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Number 2

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1999

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Likeness of Joel W. Hedgpeth; rendered by artist W. Schuss.

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"The object of this society shall be the stimulation of general interest in the fields of biological science. The society shall be broad enough in scope and liberal enough in its organization to meet the needs of all naturalists."

Western Society of Naturalists By-Laws, 1916

Introduction

With this statement the Western Society of Naturalists (WSN) was officially created at San Diego High School in August 1916. The roots of the WSN, however, go even earlier when a group of prominent biologists met in San Francisco to found the Society that was to become WSN. The following is an account of WSN, its form, function and evolution over the past 86 years, and biographies of some of the members who have been particularly influential in maintaining the Society's spirit.[1]

Origin and Early History

As Francis B. Sumner[1] pointed out in 1945, "the organizational need of the scientists of our far west have never been fully met by membership in national societies which hold plenary sessions, for the most part, east of the Mississippi River." Perhaps in an early attempt to satisfy that need, six biologists, among them Vernon Lyman Kellogg, Charles Atwood Kofoid, and Harry Beal Torrey (Fig. 1), met in a restaurant in San Francisco in 1910 and founded the Biological Society of the Pacific.[2] The Society was open to "any person interested in scientific work of a research nature."[3] A circular of information and an invitation to membership was sent to approximately 100 West Coast biologists. It announced the "first Annual Meeting" for Saturday, April 1, 1911 at the University of California at Berkeley. This first meeting included four afternoon paper presentations and a dinner at the Hotel Shattuck (Fig. 2). A joint public session was held with the newly formed Pacific Coast Association of Scientific Societies (forerunner of the Pacific Division of the American Association for the Advancement of Science) that included talks by the Presidents of both the University of California at Berkeley and Stanford University. By the time of the meeting, there were 70 members, including most of the biologists on the West Coast.

The Biological Society of the Pacific planned to have three meetings per year (Fig. 2), with one designated as the Annual Meeting. One meeting each year was to be held in conjunction with meetings of various other societies composing the Pacific Coast Association of Scientific Societies. The non-annual meetings were rather informal. One, held on an October evening in 1911 at the Heidelberg Inn

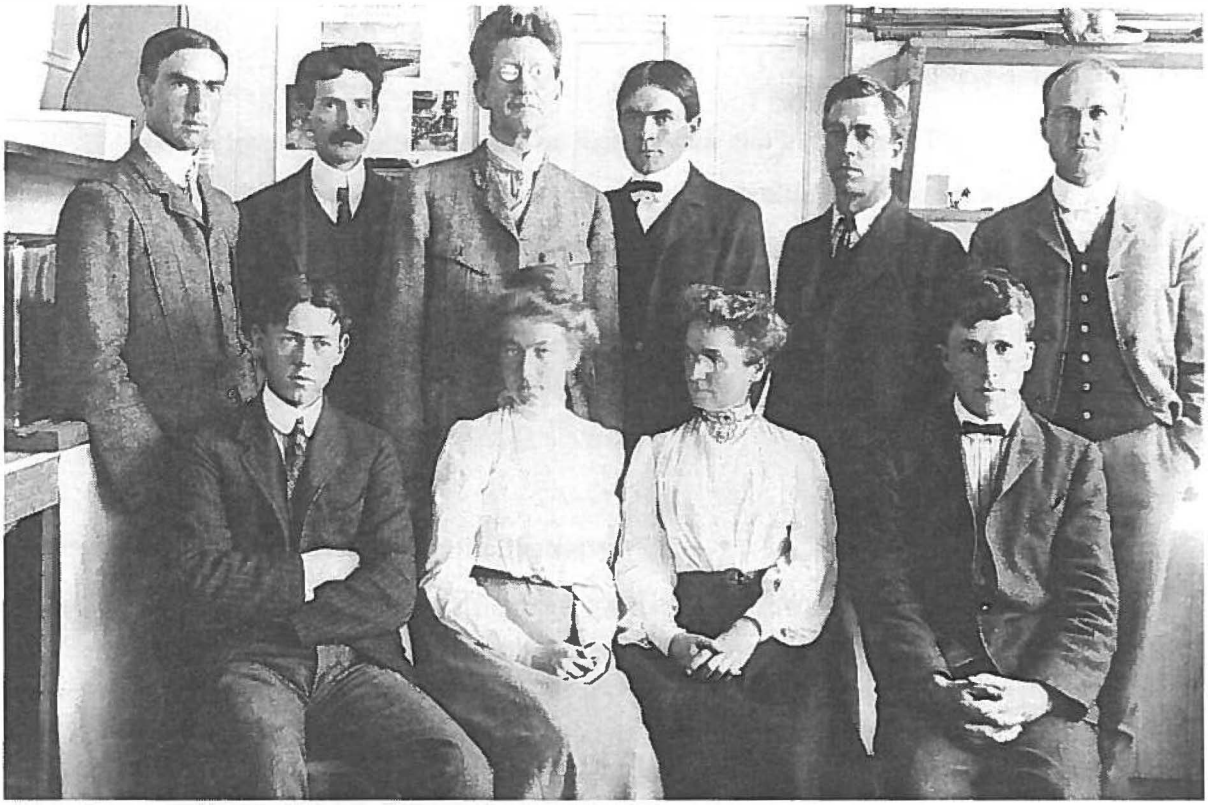


Figure 1. Photograph taken at the Coronado Laboratory in San Diego in 1904. Several founding members of the Western Society of Naturalists are included. Back row (left to right): Williams, Crandall?, William E. Ritter, Loye H. Miller, Charles A. Kofoid, Harry B. Torrey. Front row (left to right): J.F. Bovard, Effie Rigden, Alice Robertson, Calvin O. Esterly. Reproduced courtesy of the Scripps Institution of Oceanography Archives [identifications provided by Torrey in a 1949 letter].

in San Francisco, featured two papers followed by dinner ($1.00). The papers were by G.J. Pierce on *Effects of Cement Dust on Plants*, and by Harry B. Torrey on *Color Differentiation in Amphibians*.

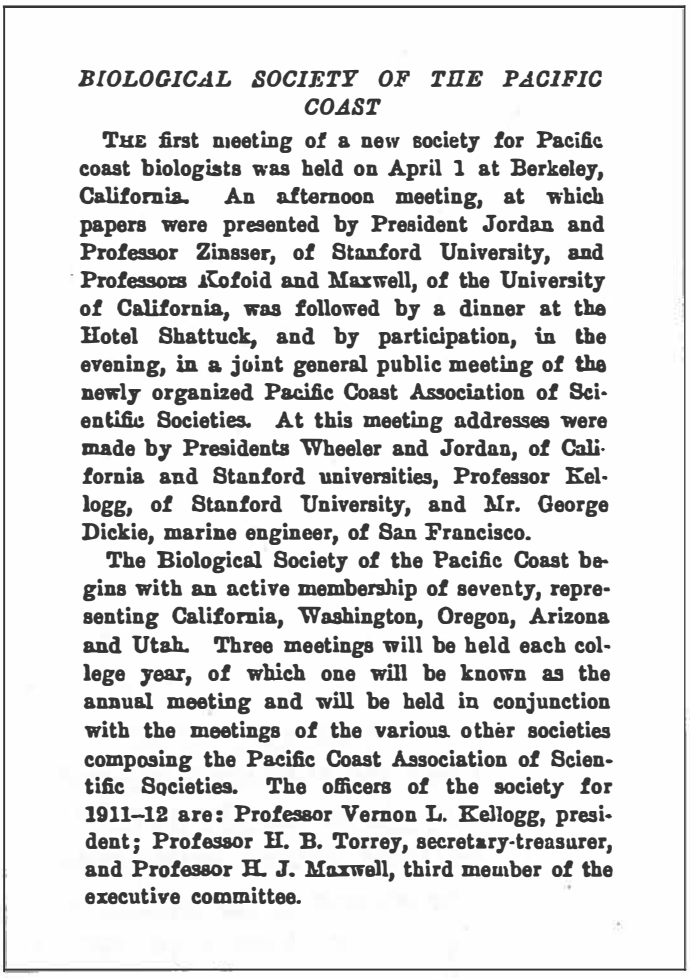
The Fourth Annual Meeting, held in Seattle, was quite large. Fourteen papers were presented, including one by Charles A. Kofoid on *The Protozoa and the Cell Theory, Illustrated with Lantern Slides*. A formal Business Meeting was followed by dinner at the Hotel Savoy. At this meeting it was decided that the 1915 Annual Meeting would be held in San Francisco in August to coincide with the the Panama and Pacific Exposition. It also was announced that the highly respected American Society of Naturalists had invited the Biological Society of the Pacific to merge with their Society.

On August 3, 1915, one day prior to their Annual Meeting, Pacific Coast members of the American Society of Naturalists, many of which were also members of the Biological Society of the Pacific, voted to organize a Pacific Coast Branch of the American Society of Naturalists. The intent was to have this Pacific Coast Branch of the American Society of Naturalists absorb the membership of the Biological Society of the Pacific. At their meeting on the following day, members agreed, voting to abandon the name "Biological Society of the Pacific" and become part of this new branch of the American Society of Naturalists. However, the proposal for merger was rejected by the Executive Committee of the American Society of Naturalists at their annual meeting in Ohio in December 1915. Upon reconsid-

eration of their offer, the Executive Committee apparently realized that the American Society of Naturalists could not allow members to join as a group, was concerned that the Pacific Branch might not be sufficiently selective in admitting members, and also felt "that the East and West are geographically too far apart to make a workable union.[4]"

Faced with what they described as an "embarrassing position" resulting from the American Society of Naturalists' decision, the Executive Committee of the newly formed Pacific Coast Branch of the American Society of Naturalists proposed to abandon this name and organization and form a new Society. "The Western Society of Naturalists" would include all members of the former Biological Society of the Pacific. A Committee on Organization, composed of Forest Shreve, J.R. Slonaker, and Joseph Grinnell was appointed to re-organize the Biological Society of the Pacific as WSN and revise the By-Laws (Appendix B). The re-organization and By-Laws were approved at the August 1916 meeting in San Diego (Fig. 3). Information in the WSN archives suggests that the Executive Committee was very disturbed by this apparent affront by the American Society of Naturalists, and perhaps this influenced their choice of the new name. It also may have stimulated the offer to new WSN members of free membership in the American Association for the Advancement of Science, and membership in this organization's newly formed Pacific Division for $3.00.

The Western Society of Naturalists was thus officially founded in 1916 in San Diego[5], and appears to be the second oldest surviving natural history society on the Pacific Coast. According to Tracy Storer, the California Academy of Sciences was founded in 1853, but it does not have "Natural" or "Naturalists" in its name.[6] The oldest, the San Diego Society of Natural History, was founded in 1874. The Young Naturalists Society was begun in Seattle in 1879 but no longer exists. The Santa Barbara Society of Natural History was founded in 1886 and survived until 1913. It was replaced in 1916 by the Museum of Comparative Oology, later to become the Santa Barbara Museum of Natural History.



BIOLOGICAL SOCIETY OF THE PACIFIC COAST

THE first meeting of a new society for Pacific coast biologists was held on April 1 at Berkeley, California. An afternoon meeting, at which papers were presented by President Jordan and Professor Zinsser, of Stanford University, and Professors Kofoid and Maxwell, of the University of California, was followed by a dinner at the Hotel Shattuck, and by participation, in the evening, in a joint general public meeting of the newly organized Pacific Coast Association of Scientific Societies. At this meeting addresses were made by Presidents Wheeler and Jordan, of California and Stanford universities, Professor Kellogg, of Stanford University, and Mr. George Dickie, marine engineer, of San Francisco.

