bequest of Lilian H. Farlow "to be used at the discretion of the Curator of the Farlow Reference Library for the purchase of a collection or collections of cryptogamic specimens to be added to the Farlow Herbarium."

To the Library:

Bequest of Lilian H. Farlow "to be placed at the disposal of the Curator of the Farlow Reference Library for the purchase of suitable books and periodicals on the subject of botany, and for binding, with the restrictions established by William G. Farlow, that they be 'consulted only in the Library, and shall not be removed therefrom.'"

The Lilian Farlow accounts at the Farlow Herbarium are, like so many Harvard accounts, restricted to particular uses. As time has gone by and the mission of the Farlow has expanded, money from other sources and for other purposes has been provided by organizations from the lofty (the National Science Foundation) to the more intimate (the Friends of the Farlow). That money from the baking powder business should end up helping to support cryptogamic botany is somewhat ironic, as part of Prof. Horsford's mission in developing his baking powder was to avoid "the phenomena of fermentation [which are] accompanied by the growth of the microscopic vegetable organisms.... As a class, microscopic fungi are poisonous."

CAROLYN HESTERBERG

FOF NEWS

Supported by a FOF Fellowship, Ana E. Franco-M., a graduate student at the New York Botanical Garden under Roy Halling, worked at the Farlow for three weeks this past August. She studied primarily *Lepiota s.l.* material, focussing on specimens collected in the tropics or in South America from the Curtis, Patouillard and Dodge Collections. During her work she uncovered specimens of *Rugospora* from Costa Rica (Dodge Coll.) and Brazil (Rick Coll.), thus extending its range from Brazil to Mexico.

Fourth-year graduate student at the Farlow, Sam Hammer, collected *Cladonia* lichens during a month-long trip to the Pacific Northwest this past summer. This trip, intended to complete collections for his thesis, covered 5000 miles in 5 states. He sent 17 boxes of over 700 specimens back to the Farlow. Most the localities visited were new, including some in remote coastal Washington, the Cascade Range and the Wallowa Mountains of northeastern Oregon. One of the most interesting was the so-called Big Lava Flow, a 10,000-year-old site in the environs of Mt. Saint Helens. Sam plans a short-term fellowship visit to the Smithsonian this fall.

The Farlow *Key to the Common Marine Algae of New England North of Cape Cod* by I.M. Lamb *et al.* is out of print. However, the key (with nomenclatural updates) and illustrations are available in HyperCard format for the MacIntosh computer. The HyperCard stack was developed by Cherie Sachiel under the direction of Professors Barry Wulff (FOF President) and Ross Koning of Eastern Connecticut State University. Copies are available for US \$5.00 directly from the Friends of the Farlow.

LeBaron C. Colt, Jr., long-time member of FOF and chairman of the Department of Biology at the University of Massachusetts Dartmouth [NORTH DARTMOUTH, MA 02747 USA] has completed a computerized data bank of "The Algae of New England 1829-1984". The data bank lists 954 algal genera, 4431 species and about 2500 sub-specific taxa extracted from more than 1570 ref-

erences to New England algae spanning the 155 years. The compilation, including master's and doctoral theses and special reports in addition to journal articles, cross-references collector with the literature, the algae and the collection localities. Information from this work, produced in part from Farlow Library resources, can be secured directly from Professor Colt. The database will be made available through the Marine Biological Laboratory in Woods Hole in 1992.

The 1991 FOF Book Sale which ended in September generated \$3,871 for FOF coffers.

FARLOW VISITORS

April 15 - October 1, 1991

Excluding members of the
Harvard University community

S. Aaronson (New York), V. Bajger (Cambridge), A. F. Berenfeld (Concord, MA), L. Berenfeld, (Cambridge), J. Barrett (Roxbury, MA), D. Cameron (Philadelphia), L. C. Colt, Jr. (North Dartmouth, MA), T. M. Dewald (Winchester, MA), A. E. Franco-M. (New York) J.F. Gerrath (Guelph), J. Hinds (Orono), J. Hook (DeWitt, NY), S. A. Jelly (Randolph, MA), R. P. Korf (Ithaca), J. McCarthy (Westwood, MA), M. Nash (Alberta), H. Neda (Tsukuba, Japan), R. Palombo (Boston), A. Paulus (Riverside, CA), M. Schaechter (Boston), P. P. Soule (Belmont), N. Stokes (Potts Poin, New South Wales), W. Zimmerman (Cambridge)

FOF FINANCIAL REPORT

BALANCE on hand 7/1/90	\$16 648.41
INCOME	
Members & donations	\$ 2 999.00
Book Sales	4 938.72
Total	\$ 7 937.72
EXPENSES	
Staff travel	379.33
Postage	305.84
Farlow Fellowship	1 174.00
Annual Meeting	421.18
Book Binding	368.00
Publishing	696.00
Total	\$ 3 344.35
BALANCE on hand 6/30/91	\$ 21 241.78

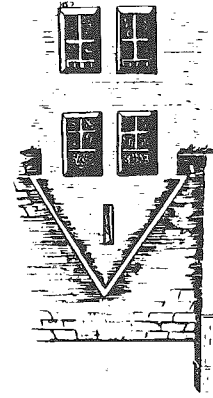
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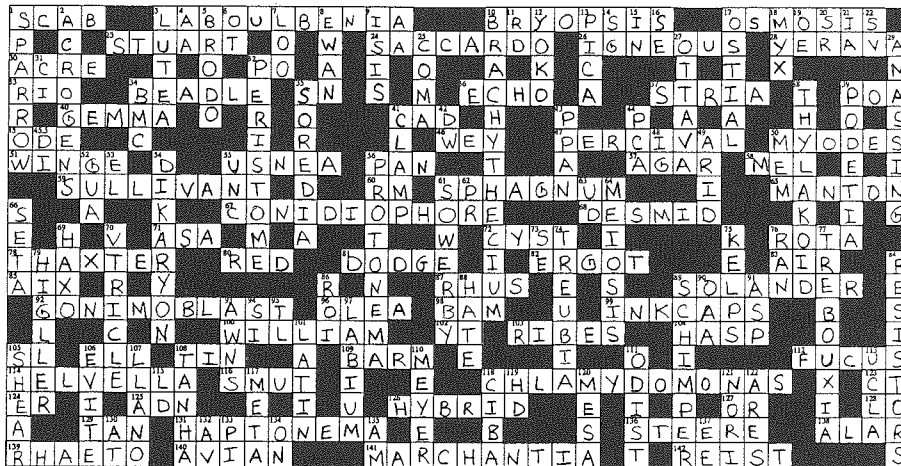
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FARLOW REFERENCE LIBRARY

OF CRYPTOGAMIC



Answers to puzzle in April 1991 newsletter (no. 18)

Friends of the Farlow is an international group of amateur and professional botanists concerned with supporting the programs and resources of the Farlow Reference Library and Herbarium of Cryptogamic Botany of Harvard University. Membership categories are: Associate member, \$5-25; Full member, \$25; Sponsor, \$50-100; Benefactor, \$1000 or more. To join please make your check payable to the Friends of the Farlow and send to the address below. The membership year runs from January 1 to December 31. Members receive a discount on Farlow publications, participate in book sales, annual meetings and other events, and receive a special welcome at the Farlow. This newsletter is published twice a year, in April and October. For more information, contact the Farlow Reference Library, 20 Divinity Avenue, Cambridge, MA 02138 USA (Tel. 617-495-2369; FAX 617-495-9484).