The Biological Society of the Pacific Coast begins with an active membership of seventy, representing California, Washington, Oregon, Arizona and Utah. Three meetings will be held each college year, of which one will be known as the annual meeting and will be held in conjunction with the meetings of the various other societies composing the Pacific Coast Association of Scientific Societies. The officers of the society for 1911–12 are: Professor Vernon L. Kellogg, president; Professor H. B. Torrey, secretary-treasurer, and Professor H. J. Maxwell, third member of the executive committee.

Figure 2. Report on the first meeting in 1911 of the Biological Society of the Pacific. Reproduced from *New Science* 33 (850): 590.

WESTERN SOCIETY OF NATURALISTS

THE first meeting of the Western Society of Naturalists will be held in San Diego on August 10 and 11, in conjunction with the meeting of the Pacific Division of the American Association for the Advancement of Science. The San Diego Natural History Society and the Pacific Coast Branch of the American Phytopathological Society will also participate in the meeting of the Western Society of Naturalists.

At these sessions a number of papers will be presented upon a wide range of topics of general biology which will be of interest to botanists and zoologists and also to the general public. Worthy papers upon more limited fields of zoology or botany will also be welcome. Titles of papers, together with brief abstracts, should be submitted to the secretary of the society, E. L. Michael, La Jolla, California, before July 20.

Among the papers already offered for this meeting are the following:

"Composition of the Rancho La Brea Fauna," by John C. Merriam, professor of paleontology and historical geology, University of California.

"Eugenics and War; and Isolation and Production of Germinate Species," by David Starr Jordan, chancellor, Stanford University.

"An Amateur Naturalist in Formosa," by Dr. Fred Baker, Point Loma.

"Biology's Contribution to a System of Morals Adequate for Modern Civilization," by W. E. Ritter, scientific director, Scripps Institution for Biological Research, La Jolla.

"The Mutation Theory and the Species-concept," by R. R. Gates, acting associate professor of zoology, University of California.

Papers will also be presented by Professor H. M. Hall, Dr. Joseph Grinnell and Mr. Tracy I. Storer, of the University of California; by Dr. D. T. MacDougal, Desert Botanical Laboratory, Tucson; Professor Harry Beal Torrey, Reed College, Portland, and others.

On Thursday afternoon, August 10, the session will take the form of a conference upon the tuna fisheries of southern California. A consideration of the tuna fisheries is especially appropriate at this time in view of the recent development of this industry, the establishment of tuna canneries at San Diego and other ports of southern California, and the work of the *Albatross* of the United States Bureau of Fisheries in tuna investigations in southern California waters this summer.

BARTON W. EVERMANN,
President

Figure 3. Announcement of the 1916 organizational meeting for the Western Society of Naturalists. Reproduced from *New Science* 64 (1123): 15.

Organization and Philosophy

From its beginnings in 1916, the organization, and the means to accomplish the goals of WSN, have remained surprisingly constant and simple – a small group of officers and a few other members work together each year as an Executive Committee to organize one or more meetings open to all individuals interested in biology. The original "Objects" section in the 1916 By-Laws are only slightly expanded in the current "Purpose" of the Constitution and By-Laws (Appendix B). WSN has adhered to its goal of "the provision of opportunities for presentation and discussion of problems of common interest to biologists," and still attempts to "exercise an integrative function which cannot be performed by more specialized organizations."

The cause of this consistency is no doubt because the Society continues to meet the important scientific and social needs of its members. Most of the officers are elected from members who consistently have attended meetings and presented papers, organized symposia, and otherwise taken an active

part in the Society's business (Appendix C). Long-time members often comment that a WSN meeting was the first scientific meeting they attended, and the venue where they presented their first paper. Some members come full circle when symposia or other tributes are organized by WSN in their honor as they near the end of their careers (see 1995 in Milestones below).

While the idea occasionally is discussed at business meetings, the Society has never published a journal or funded other expensive programs, and has tried to keep membership and meetings inexpensive and informal. An emphasis on social informality and discussion makes the meetings "comfortable," especially for students. Many members "grew up" within WSN, and commonly view it as part scientific society and part family.

The emphasis has always been on the annual meetings that include both paper presentations and opportunities for discussion and social interaction. Integration is not only encouraged through diverse paper topics, but also by attempting not to schedule competing sessions. As noted in minutes from the 1938 Business Meeting, this encourages members to "get acquainted with the work and investigators in the various fields of natural science in the West." This has been difficult, especially for Contributed Paper Sessions, as attendance has increased. Although poster sessions frequently have been suggested at recent business meetings, they have not been approved as most members feel oral presentations fit more into the spirit of the Society.

Many meetings in the early years had fewer than 20 papers, but they always included dinner. As the Society and length of meetings grew, dinners became Presidential Banquets, and discussion events like the "Smoker," later to become the present Attitude Adjustment Hour (AAH), were added. At present, the Banquet has an address by the President, and the Attitude Adjustment Hour frequently includes an informal presentation on a topic or travels of general interest.

It is not clear in the older records, but letters from Denis L. Fox and recollections of Yost U. L. Amrein and others suggest that, even at the early meetings, it was common for students to present papers. Student travel awards were initiated in 1963 and best student paper awards in 1964. Dues for students have been less than for regular members at least since 1965, and student registration fees at meetings have been lower for many years. Since the early 1960s, WSN has actively encouraged student attendance and papers at the annual meeting. Starting in 1945 retired members have been given free membership and status as Honorary or Emeritus. Walter K. Fisher was the first member so honored.

During its early years, the Society's operations (mailings, program preparation, etc.) were funded entirely out of dues with all labor donated by Executive Committee members. At the 1951 Business Meeting, members voted to levy a meeting registration fee whenever necessary so the "Society could live within its income." Costs increased as membership increased, meetings became larger, and officers' meeting expenses were paid. Since 1991 the Secretariat has employed students to do the routine tasks of maintaining membership lists, mailing newsletters, and preparing programs. Annual dues are set to roughly cover the costs of running the Society and produce the meetings programs, while registration fees are estimated to cover the costs of the meetings. Members not attending the meeting can obtain a program with abstracts of papers presented from the Secretary. The Treasurer endeavors to maintain a slight surplus, with any additional money from dues or registration fees used for best paper

and student travel awards. The latter currently range from $50-$100 per applicant depending on distance traveled.

Small donations occasionally have been made by individuals and corporations to help support student travel awards (Appendix D). Since 1990, members have been asked to make additional contributions toward these awards when they pay their annual dues.

In addition to holding meetings, WSN has occasionally taken a strong position on environmental issues. Concern over the effects of kelp harvesting and tuna fishing led WSN, at its founding meeting in 1916, to sponsor a resolution approved by the Pacific Division of American Association for the Advancement of Science, that urged upon "the government of the United States and the State of California the importance of giving such support, financial, legislative, administrative, and otherwise, as may be necessary to place the various sea industries on a thoroughly scientific foundation." WSN supported the Ecologists Union (later to become the Nature Conservancy) in 1949, and had a Standing Committee on Conservation in the 1950s. It opposed building development in the Presidio of San Francisco in 1950. Its most active involvement in conservation, primarily by writing letters to appropriate government regulatory agencies[7], occurred during the early 1960s when Isabella A. Abbott was Secretary. Abbott was especially supported and encouraged in this effort by former Secretary and President John L. Mohr. Most recently at the 77th Annual Meeting, WSN sent a letter to the President of Mexico supporting conservation efforts in the Gulf of California and offering assistance with these efforts.

Meetings and Membership

As noted above, the Biological Society of the Pacific originally planned to have one Annual Meeting and two other meetings each year. WSN has primarily held annual meetings, with locations roughly alternating between southern California and either central/northern California, Oregon, Washington, or Canada (Appendix C). Although not explicitly stated in any By-Laws or Constitution, Executive Committees, at least since the 1960s, have attempted to vary meeting locations along the West Coast between San Diego and Vancouver, with two excursions to Hawaii, one to Colorado and one to La Paz, Mexico. However, earlier committees may have interpreted this differently, as minutes from the 1946 meeting suggest the tradition be continued of having meetings alternate between north (San Francisco region) and south (southern California). Beginning in the mid-1980s, meetings in Monterey have been especially well attended. In a mail poll in 1991, members indicated that Monterey might be a suitable venue every other year, with meetings in between alternating between more northerly and more southerly sites.

Since 1928[8], WSN has traditionally held its Annual Meeting, variously referred to as the annual "mid-winter," "winter," or "Christmas" meeting, between Christmas Day and New Year. The 1991 membership poll indicated members were about equally divided between holding the meeting at this traditional time or in early January. January meetings were held in 1992, 1995, and 1996. Annual meetings occasionally have been held with other societies, particularly the American Society of Zoologists (in 1980, 1984, 1988, and 1993).

In addition to recent annual winter meetings with American Society of Zoologists, WSN continued the Biological Society of the Pacific tradition of meeting with other scientific societies at other times of the year until 1970. These joint meetings commonly occurred during the summer in conjunction with the Pacific Division of the American Association for the Advancement of Science, WSN participated in 36 of the 48 Pacific Division meetings, commonly by sponsoring or co-sponsoring symposia. The Society remains an active affiliate of the American Association for the Advancement of Science.[9]

The 1996 meeting (held in January 1997) is listed as the 77th Annual Meeting. No meetings were held for three years during World War II (1942-1944). Thus, since the Society was founded in 1916, the January 1997 meeting should be the 78th. Whoever started this count perhaps considered the 1915 meeting of the Pacific Coast Branch of the American Society of Naturalists to be the Founding Meeting, with the first WSN Annual Meeting beginning in 1916.

Until the early 1960s, meetings were commonly held on university campuses, using student housing and university food services. This had the advantage of low cost and generally excellent facilities for presentations. It has been increasingly difficult to arrange such complete facilities at universities, and the use of only university lecture halls requires bus transport to and from hotels. Recent annual meetings have generally been held at hotels or other non-university locations with convention facilities.

While the abstracts of papers presented at WSN meetings are available to all members, traditionally they have not been cited in the scientific literature because they are not in an official publication. The exception are abstracts published in *American Zoologist* when the Society met with the American Society of Zoologists. Papers from the 1929 meeting at Hopkins Marine Station were published,[10] and papers from a 1985 symposium on sea otters formed the core of an edited book.[11] There may be other such publications of which we are not aware.

In addition to these western meetings, WSN co-sponsored ten International Symposia between 1973 and 1988 under the leadership of Secretary David H. Montgomery. Proceedings from several of these international meetings have been published (Appendix E).

While the Society has always been western without regard to country, most members have been from the western United States, particularly California (Table 1). Perhaps the most notable trend in membership has been the recent relative increase in U.S. members outside the western states. The 77th Annual Meeting was held in Mexico, in part to increase participation of Mexican colleagues in the Society.

Papers

In order to examine trends in the interests of members, all contributed papers presented at annual meetings were categorized by habitat (Fig. 4A), organism studied (Fig. 4B), and field of study (Table 2) for "year pairs" at approximately 10 year intervals (contributed plus other types of papers were used for the years 1914-1918). Papers from each year pair were combined to reduce possible bias due to particular meeting locations, symposia, etc. The results suggest that meetings until 1970-1971 were fairly balanced by habitat. At present WSN is very marine oriented. Plant papers dominated the initial meet-

Table 1. Geographic distribution of Western Society of Naturalists members. Data for 1916 and 1974 compiled from published membership lists; data for 1994 from files of the Secretariat. Students comprised 20% of the membership in 1994 (data unavailable for the other years).

	Percent (%) of Members		
State or Country	1916	1974	1994
California	76	70	45
Oregon	5	6	4
Washington	4	5	7
Alaska	0	<1	2
Hawaii & Guam	<1	4	5
Other U.S.A	11	12	30
Mexico	0	0	<1
Canada	3	3	4
Other Countries	0	1	3
Total Number of Members:	157	1291	1471

ings of WSN. By the 1950s all taxonomic groups were fairly evenly represented. Papers on invertebrates began to dominate the meetings in the 1960s. Recent increases in studies on vertebrates (mostly fishes) and community ecology may represent new trends. Fields of study have ranged widely, with physiological investigations dominating in the 1930s-1950s, and recent increases in genetic (primarily results from the use of new DNA technologies), reproduction and life history, and behavioral studies. Most obvious in these trends, however, is the current dominance of ecological papers (Table 2). While the Founding Members wanted to stimulate "general interest in the fields of biological science" to "meet the needs of all naturalists," papers on marine invertebrate ecology currently dominate at annual meetings.

Do these trends represent real changes in emphasis in biology? Are they artifacts of the formation of more recent, specialized societies that have captured some of the former members? It may be that WSN itself encouraged this trend. In his foreword to the proceedings of the 1929 meeting[10], Secretary C.V. Taylor noted that most members resided along the Pacific seaboard where opportunities to work in marine biology had increased with the full time operation of several marine stations, and that "in recognition of this growing interest, the Western Society of Naturalists has instituted mid-winter meetings which have been devoted largely to work accomplished and in progress on the biology of the sea."

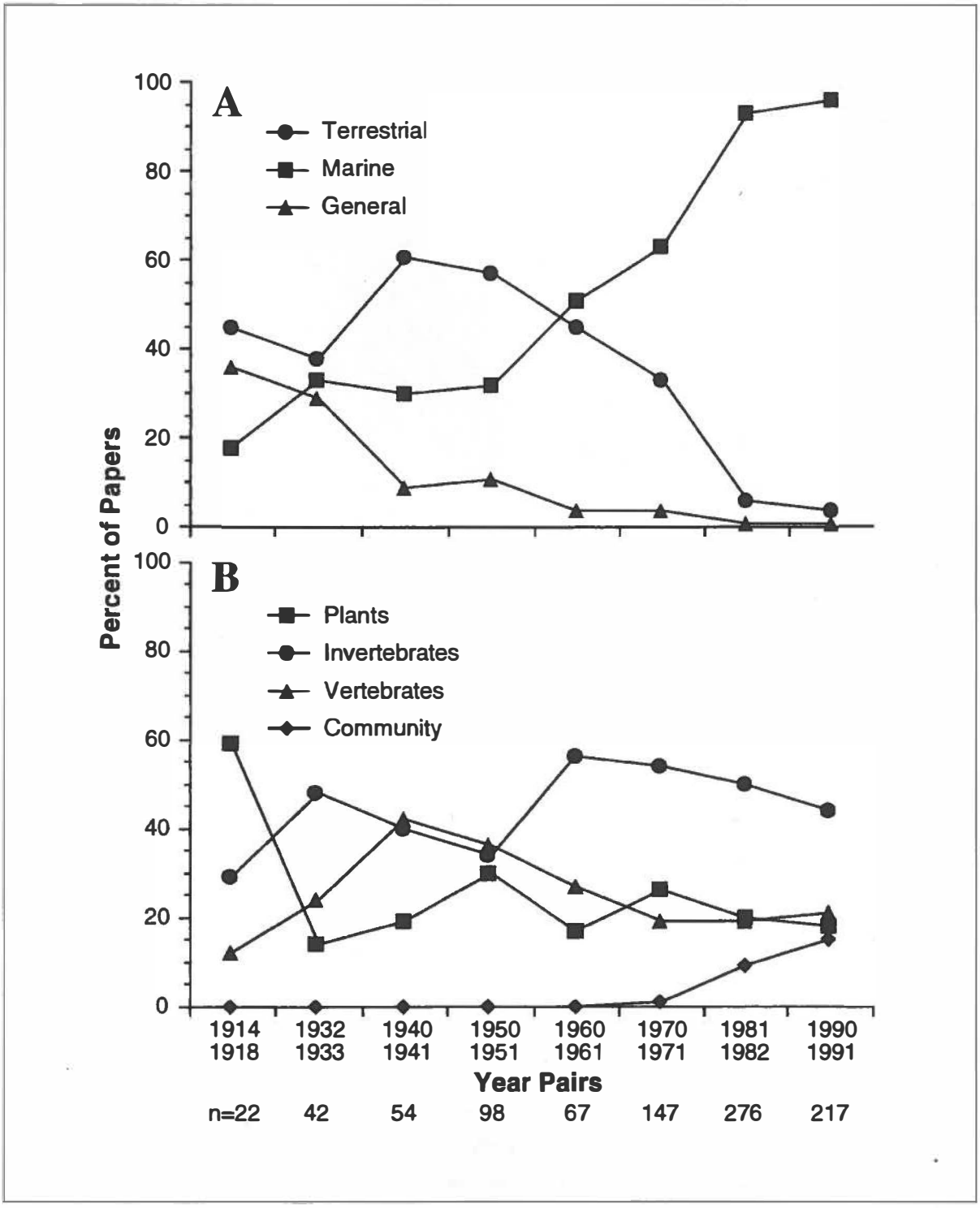


Figure 4. Trends in Contributed Paper topics presented at annual meetings of the Western Society of Naturalists. **A.** Percent of contributed papers by habitat. Terrestrial: includes freshwater; General: includes subjects such as general genetics, evolution, etc. **B.** Percent of contributed papers by organism studied. Plants: includes fungi (plants were mostly marine plants in later years); Community: includes multiphylum studies and assemblages.

Table 2. Fields of Study of Contributed Papers presented at annual meetings of the Western Society of Naturalists. Data compiled from year pairs from WSN programs.

Subject Matter	Number of Papers Presented by Year Pairs							
	1914 1915	1932 1933	1940 1941	1950 1951	1960 1961	1970 1971	1981 1982	1990 1991
Physiology	3	19	16	35	21	33	45	15
Genetics	1	0	1	3	3	2	3	11
Taxonomy	1	0	2	18	7	14	11	11
Evolution	1	1	1	4	1	2	2	5
Reproduction	2	6	5	8	4	9	21	17
Development	7	8	17	11	11	26	25	16
Ecology	2	4	9	13	11	33	120	89
Fisheries	0	0	0	2	0	3	6	7
Pollution	0	0	0	1	0	7	4	11
Management	3	1	1	0	0	0	2	3
Techniques	1	2	1	0	2	5	1	8
Behavior	0	0	0	1	4	10	32	20
Oceanography	0	0	0	0	0	0	3	4
TOTALS:	21	41	53	96	64	144	275	217

Physiology: includes physiology, disease, cell biology, biochemistry, and effects of parasites; Genetics: includes molecular biology; Taxonomy: includes taxonomy and floristic and faunistic studies; Reproduction: includes reproduction and life history studies; Development: includes development, growth, and morphological studies; Ecology: includes ecology, natural history, distribution, and recruitment studies; Fisheries: includes fisheries, aquaculture, agriculture, and restoration studies; Management: includes management and policy; Techniques: includes techniques and education.

Conclusion

No doubt the true and most important history of WSN occurs every year but is not recorded - the ideas stimulated and tested, collaborations formed, careers launched, and friendships made and revisited as a result of papers presented and the informal social interactions that follow. The history lives from the discussions of the Founders over dinner at the Hotel Shattuck in 1911, in the continuation of Montgomery's Attitude Adjustment Hours, and at the coffee breaks at the 77th (or was it the 78th?) Annual Meeting in La Paz. Hopefully the Western Society of Naturalists will continue its long tradition of stimulating interest in and understanding of nature, and adjusting attitudes.

Figure 5. Past Presidents join retiring Western Society of Naturalists Secretary Dave Montgomery at the 1990 Annual Meeting in Monterey. Back row (left to right): Michael S. Foster, Steven N. Murray, Megan Dethier, F.G. Hochberg, John Tomlinson (obscured), Ralph I. Smith, John S. Pearse. Front row (left to right): Leonard Muscatine, Joel W. Hedgpeth, Gerry Montgomery, David H. Montgomery, Lana Cheng, James W. Nybakken. Photograph courtesy of James W. Nybakken.

Acknowledgements

We especially thank Mia J. Tegner for providing biographies of Erik G. Moberg and Denis L. Fox, and F.G. Hochberg for helping with research in the WSN Archives and with publication. Useful information and photos also were provided by G. Lindsay, Hopkins Marine Station, and by staff of the archives of Scripps Institution of Oceanography, Stanford University, and the University of California at Berkeley. Isabella A. Abbott, F.G. Hochberg, James W. Nybakken, John S. Pearse, and Mia J. Tegner provided useful comments on the draft manuscript. Marie Murphy assisted with design, layout, and final production.

Notes

1. Most of the text information was obtained from the official archives of the Western Society of Naturalists (WSN). These records are maintained by F.G. Hochberg in the Department of Invertebrate Zoology at the Santa Barbara Museum of Natural History. A brief summary of the early history of the Society was written by Francis B. Sumner [1945. The Western Society of Naturalists. *AAAS Bulletin* 4(2): 71-72]. Yost Amrein was the first to assemble a more comprehensive history, and this was the topic of his presidential address at the 50th Annual Meeting in 1969. Amrein prepared a written copy for the WSN archives in 1986. Letters in the archives, solicited from long-time members by Amrein and Arthur C. Giese, were particularly useful.

2. The 1911 *New Science* article (Fig. 2) refers to the original Society as "The Biological Society of the Pacific Coast," and a 1911 post card from Secretary Harry B. Torrey to David S. Jordan used this name. However, in an undated copy of the By-Laws of this Society, and in the resolution of the 1916 meeting changing the name to WSN, the original Society was called "The Biological Society of the Pacific."

3. From an undated copy of the By-Laws of the Biological Society of the Pacific.

4. From an undated letter to members of the Biological Society of the Pacific from the newly elected officers of the Pacific Coast Branch of American Society of Naturalists. This letter informed members that the American Society of Naturalists had rejected the formation of a Pacific Coast Branch, and suggested Biological Society of the Pacific should reform as WSN.

5. From the early 1970s until 1993, information about the Society mailed to prospective members incorrectly stated that WSN was founded in 1911 at Scripps Institution of Oceanography. The same error also occurred in the Forewords to the published proceedings of International Symposia (Appendix E).

6. Storer, T.I. 1959. Some Pacific Coast zoological history. *Bios* 30: 131-147. This paper was Tracy Storer's Presidential Address at the 1958 WSN Annual Meeting in Seattle.

7. WSN opposed: a sea otter hunt proposed to protect abalone; use of 'tote goat' vehicles in Los Padres National Forest in California; the Ladera Dam behind Stanford University that would have flooded the Jasper Ridge Experimental Area; and the siting of nuclear power plants at Bodega Head and Nipomo Dunes in California. WSN supported: preservation of Tumonac Hill in Arizona; preservation of Mugu Lagoon and adjacent land in California; conservation of dunes and beaches south of Pismo Beach in California; protection of non-game species in California; and establishment of a National Tropical Botanical Garden in Hawaii.

8. Meeting records from 1920 - 1939 are very incomplete. Winter meetings may have begun earlier than 1928, although the 1935 meeting was called the "8th Annual Winter Meeting."

9. John S. Pearse currently is WSN's representative to the American Association for the Advancement of Science.

10. Anonymous. 1930. *Contributions to Marine Biology: Lectures and Symposia Given at the Hopkins Marine Station, December 20-21, 1929, at the Midwinter Meeting of the Western Society of Naturalists*. Stanford University Press, Stanford. 277 pp.

11. VanBlaricom, G.G and Estes, J.A. (eds.). 1988. *The Community Ecology of Sea Otters.* Springer-Verlag, Berlin. 247 pp.

Milestones in the History of the Western Society of Naturalists

1916 Founding meeting at San Diego High School, San Diego. Dues $0.50. William E. Ritter (Fig.1), Scientific Director, Scripps Institution of Oceanography, presented a paper on *Biology's Contribution to a System of Morals Adequate for Modern Civilization.*

1917 Meeting held at Stanford University with a symposium on *The Present Day Bases for the Evolution Theory.*

1918 Diverse program including papers on *Opportunities in Ecology* (D.T. MacDougal), *Wild Animal Life in California Illustrated by Moving Pictures* (H.C. Bryant), and *The Age of a Kelp* (T.C. Frye). Annual dinner held at the Carlton Hotel, Berkeley.

1919 Southern California Biology Club affiliates with WSN as the Southern California Section of WSN (apparently this Section rarely met separately after affiliation). Year started with $111.43 in the treasury, with an additional $23.50 collected in dues.

1926 Meeting held at Mills College, Oakland, with a symposium entitled *Value of Biology to Civilization.*

1930 Erik G. Moberg (Appendix A) begins his ten-year tenure as Secretary-Treasurer, second only in length to David H. Montgomery.

1931 Particularily significant among the summer meetings with the Pacific Division ofAmerican Association for the Advancement of Science, this meeting was held in Pasadena at the California Institute of Technology and the Huntington Library. Over 1000 scientists attended an evening session in the Greek Theater in Griffith Park.

1932 Exhibit by Charles A. Kofoid on *Scientific Motion Picture Films.*

1933 Secretary Erik G. Moberg noted that the past custom was to meet the week preceding Christmas, but some members want to meet the week after so this will be tried in 1933.

1934 Symposium on *The Protozoan Life Cycle* with talks by C.V. Taylor, Charles A. Kofoid, and Arthur C. Giese.

1936 At a summer meeting (presumably with the American Association for the Advancement of Science), WSN joined with the American Horticultural Society and the American Plant Pathologists in a symposium on *Physiological Genetics of Higher Plants.*

1939 Treasury began the year with $552.35, and ended with $403.46.

1940 Letter from C.V. Taylor to Secretary-Treasurer Denis L. Fox (Appendix A) suggested the Society should provide funds for secretarial assistance. Fox noted in another letter that oceanography is receiving increased emphasis at Scripps Institution of Oceanography, and that the presence of Scripps oceanographers at a WSN meeting "might contribute a salutary effect of balance and an appreciation of marine biological sciences." Symposium organized by George E. MacGinitie on *Teaching Biology.*

Appendix A.
Bibliographies of Selected Officers of the Western Society of Naturalists

Harry Beal Torrey (1873-1970)

Torrey (Fig. 1), one of the founders of what was to become WSN, was 38 at the time of the first meeting of the Biological Society of the Pacific in 1911. Although Torrey was primarily an invertebrate zoologist, his career spanned experimental biology, physiology, and medicine.

Born in 1873 in Boston, Torrey attended the University of California at Berkeley in its early years. He received his B.S. degree in Natural Science in 1895 (the second year Berkeley awarded the degree) and his M.S. in 1898. His first paper, on monogenesis in the sea anemone *Metridium*, was published in 1898. He left the West Coast in 1900 to pursue graduate studies at Columbia University where he met and married Grace Crabbe and had a daughter, Elizabeth. After he received his Ph.D. in Zoology in 1903, he returned to Berkeley as an Assistant and then Associate Professor until 1912. During this time Torrey traveled extensively and frequently visited the Marine Biological Association of San Diego (now Scripps Institution of Oceanography) where he acted as Librarian in 1910.

Throughout these early years Torrey was interested primarily in anemones, hydroids, and ctenophores. He collected extensively and wrote papers on taxonomy and morphology because, according to Torrey, "in those days biology was primarily a museum science." His monograph on the *Hydroids of the Pacific Coast of North America* was the first paper of the University of California Publications in Zoology. In each of the first 3 volumes of that journal he contributed 2-3 articles. In 1906, at the invitation of David Starr Jordan, Torrey took part in the U.S. Fish Commission cruise of the *Albatross* to the Aleutians, Kamchatka, and Japan, bringing back many important zoological specimens. In 1911, he helped Charles A. Kofoid draft recommendations for a biological survey of San Francisco Bay. The survey was initiated in 1912 but never completed.

In 1912 Torrey was offered a position as the first Professor of Biology at the new, experimental Reed College in Portland, Oregon. Torrey helped write the first Reed College constitution, in which faculty were encouraged to take part in drafting the annual budgets. At Reed, Torrey organized a curriculum based on research and experimentation. He felt that it was more important for students "to develop an inquiring mind than an encyclopedic one." During this period, his publications were primarily on behavior in a variety of animals, including a 1916 paper on masturbation in humans.

Torrey's organizational skills were so well-regarded that in 1920 he was invited to help organize a new curriculum at the University of Oregon's medical school. At this institution he was appointed Professor in three Departments: Zoology, Experimental Biology, and Education in Medical Sciences. He was instrumental in establishing a 3-year college prerequisite for medical school entry and an active advisory system for undergraduates. His research interests turned to physiology, particularly the function of thyroxin.

In 1927, at age 54, feeling the need for additional training and perhaps for a challenge, Torrey attended Cornell University and received his M.D. degree in one year. He returned to the West Coast

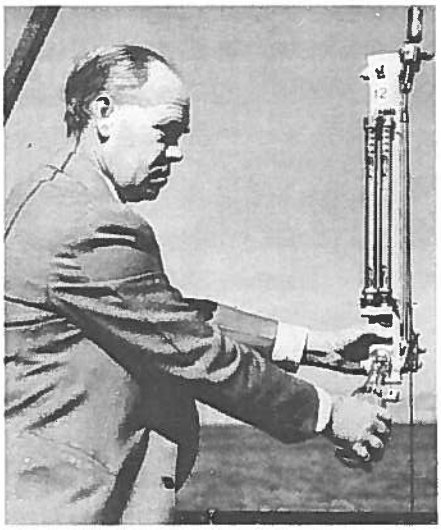
and became the Director of Student Health Services at Stanford University and, in addition, held joint professorial appointments with the Department of Hygiene and Physical Education and the Department of Biology. He retired from Stanford in 1938 at age 65. Still active, he became the Director of the Children's Hospital of the East Bay in Oakland from 1938-1942, and then practiced medicine for many years in the Oakland area. In a 1942 letter to Denis L. Fox, Torrey said of his change to private practice, "I have abandoned my administrative duties at the Children's Hospital of the East Bay to devote myself henceforth to the life of the spirit and the medical problems of frail humanity." He died in 1970 at age 97.

Torrey's career touched on many areas. He was well liked everywhere and was voted President of WSN and its precursor Biological Society of the Pacific three times (1915, 1923, and 1936). He was the first Secretary of the Biological Society of the Pacific and apparently served in that post from 1911 until 1914. He also frequently presented papers at WSN meetings. Most of all, he, along with many of the early members of WSN, laid the foundation for future marine biological studies on the West Coast.

Sources: Special Collections in the archives of the University of California at Berkeley, University of Oregon, and Reed College. • Anonymous. 1938. Vast changes in biological science seen by Torrey during his career. *Stanford's Retiring Faculty Men* [Newspaper article, no page number or title]. • Anonymous. 1960. Torrey, Harry Beal. Pp. 4120 in: *American Men of Science*, 10th ed. Jaques Cattell Press, Tempe.

Erik Gustaf Moberg (1891-1963)

Moberg was born in Grolanda, Sweden in 1891, and emigrated to the United States in his teens. He received his B.S. at the University of North Dakota in 1916 where he became interested in lake plankton. After two years in the army, he headed west. While a graduate student at Berkeley in 1920, he wrote to William E. Ritter about coming to Scripps Institution of Oceanography to study marine plankton. Ritter helped subsidize Moberg's studies by paying him $0.60 per hour for 2 hours a day. Moberg received his Ph.D. in 1925 for *Chemical Studies of Marine Plankton and its Environment in the San Diego Region*. He was hired as an Associate in Chemical Oceanography at Scripps during 1924-1925, as an Instructor from 1925-1928, and as an Assistant Professor in 1928. He left Scripps in 1945.



When Moberg arrived at Scripps, there was no chemical laboratory. In order to tackle questions of why some parts of the ocean were barren and others quite fertile, he literally built a laboratory with his own hands. Director T. Wayland Vaughan described Moberg as "careful, thorough, and reliable" and credited him with having placed Scripps among the leaders in research on the chemistry of seawater. Moberg published on the chemical composition of marine phytoplankton, hydrogen ion concentrations, nutrient content of sea water, interrelations between diatoms, chemical environments, and upwelling, and the distribution of oxygen in the Pacific Ocean. Some of the most important work published at Scripps in this era was the work of Moberg and collaborators on the buffering mechanism of seawater and the solubility of calcium carbonate. He was

a seagoing oceanographer during a period when Scripps had no ship. Moberg was in charge of chemistry on the 1928-1929 Carnegie Expedition, led a 1936 cruise on the California Department of Fish and Game ship *Bluefin* as part of a large effort to trace currents with drift bottles, and was a member of the first major Scripps expedition to the Gulf of California in 1939 on the R/V *E.W. Scripps*.

Moberg had extensive administrative responsibilities. His experience at sea led to his being placed in charge of ship operations at Scripps. He was heavily involved in the conversion of the *E.W. Scripps* into a research vessel. The conversion and subsequent upkeep of the *E.W. Scripps* was no small challenge during the tight budgets of the Great Depression. His importance to seagoing operations at Scripps was clear: with Moberg as skipper, the *E.W. Scripps* made weekly offshore collecting trips each summer. However, in 1930 only five trips were accomplished. Director Vaughan explained, "that Dr. Moberg was absent for part of the summer and then we had only a few men on the staff of the Institution who were trained and available for work at sea." Moberg served as Acting Director of Scripps for 14 months beginning in 1932 while Vaughan took a leave of absence to prepare a National Academy of Sciences report on international oceanography. Shortly after his return, Vaughan fell ill with tuberculosis and Moberg again took over administrative duties. By the late 1930s the chemistry group had been reduced to a largely service function. During those years his laboratory group did nitrogen analyses for Prof. Roger Revelle, maintained and calibrated the reversing thermometers, and ran chlorinity tests.

In addition to a distinguished scientific career, Moberg served as Secretary-Treasurer of WSN from 1930-1939, and was instrumental in organizing many meetings during this period. However, his WSN records, presumably including information from the early years of the Society, were lost when he left Scripps. Correspondence between Denis L. Fox and Charles H. Danforth in 1943 indicates Moberg also owed WSN $30.00 from his period as Secretary-Treasurer, and the Society had been unable to collect. In light of Moberg's long service to WSN, Secretary-Treasurer H.W. Graham resolved the problem in 1945 by giving Moberg $30 credit on his WSN account, noting that he had never been reimbursed for expenses while serving the Society.

Moberg unfortunately suffered from alcoholism, perhaps exacerbated by administrative pressures. A committee evaluating his status as Assistant Professor in 1940 wrote, "Your overindulgence in spirituous liquors was seriously interfering with your work and usefulness to the university." His contract was not renewed in 1945, and there are few details of his life after this time.

Sources: Scripps Institution of Oceanography Archives. • Raitt, H. & B. Moulton. 1967. *Scripps Institution of Oceanography, First Fifty Years*. The Ward Ritchie Press, Los Angeles, 217 pp. • Shor, E.N. 1978. *Scripps Institution of Oceanography: Probing the Oceans 1936-1976*. Tofua Press, San Diego, 502 pp.

Photograph: Reproduced courtesy of Scripps Institution of Oceanography Archives.

Denis Llewwllyn Fox (1901-1983)

Fox was born near Rye, England in 1901, and immigrated in 1905 with his parents to a farm near Napa, California where he grew up. He studied chemistry at the University of California at Berkeley, then worked as a research chemist for Standard Oil Company of California in Richmond for four years before earning his Ph.D. in Biochemistry at Stanford University. He was hired as an Instructor at

Scripps Institution of Oceanography in 1931, and was the first full-time physiologist on the staff. Fox advanced to Professor in 1948, and became Professor Emeritus in 1969. He remained active in research until shortly before his death from cancer in 1983. Fox enjoyed the longest tenure of any faculty member at Scripps - 52 years. Perhaps even more incredible, throughout his entire career, with the exception of a few weeks after his arrival, he occupied the same suite of offices on the second floor of Ritter Hall.

Like many of the staff, students, and visitors during the Depression of the 1930s, Fox lived in one of the 24 one-story frame cottages on campus. "The tight colony," he recalled long afterward, "like most such communities, received the pulse of any personal news items with the rapidity of an electric current crossing a wire network, and the gossip could be extensive at times. It was not easy to keep clear of the busy, sometimes inventive 'grapevine' in those early days."

Fox's primary interest was the biochemistry of marine organisms, a discipline he virtually invented. Shortly after his arrival at the Scripps Institution of Oceanography he became interested in comparative biochemistry of carotenoids. Interdisciplinary work and cooperation were common at Scripps during the 1930s. In 1936, for example, he gathered mussels from Scripps pier for studies of their feeding habits and the carotenoids that turned them orange, he worked with colleague Francis Sumner on the pigments of fishes, and he analyzed pigments in mud cores obtained by Francis P. Shepard and Roger Revelle in the Gulf of California.

During World War II he consulted for industries on fouling organisms on ships and seaplanes, and found a means to preclude fouling on aluminum panels by applying an organic detergent dissolved in petrolatum. He also worked with the Department of Agriculture to develop vitamin-rich vegetables for the armed forces.

Moving on to a broad consideration of color in all kinds of organisms, Fox identified the types of compounds responsible for color and the pathways by which pigments are acquired and structurally modified. In 1940, he and colleagues described the first known examples of chemical binding of brightly colored carotenoids in the calcareous skeletons of a gorgonian octocoral and two hydrocorals. His proximity to La Jolla beaches led him and his students to a variety of natural history and ecological studies. He once estimated how long it would take for all of the La Jolla beach to be passed through the digestive tracts of worms. Towards the end of his career he examined the interactions between carbon dioxide and proteins and the role of these interactions in the regulation of physical processes.

Fox's work with pigments led to a long and fruitful association with the San Diego Zoo. He advised on animal nutrition, and solved the problem of fading flamingos by adding bits of spiny lobster carapace to their diets. He and his students later found that beta carotene from carrots was even more effective. He was a member of the Research Committee of the Zoological Society from 1940-1979, and many of his happiest hours were spent wandering the grounds of the zoo and the Wild Animal Park,

pointing out interesting features of the flora and fauna to those lucky enough to share his walks.

During his career, Fox published about 150 journal articles and authored two books, *Animal Biochromes and Structural Colors* (1953, revised 1976) and *Biochromy - Natural Coloration of Living Things* (1979). His many honors included being elected as a Fellow of the American Association for the Advancement of Science (1933), and a Fellow of the Institute of Biology (London, 1977). He also was awarded fellowships from the Rockefeller and Guggenheim Foundations. He served as major professor for about a dozen Ph.D. students. As Marshall, Fox led academic processions at the University of California at San Diego for about ten years, a position he filled with poise and dignity.

Fox served as Secretary-Treasurer of WSN from 1940-1942 and President in 1948. Along with Ira L. Wiggins and H.W. Graham, he kept the Society alive during the difficult years of WW II. Extensive correspondence and other materials in the archives suggest Fox was deeply involved in all aspects of the Society. In a 1968 letter to Mrs. Tyler about the death of her husband Albert (WSN President in 1956), Fox wrote, "As time passes the tides of grief recede, if only by their sheer weight, giving way to an abiding sense of gratitude and pleasure over having shared the life of a noble, affectionate man."

Sources: Scripps Institution of Oceanography Archives. • Anonymous. 1965. Fox, Denis Llewellyn. Pp. 1622 in: *American Men of Science*, 11th ed. R.R. Bowker, New York. • Raitt, H. & B. Moulton. 1967. *Scripps Institution of Oceanography, First Fifty Years*. The Ward Ritchie Press, Los Angeles, 217 pp. • Shor, E.N. 1978. *Scripps Institution of Oceanography: Probing the Oceans 1936-1976*. Tofua Press, San Diego, 502 pp.

Photograph: Reproduced courtesy of Scripps Institution of Oceanography Archives.

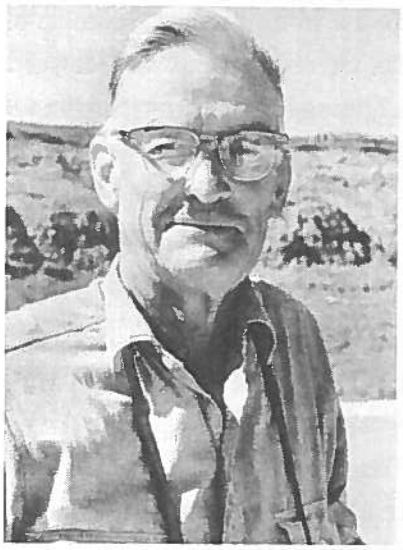
Ira Loren Wiggins (1899-1987)

Active in WSN during the war years (Vice President 1941-43, Secretary-Treasurer 1943, President 1945), Wiggins was one of America's most productive botanists and a naturalist of great distinction. In addition to writing numerous articles on vascular plants and birds, Wiggins authored the definitive works on the floras of San Diego County (his dissertation), the Alaskan Arctic Slope, the Sonoran Desert, the Galapagos Islands, and Baja California.

Wiggins was born in Madison, Wisconsin in 1899, and moved with his family to a farm on the Merced River in California in 1909. As a young man he loved hiking, fishing, and cars. His early plans were to become a Presbyterian missionary. He received an A.B. in Philosophy in 1922 and a Teaching Certificate in 1923 from Occidental College. Ira married his childhood sweetheart, Dorothy Bruce, in 1923, forcing a change in career plans as Presbyterian missionaries were not allowed to be married. He decided to become a botanist instead and enrolled at Stanford University. He received his M.A. in 1925 and Ph.D. in 1930 under LeRoy Abrams. Wiggins finished his doctorate while supporting his wife and two children with a teaching position at Occidental College. Stanford offered him a faculty position in 1929, and he remained there until retirement in 1964.

Wiggins is especially well known for his pioneering botanical exploration in Mexico, and Baja California in particular. He had a passion for discovering new plants and was fascinated by deserts. In 1929, with his good friend John Gillespie, Wiggins purchased a beat-up Model T Ford pickup and

made his first collecting trip to Baja California. They brought all their own supplies and camped out, enduring oppressive heat, swarms of gnats, rattlesnakes, coyotes, and water shortages. After extensive driving on nearly impassable roads, and relining the brakes and transmission bands several times, they returned home with 3,000 pressed herbarium specimens. Baja California was a treasure trove of new species and Wiggins returned several times. During one trip in a new Model A Ford station wagon bought for him by the nephews of W.R. Dudley, Stanford's first botany professor, Mexican customs officials impounded the car claiming the papers were inadequate. To avoid losing his vehicle, Wiggins slept in the car at the customs house for 19 days until the American Embassy corrected the problem.



During his tenure on the faculty of Stanford University, Wiggins held numerous positions, and while actively expanding his collections he continued to publish. He was Curator of the Dudley Herbarium from 1929-1940 and was appointed first Director of the Natural History Museum in 1961. In the 1940s he collected in the high mountains of Ecuador searching for the cinchona tree, a source of quinine to treat malaria, and began his collaborative study of the flora of the Sonoran Desert (Vol. I completed in 1951). The search for cinchona required him to resign as WSN Secretary-Treasurer in 1944. In the 1950s he became the Scientific Director of the Arctic Research Lab in Point Barrow, Alaska, President of the California Academy of Sciences, and the first Fellow's Medalist. In the 1960s he acted as Director of the Belvedere Science Fund which, together with the National Science Foundation, sponsored the formation of the Charles Darwin Research Laboratory in the Galapagos Islands.

With approaching retirement, Wiggins concentrated on finishing his floras (Arctic Slope, 1962; Sonoran Desert Vol. II, 1964). His floras of the Galapagos Islands and Baja California were completed following retirement in 1971 and 1980, respectively. He continued research and teaching (Occidental College, University of Florida, and California State University at Fullerton) well after retirement until this became physically impossible. He is quoted as wistfully saying near his death, "I have spent nearly 70 years seeking out and identifying thousands of plants. Yet, there are still so many there yet to be discovered."

Sources: Special Collections in the Archives of Stanford University. • Anonymous. 1931. Botanist returning to Stanford after enforced sojourn in Mexico. *Palo Alto Times* [June 2]. • Anonymous. 1965. Wiggins, Prof. Ira Loren. Pp. 5846 in: *American Men of Science*, 11th ed. R.R. Bowker, New York. • Lindsay, G. 1979. Ira Loren Wiggins, naturalist. *Pacific Discovery* 31-33: 1-9. • Anonymous. 1979. Prof. Wiggins starts 81st year with new book on Baja flora. *Stanford Daily* [November 7]. • Anonymous. 1980. Wiggins has a new book on Baja botany. *Stanford University Campus Reports* [July 9]. • Anonymous. 1985. How a girlfriend's remark led Ira Wiggins to botany. *Stanford University Campus Reports* [April 3]. • Anonymous. 1987. Ira Wiggins, obituary. *Stanford University Campus Reports* [December 9]. • Anonymous. 1987. Botanist Ira Loren Wiggins dies at 88 (actually 87). *Stanford News* [December 4].

Photograph: Reproduced courtesy of the California Academy of Sciences.

Isabella Aiona Abbott (1919-)

Abbott was Secretary of WSN from 1961-1964, Vice-President in 1976, and President in 1977. "Although our membership was substantial, the meetings were relatively small during the 1960s and there were no concurrent sessions. It was wonderful because everyone tried to be a true naturalist: botanists went to zoology sessions and zoologists went to botany sessions."

Of Native Hawaiian and Chinese parents, Izzie was born in Hana, Maui, Hawaii, in 1919. While still quite young, her family moved to Honolulu. As the only girl in a family of six children, she loved to accompany her mother along the beach to gather seaweeds for use in their native Hawaiian dishes. Attending Kamehameha, a school for children of native blood, her interest in the uses of seaweeds and plants grew. She enrolled in Botany at the University of Hawaii. During her first course in the subject, she sat next to a young man whom she said she admired because he was a better botanist than she. Donald Abbott and Izzie became fast friends and spent much of their time together during these undergraduate years.

The war was on and after graduating in 1941, Don enlisted in the Army and Izzie went to the University of Michigan to study for an M.S. degree with W.R. Taylor. In 1943, Izzie and Don were married. They were both able to obtain lecturing positions for a short time at the University of Hawaii, Don in Invertebrate Zoology and Izzie in Algology. Both were admitted to the University of California at Berkeley in 1946, and completed their Ph.D. degrees in 1950. When Don was offered an instructorship at Hopkins Marine Station, they jumped at the opportunity. As Don worked his way through the ranks from Assistant to Associate to Full Professor, and later to Acting Director of the Station, Izzie worked as a Research Associate and taught with George J. Hollenberg for 15 summers. After Hollenberg retired, she continued to teach her popular courses on marine algae every year, and was joined by a wide variety of well-known phycologists. In 1971, she was promoted to Full Professor.

Abbott was and is one of the northeast Pacific's most prominent marine algal taxonomists. The author of numerous publications on Pacific seaweeds, in 1970 she was awarded the Darbaker Prize for her research contributions by the Botanical Society of America. While still a Research Associate she worked with Hollenberg on the *Supplement to Smith's Marine Algae of the Monterey Peninsula*. Subsequently, E. Yale Dawson asked her to collaborate on a new book, *Marine Algae of California.* Abbott agreed and invited Hollenberg to join in the effort as well. When Dawson tragically drowned in 1966, she completed the task with Hollenberg. The widely used *Marine Algae of California* won the two authors a New York Botanical Garden Award in 1978. Her more recent accomplishments include organizing and editing a 6-volume series on the *Taxonomy of Economic Seaweeds* and completing the red algal section of the *Marine Algae of the Hawaiian Islands*.

Abbott was the first woman involved in the Japan-U.S. Cooperative Science Program. She initially made several trips to Japan to visit laboratories and then organized a seminar in 1971 on the

Systematics of Benthic Marine Algae of the North Pacific. In the picture of the conference she stands out as the only woman present. When asked about this, she said she did sense a handicap while she was there: not knowing Japanese! So, she took Japanese language courses at Monterey Peninsula College and, upon returning to Japan, felt much more comfortable answering questions.

Abbott's interest in cooperative programs continued. After doing a field study on phycocolloid-containing plants in central California for the California Sea Grant Program, she was asked to conduct a symposium on useful seaweeds. This led to convening six Sea Grant-sponsored workshops on the taxonomy of economically important seaweeds in tropical waters, beginning in 1985. The results of each have been published by Sea Grant with Abbott as scientific editor.

Temperate marine algae and invertebrates are usually reproductive in Spring and Summer. This allowed Abbott to accept a teaching position at the University of Hawaii in Fall semesters to teach Ethnobotany. Beginning in 1977, she spent about four months in Honolulu and eight in Pacific Grove. In 1981 the Abbotts decided to take early retirement from Stanford and move to Hawaii. There, Izzie continued to teach Ethnobotany, but also had time for many wonderful trips around the Pacific with her husband. She remembers their trips fondly: "He learned more about algae than I ever did about invertebrates, and he collected wonderful algae for me." In 1985, she was appointed to the Wilder Chair, an endowed professorship at the University of Hawaii, and began to focus on her beloved tropical red algae.

Following Don Abbott's death in 1986, Izzie devoted her attention to writing a best-selling ethnobotany book, *La'au Hawai'i: Traditional Hawaiian Uses of Plants* (1992, Bishop Museum Press, Honolulu). Since 1993 she has worked primarily on the marine algal flora of the Hawaiian Islands. Although retired from the University of Hawaii in 1997, she continues to pursue her interests in the Hawaiian flora and in the support of marine biology in the Pacific.

Sources: Special Collections in the Archives of Stanford University. • Anonymous. 1974. Meet Isabella Abbott — first woman professsor at Hopkins Marine Station. *Stanford University Campus Report* [July 10]. • Anonymous. 1986. Abbott, Isabella Aiona. Pp. 3 in: *American Men (and Women) of Science*, 16th ed. R.R. Bowker, New Providence. • Abbott, I.A. 1996. Interview with G.I. Hansen.

Photograph: Reproduced courtesy of Hopkins Marine Station.

Yost Ursus Lucius Amrein (1918-)

Amrein was Secretary of WSN from 1959-1960 and President in 1969. For many years he served as the unofficial Historian of the Society, and his research filled many gaps in the archives. His informal history of the organization, written in 1986, provoked our interest in writing this expanded version. Amrein currently is an Emeritus Professor at Pomona College.

Amrein was born in Arosa, Switzerland, in 1918. Arosa, now mainly a ski resort, was well-known at the beginning of the 20th century for its tuberculosis sanatoria. Amrein's father worked in Arosa as a physician and medical superintendent. Young Amrein went to boarding school in St. Gallen and was particularly fond of biology. Upon completion of his Matura (high school degree), he traveled to Northern Rhodesia (now Zambia), to work as a ranch manager. While there, a cousin in Oxnard, California,

suggested he come to America to try ranching. World War II was about to begin in Europe, and since it was becoming dangerous to return to Switzerland, Amrein set off for California.

Always an adventurous type, he traveled the long way around, with visits to South Africa, Madagascar, Sumatra, the Great Barrier Reef, and New Zealand. In California, Amrein quickly found ranch work but soon realized that acquiring a ranch of his own would be expensive. He decided to return to school and enrolled in the zoology program at the University of California at Los Angeles.

By then, the war in Europe had started in earnest. Amrein tried to enlist in the U.S. Air Corps but initially was rejected because he was not a U.S. citizen. When the law was changed in 1941 to permit non-residents to be drafted, he received an early call to join the Air Corps. He was trained as a mechanic to service the P-38 Lockheed Lightning. Amrein was sent to the base at Goose Bay, Labrador, where there were already too many mechanics, so he ended up mostly on KP duty. Frustrated, Amrein asked the base surgeon for a medical assignment and was sent to work in the base dispensary as a medical technician. In the spring of 1943 he was transferred to the Air Transport Command in Assam, northeast India, for the "Hump Operations." His unit handled amebiasis and malaria control as well as medical air rescue and evacuation, and was later awarded a Presidential Citation. Amrein was assigned to the Army-Air Force Air Transport Command Headquarters in Calcutta the following year where his knowledge of tropical diseases continued to increase.

Amrein returned to UCLA in 1945, and completed his A.B. degree in 1947. Because of his background in tropical medicine, he decided to pursue graduate studies in parasitology. At UCLA he completed his M.A. in 1948 and his Ph.D. in 1951 working on trypanosomes and parasites of reptiles. His interest in invertebrate zoology, stimulated many years earlier during his trip to the Great Barrier Reef, reached a high point in 1950 when he took courses at Hopkins Marine Station taught by Ralph I. Smith and C.M. Yonge, with Donald P. Abbott and Cadet Hand as graduate assistants.

During his graduate school years at UCLA, Amrein met a fellow graduate student who was assisting his embryology professor as a reader. She was quite critical of one of his exams, so he met with her to discuss it. In 1948 Yost Amrein and Margaret Brown were married. Margaret, who was also a member of WSN, later worked as a research assistant at Pomona College and as a volunteer science teacher at local schools. They have one son, Lucius.

In 1951, when he was about to receive his PhD, Amrein began applying for academic positions. Several of his professors suggested that he contact Pomona College. In the fall of 1951 he took a sabbatical replacement position at Pomona, and was offered a permanent position in Zoology the following spring. As the fourth faculty member in the Department, he taught eleven different courses during his first two years, including Introductory Zoology (his favorite), Microbiology, Parasitology,

and the History of Biology. He received the R.J. Wig Award for distinguished teaching three times. Amrein quickly rose through the ranks from Instructor in 1951 to Full Professor and Chairman of the Zoology Department in 1959. From 1960 until his retirement in 1981, he held the Halstead Professorship of Zoology.

Amrein conducted research on trypanosomes. In 1957 he received a fellowship from the National Institute of Health to study the biochemical genetics of these parasitic protozoans at the National Institute of Medical Research in London. He was further honored by being named a Fellow of the Royal Society of Tropical Medicine and Hygiene. From 1964-1965, he held a second sabbatical fellowship at the Swiss Tropical Institute where he worked on the infectivity of African trypanosomes.

Amrein's interests have always been, and still are, quite broad. He is an accomplished linguist with fluency in five languages. He plays the violin, and has been a member of several chamber music groups. He loves to travel and in his many trips has visited numerous biological stations and tropical medicine facilities around the world. Amrein often served as naturalist for Pomona College alumni tours to exotic locations. Unfortnately, a heart attack and by-pass surgery in 1988 have restricted these activities.

As an Emeritus Professor, Amrein is still active. His research now deals mostly with history and travel. He was a devoted attendee of WSN meetings from 1951-1990, nearly 40 years, and has many fond memories of his early years with the Society. He thought it wonderful that even young graduate students could present papers, but was terrified to speak up at his first meeting. He soon realized that naturalists were friendly people.

Sources: Amrein, Y. 1996. Curriculum Vitae. • Anonymous. 1995-96. Amrein, Prof. Yost Ursus Lucius. Pp. 143 in: *American Men (and Women) of Science*. 19th ed. R.R. Bowker, New Providence. • Amrein, Y.U. 1996. Personal interview with G.I. Hansen.

Photograph: Reproduced courtesy of Yost Amrein.

David Horace Montgomery (1921-1993)

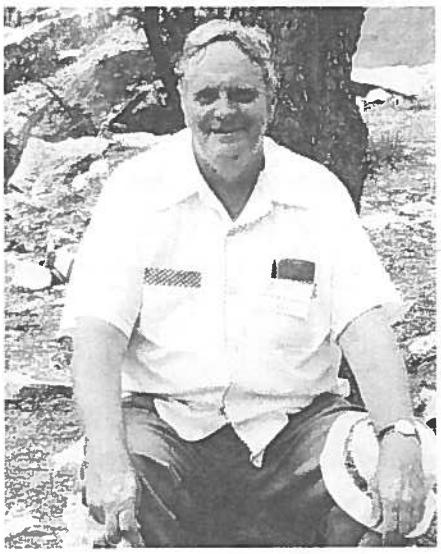
Montgomery was a man of high energy, high demands and expectations, and exceptional organizational skill. Professionally he was devoted to two things: undergraduate teaching and WSN. As Secretary of WSN from 1967-1990, he held the longest standing term in the history of the Society. During that time, he instigated the WSN international symposia on Pacific marine biology and through his hard work, WSN grew to an organization of international reputation with over 1000 members.

Born in Kearny, New Jersey, in 1921, Montgomery grew up mostly on the East Coast. While still a young boy, his family moved to the West Coast for a brief stay. However, the Long Beach earthquake knocked down their new home and sent the family scurrying back east. During World War II, he enlisted in the Navy and served aboard the Battleship *Texas*, witnessing the engagements at Okinawa and other areas from the "moderate safety of the storeroom" as the storeroom clerk.

After the war, Montgomery took a job with Sears and Roebuck and moved with his wife, May, to San Luis Obispo. Since clerking had given him a comfortable lifestyle during the war, he thought it

would serve him well after the war. However, it was not to last. One of his favorite customers at Sears was Glenn Noble, head of the Biology Department at California Polytechnic State University in San Luis Obispo. After a number of discussions with Noble, Montgomery was convinced to enter Cal Poly, and by 1954 he had completed a B.S. in Biology. His interests had turned to marine biology and he entered the College of the Pacific, receiving his M.A. in 1956. Upon graduation, he was offered a faculty position in Biology at Cal Poly which he gladly accepted, beginning a 34-year teaching career.

At Cal Poly Montgomery's teaching assignments were General Zoology, Invertebrate Zoology, and Invertebrate Embryology. Because of his dry sense of humor and lecturing style, students flocked to his courses. Gary Brusca recalls that on field trips "Dave wore dungarees, a plaid flannel shirt, and low-top tennis shoes (never waders). He would head for the water, talking constantly with unwavering excitement, and immerse himself chest deep in tidepools, using a hand lens to examine some thing or another." Brusca remembers one field trip where Montgomery and Fred Clogston showed up at the meeting site in a new Chevy station wagon, a demonstration model that Dave was considering buying.



"As they arrived on the scene, David somehow missed the brakes and the car plunged headfirst over the log barrier of the parking lot and into the water below. As it began sinking, the front doors jammed, and Montgomery and Clogston had to climb out of the rear window to safety. Apparently, with many still-panicked students standing by, Montgomery, dripping wet, walked over to the phone in the parking lot and called the car dealer. His only comment was: 'This is Dave Montgomery and your car doesn't float'."

In his courses, Montgomery was tough, demanding, and thorough. He constantly screened his classes for potential talent, and, when he found it, he coaxed, encouraged, and pressured the student until they were steered toward marine biology. At WSN meetings, he would then introduce his proteges around, hoping to facilitate their entry into graduate school. And he was frequently successful. Many of Montgomery's students, now working at West Coast universities, are grateful for his early influence on their careers.

Montgomery loved WSN. He loved the challenge of organizing the membership, and he thrived on the problems and frustrations that accompanied every meeting. He particularly enjoyed the social aspects of bustling among scientists and students, making introductions, and gathering whatever new gossip was around. At one such meeting a recent student of his, Geraldine Owen, assisted him with all of the paperwork, trauma, and excitement. Dave, recently divorced, realized his stroke of luck and invited Gerry, a widow who had raised five children, out to lunch. Their romance kindled, and after five years of dating they were married in 1982. Together Gerry and Dave won Cal Poly's Distinguished Alumni Award in 1987 for their role in promoting marine science through international meetings in the South Pacific.

Montgomery's interest in international meetings began in 1970 when he led a tour of the Hawaiian Islands prior to the WSN meeting in Honolulu. Encouraged by James Nybakken, he contacted the International Society for Reef Studies about organizing a WSN-sponsored symposium in conjunction with their 1973 meeting on the Great Barrier Reef. Montgomery gathered up an additional 135 participants for the meeting, held on board the cruise ship, *Marco Polo*. After that the idea of international symposia for WSN took off. The meetings always were well-attended, and the *Bulletin of Marine Science* published many of the resulting papers (Appendix E). The pace was so great that, out of necessity, he began holding a symposium only every other year in places like New Zealand, New Guinea, Australia, Guam, and Hong Kong. Gerry Montgomery remembers that in those days the airlines would fly them to the area a year in advance so accommodations and activities could be arranged. It was a fast and exciting life-style.

The era of international symposia ended when Montgomery finally stepped down as Secretary of WSN in 1990 after a 23-year term. His contribution to these symposia was honored when a Micronesian barnacle, *Euraphia montgomeryi*, was named after him by Brian Foster. Montgomery's deep commitment to WSN is well remembered by all who knew him. The Society was especially important to his family who, along with members of WSN, established the Montgomery Fund to assist students with travel to meetings.

Sources: Special Collections in the Archives of California Polytechnic University, San Luis Obispo. • Archives of the Western Society of Naturalists. • Anonymous. 1993. Montgomery, 72. *Cal Poly Report*, Pp. 3. • Foster, B.A. 1990. A new species of *Euraphia* (Cirripedia, Chthamalidae) from Micronesia. *Crustaceana* 58: 309-313. • Lewin, R.A. 1990. *Ave atque Vale* (a poem dedicated to D.H. Montgomery on the occasion of his retirement as WSN Secretary). • Brusca, G.J. 1996. Personal interview with G.I. Hansen. • Montgomery, G.O. 1996-97. Personal interview with G.I. Hansen. • Nybakken, J.W. 1997. Personal interview with M.S. Foster.

Photograph: Reproduced courtesy of Steven M. Murray.

Appendix B.
Constitution and By-Laws of the Western Society of Naturalists in 1916 and 1993.

The original By-Laws were approved by vote of members attending the 1916 Annual Meeting in San Diego when the Society officially changed from the Biological Society of the Pacific to the Western Society of Naturalists.

The 1993 Constitution and By-Laws, incorporating the most recent amendments by Steven M. Murray (Treasurer 1982-89, President 1992), was approved by members at the 1993 Annual Meeting with the American Society of Zoologists in Los Angeles.

1916: By-Laws of the Western Society of Naturalists

Article I. Name of Organization

Section 1. This organization shall be known as the Western Society of Naturalists

Article II. Objects

Section 1. The object of this society shall be the stimulation of general interest in the fields of biological science. The society shall be broad enough in scope and liberal enough in its organization to meet the needs of all naturalists.

Article III. Membership

Section 1. Any person interested in scientific work of a research nature shall be eligible to membership.

Section 2. The election of new members shall take place in the following manner:
- Nominations to membership in this Society shall be made in writing.
- Each nomination shall be signed by at least two members in good standing and such nomination shall be made to the Executive Committee which Committee alone shall have the power to elect.
- For purposes of election to membership a majority vote of the Executive Committee shall be necessary.

Article IV. Officers

Section 1. The officers of the Society shall be a President, a Vice-President, and a Secretary-Treasurer.

Section 2. The officers of the Society shall be elected only at the annual meeting of the Society.

Section 3. The term of office shall be one year for each office, or until a successor is chosen.

Section 4. A plurality of votes cast shall suffice for the election of any officer.

Section 5. The duties of the officers of the Society shall be those which usually pertain to such offices.

Article V. Executive Committee

Section 1. The Executive Committee shall be composed of the President, Vice-President, Secretary-Treasurer, and two other members elected by the Society.

Section 2. The Executive Committee shall have the power to elect members to the Society in accordance with Art. III, Sec. 2.

Section 3. The Executive Committee shall have the power to set the dates for the meetings of the Society, to arrange the programs for said meetings, and to transact such other business as may be referred to it by the Society, or as may seem necessary to carry out the purposes of the Society.

Section 4. The Executive Committee shall report its actions to the Society at each annual meeting or whenever called for by a vote of the Society.

Article VI. Quorum

Section 1. For the purpose of transacting the business of the Society ten members shall constitute a quorum.

Article VII. Expenses

Section 1. The expenses of the Society shall be met by the annual membership dues.

Section 2. The annual dues shall be fifty cents for each member of the Society.

Article VIII. Amendments

These by-laws may be amended at any regular meeting or special meeting called for the purpose by a vote of two thirds of all the members of the Society present.

1993: The Constitution and By-Laws of the Western Society of Naturalists

CONSTITUTION

Purpose

Article 1. The Western Society of Naturalists has as its objectives the stimulation of general interest in the fields of biological science, and the provision of opportunities for presentation and discussion of problems of common interest to biologists. It proposes to emphasize broad advances in knowledge of concern to all workers in the field of biology rather than the development of technical procedures. In this respect, the Society shall attempt to exercise an integrative function which cannot be performed by more specialized organizations.

Membership

Article 2. Any person interested in the purposes of the Society as defined in Article 1 shall be eligible for membership.

Article 3. Members shall be dropped from the roll when their dues are in arrears after two years or longer. Such members may rejoin on application to the Secretary and payment of dues.

Article 4. Members retiring for age become Emeritus members with exemption from dues. Emeritus members retain all rights of regular members including the voting privilege.

Officers

Article 5. The officers of the Society shall be President, President-Elect, Secretary, Treasurer, and a Member-at-Large. Offices may be shared. Officers shall be elected at the Annual Meeting on the basis of nominations submitted by a nominating committee appointed by the President with the exception of the Member-at-Large who shall be appointed by the Executive Committee and who shall be the Local Chairperson for the next annual meeting. Nominations may also be made from the floor. A plurality of votes shall suffice for the election of any officer.

Article 6. The terms of office of the President and President-Elect shall be one year. The Member-at-Large shall have a term of office of one year. The Secretary and Treasurer shall serve for two years, and their terms shall begin on alternate years. The President and President-Elect shall not serve successive terms in the same office.

Article 7. The President, Secretary, and Treasurer shall constitute the Board of Directors in a given calendar year, in relation to the corporate status of the Society.

The Executive Committee

Article 8. The Executive Committee shall consist of the President, the President-Elect, the Secretary, the Treasurer, and the Member-at-Large.

Article 9. The Executive Committee shall set the places and dates for meetings and transact such other business as may be referred to it by the Society or as may be necessary to carry out the purposes of the Society. The Executive Committee shall report its actions to the Society at each annual meeting, or whenever special circumstances make it advisable.

The Program Committee

Article 10. The Program Committee shall consist of the Secretary (who shall act as chairperson), the President, and the President-Elect. This Committee shall plan programs for meetings of the Society, issue proper advance notice of meetings, solicit papers, and accept or decline papers. The Secretary, as committee chairperson, is responsible for ensuring that these tasks are accomplished in a timely manner.

Meetings

Article 11. The regular Annual Meeting shall normally be held during the week after Christmas. The program shall normally include contributed papers of general interest to biologists as well as symposia in appropriate areas of biological research interest.

Article 12. A Business Meeting shall be part of the Annual Meeting, for the purpose of electing officers, modifying this Constitution and By-Laws, receiving the reports of officers, and transacting any business of the Society. Ten percent of the active membership (not counting

Emeritus Members) shall constitute a quorum or, in the event that fewer than ten percent of the membership are present, a two-thirds affirmative vote is required of those present.

Article 13. Meeting expenses for the following officers shall be paid by the Society: the President, Secretary, Treasurer, and Member-at-Large.

Dues and Expenses

Article 14. The dues of the Society shall be set at the annual business meeting and be payable in advance. Emeritus members are exempt from dues. Dues are for the calendar year, except that new members joining after September 1st are to be credited as having been paid for the ensuing calendar year.

Article 15. A summary of the assets and yearly income and expenses of the Society shall be formally reported to the Executive Committee and the membership at the annual meeting. The Treasurer's books shall be examined each year by the President-Elect or his/her designee and one additional member of the Society who is appointed by the President-Elect.

Amendment of the Constitution

Article 16. This Constitution may be amended at any regular meeting by a vote of two-thirds of the members of the Society present or by two-thirds of the ballots received from members if balloting is done by mail. Proposed amendments endorsed by five members in good standing, or by the Executive Committee, must be circulated to the membership of the Society at least thirty days in advance of the meeting at which they are to be considered.

Dissolution of the Society

Article 17. If at any time the membership of the Society decides that the Society should be dissolved, such decision should be based upon a two-thirds majority of all active membership then existing by secret ballot. Any assets remaining after the paying of any just claims against the Society are to be turned over to some other non-profit organization having objectives comparable to those of the Western Society of Naturalists, and organized solely for educational and scientific purposes as defined by the Internal Revenue Service.

BY-LAWS

Article 1. The Nominating Committee

Section 1. Shall consist of three members, appointed by the President and with the concurrence of the Executive Committee.

Section 2. Shall be known to the membership by the publication of their names in the Fall Newsletter

Section 3. Shall provide nominees who have indicated their willingness to serve if elected.

Section 4. Shall provide the names of a nominee for each position for publication in the program for the annual meeting.

Article 2. Dues

Section 1. The amount of dues may be set at any regular business meeting.

Section 2. Change in the amount of dues may be proposed without prior notice by the Treasurer or the Executive Committee.

Section 3. Change in the amount of dues proposed by other members must be announced in advance or have a two-thirds affirmative vote.

Article 3. Fees

Section 1. The registration fee for meetings is a service charge and shall be set by the Executive Committee.

Appendix C.
Western Society of Naturalists Officers and Meeting Locations.

Information in the archives on years before 1940 often are incomplete.

As the Biological Society of the Pacific:

1911[a] *President* Vernon L. Kellogg; *Secretary-Treasurer* Harry B. Torrey; *Executive Committee* Harvey M. Hall & S.S. Maxwell.
Location: University of California, Berkeley, California.

1912 Officers ?
Location: Stanford University, Palo Alto, California.

1913 Officers ?
Location: University of California, Berkeley, California.

1914 *President* D.H. Campbell; *Secretary* Harry B. Torrey.
Location: University of Washington, Seattle, Washington.

1915 *President* Harry B. Torrey
Location: San Francisco, California.

As the Western Society of Naturalists:

1916 *President* B.W. Evermann; *Secretary* Ellis L. Michael; *Treasurer* L.L. Burlingame; *Executive Committee* Harry B. Torrey, Trevor Kincaid & Frank M. McFarland.
Location: San Diego High School, San Diego, California.

1917 *President* B.W. Evermann; *Vice-President* J.F. Bovard; *Secretary-Treasurer* L.L. Burlingame; *Executive Committee* Frank M. McFarland, Harry B. Torrey & Francis B. Sumner.
Location: Stanford University, Palo Alto, California.

1918 *President* J.F. Bovard; *Vice-President* Frank M. McFarland; *Secretary-Treasurer* T.C. Frye; *Executive Committee* B.W. Evermann & Francis B. Sumner.
Location: University of California, Berkeley, California.

1919 *President* T.C. Frye; *Vice-President* Forest Shreve; *Secretary-Treasurer* Tracy I. Storer; *Executive Committee* Francis B. Sumner & J.F. Bovard.
Location: Pasadena, California.

1920 *President* J.R. Slonaker; *Vice-President* Harvey M. Hall; *Secretary-Treasurer* Tracy I. Storer; *Executive Committee* F.W. Weymouth.
Location: University of Washington, Seattle, Washington.

1921[b] *President* Francis B. Sumner; *Secretary-Treasurer* Chester Stock.
Location: University of California, Berkeley, California.

1922 *President* Harvey S. Reed; *Vice-President* Chester Stock; *Secretary-Treasurer* Calvin O. Esterly.
Location: University of Utah, Salt Lake City, Utah.

1923 *President* Harry B. Torrey; *Vice-President* Nathan Fasten; *Secretary-Treasurer* Calvin O. Esterly.
Location: University of Southern California, Los Angeles, California.

1924[c] *President* Nathan Fasten; *Vice-President* Harvey M. Hall; *Secretary-Treasurer* Calvin O. Esterly; *Executive Committee* G.B. Riggs & Harry B. Torrey.
Location: Stanford University, Palo Alto, California.

1925 *President* G.B. Riggs; *Vice-President* R.R. Huestis; *Secretary-Treasurer* Calvin O. Esterly. George Burton Rigg?
Location: Reed College, Portland, Oregon.

1926 *President* E.B. Babcock; *Vice-President* E.G. Martin; *Secretary-Treasurer* Calvin O. Easterly.
Location: Mills College, Oakland, California.

1927 *President* F.E. Clements; *Vice-President* Olaf Larsell; *Secretary-Treasurer* C.V. Taylor.
Location: University of Nevada, Reno, Nevada.

1928 *President* A.R. Moore; *Vice-President* Mrs. M.M. Brooks; *Secretary-Treasurer* C.V. Taylor.
Location: Pomona College, Claremont, California.

1929 *President* O.L. Sponsler; *Vice-President* Olaf Larsell; *Secretary-Treasurer* C.V. Taylor.
Location: Hopkins Marine Station, Pacific Grove, California.

1930 *President* D.R. Hoagland; *Vice-President* J.P. Baumberger; *Secretary-Treasurer* Erik G. Moberg.
Location: University of Oregon, Eugene, Oregon.

1931 *President* C.V. Taylor; *Vice-President* B.M. Allen; *Secretary-Treasurer* Erik G. Moberg.
Location: University of California, Berkeley, California.

1932 *President* S.C. Brooks; *Vice-President* Tage Skogsberg; *Secretary-Treasurer* Erik G. Moberg.
Location: Hopkins Marine Station, Pacific Grove, California.

1933 *President* B.M. Allen; *Vice-President* A.R. Davis; *Secretary-Treasurer* Erik G. Moberg.
Location: Asilomar, Pacific Grove, California.

1934 *President* J.J. Kessel; *Vice-President* C.B. Van Niel; *Secretary-Treasurer* Erik G. Moberg.
Location: Scripps Institution of Oceanography, La Jolla, California.

1935 *President* R.C. Miller; *Vice-President* G.J. Peirce; *Secretary-Treasurer* Erik G. Moberg.
Location: University of California, Los Angeles, California.

1936 *President* Harry B. Torrey; *Vice-President* F.W. Went; *Secretary-Treasurer* Erik G. Moberg.
Location: University of Southern California, Los Angeles, California.

1937 *President* F.W. Went; *Vice-President* H.B. Yocom; *Secretary-Treasurer* Erik G. Moberg.
Location: University of California, Berkeley, California.

1938 *President* C.V. Taylor; *Vice-President* A.S. Foster; *Secretary-Treasurer* Erik G. Moberg.
Location: California Institute of Technology, Pasadena, California.

1939 *President* George E. MacGinitie; *Vice-President* R.C. Miller; *Secretary-Treasurer* Erik G. Moberg; *Executive Committee* Gilbert M. Smith & S.F. Light.
Location: Hopkins Marine Station, Pacific Grove, California.

1940 *President* Gordon H. Ball; *Vice-President* Herbert W. Graham; *Secretary-Treasurer* Denis L. Fox.
Location: University of California, Los Angeles, California.

1941 *President* C.H. Danforth; *Vice-President* Ira L. Wiggins; *Secretary-Treasurer* Denis L. Fox.
Location: Stanford University, Palo Alto, California.

1942 *President* C.H. Danforth; *Vice-President* Ira L. Wiggins; *Secretary-Treasurer* Denis L. Fox.
Meeting canceled.

1943 *President* C.H. Danforth; *Vice-President* Ira L. Wiggins; *Secretary-Treasurer* Ira L. Wiggins; *Executive Committee* C. Epling & Richard M. Eakin.
No meeting.

1944 *President* C.H. Danforth; *Secretary-Treasurer* Herbert W. Graham.
No meeting.

1945 *President* Ira L. Wiggins; *Vice-President* J.F. Bonner; *Secretary-Treasurer* Herbert W. Graham.
Location: Mills College, Oakland, California.

1946 *President* Laurence M. Klauber; *Vice-President* Gordon F. Ferris; *Secretary-Treasurer* Herbert W. Graham.
Location: Whittier College, Whittier, California.

1947 *President* George W. Beadle; *Vice-President* Claude E. Zobell; *Secretary-Treasurer* Herbert W. Graham.
Location: University of California, Berkeley, California.

1948 *President* Denis L. Fox; *Vice-President* Raymond Selle; *Secretary-Treasurer* Herbert W. Graham & James A. Jenkins.
Location: Occidental College, Los Angeles, California.

1949 *President* Richard M. Eakin; *Vice-President* Lyman Benson; *Secretary-Treasurer* William M. Hiesey.
Location: Stanford University, Palo Alto, California.

1950 *President* Lawrence R. Blinks; *Vice-President* Curt Stern; *Secretary-Treasurer* William M. Hiesey.
Location: California Polytechnic State University, San Luis Obispo, California.

1951 *President* Philip A. Munz; *Vice-President* Arthur W. Martin; *Secretary* Garrett Hardin; *Treasurer* William M. Hiesey, *Local Chair* Yost U. L. Amrein.
Location: Pomona College, Claremont, California.

1952 *President* Arthur W. Martin; *Vice-President* Martin W. Johnson; *Secretary* Garrett Hardin; *Treasurer* Eugene N. Kozloff.
Location: University of Portland, Portland, Oregon.

1953 *President* Martin W. Johnson; *Vice-President* Arthur C. Giese, *Secretary* John L. Mohr; *Treasurer* Eugene N. Kozloff; *Member-at-Large* Arthur W. Martin; *Local Chair* Walter E. Martin.
Location: University of Southern California, Los Angeles, California.

1954 *President* Arthur C. Giese; *Vice-President* Gordon M. Smith; *Secretary* John L. Mohr; *Treasurer* Ivan Pratt; *Member-at-Large* Robert L. Fernald; *Local Chair* Richard M. Eakin.
Location: University of California, Berkeley, California.

1955[d] *President* Lyman Benson; *Secretary* Demorest Davenport; *Treasurer* Ivan Pratt; *Member-at-Large* Bradley Scheer; *Local Chair* L. Rosenberg.
Location: University of California, Davis, California.

1956 *President* Albert Tyler; *Secretary* Demorest Davenport; *Treasurer* Marion Ownbey; *Member-at-Large* Ivan Pratt; *Local Chair* Michael Moseley.
Location: University of California, Santa Barbara, California.

1957 *President* William M. Hiesey; *Secretary* John P. Harville; *Treasurer* Marion Ownbey; *Member-at-Large* Theodore L. Jahn.
Location: Stanford University, Palo Alto, California.

1958 *President* Tracy I. Storer; *Secretary* John P. Harville; *Treasurer* Robert L. Fernald; *Member-at-Large* Ralph I. Smith; *Local Chair* Robert L. Fernald.
Location: University of Washington, Seattle, Washington.

1959 *President* Herbert L. Mason; *Secretary* Yost U. Amrein; *Treasurer* Robert L. Fernald; *Member-at-Large* Cornelius H. Muller; *Local Chair* John L. Mohr.
Location: University of Southern California, Los Angeles, California.

1960 *President* Victor C. Twitty; *Secretary* Yost U. Amrein; *Treasurer* Donald S. Farner; *Member-at-Large* E.Yale Dawson; *Local Chair* David H. Montgomery.
Location: California Polytechnic State University, San Luis Obispo, California.

1961 *President* John L. Mohr; *Secretary* Isabella A. Abbott; *Treasurer* Donald S. Farner; *Member-at-Large* Paul L. Risley; *Local Chair* Paul L. Risley.
Location: University of Oregon, Eugene, Oregon.

1962 *President* Eugene N. Kozloff; *Secretary* Isabella A. Abbott; *Treasurer* G. Frank Gwilliam; *Member-at-Large* Dixie Lee Ray; *Local Chair* James M. Craig.
Location: San Jose State College, San Jose, California.

1963 *President* E.Yale Dawson; *Secretary* Isabella A. Abbott; *Treasurer* G. Frank Gwilliam; *Member-at-Large* Mildred M. Mathias; *Local Chair* John S. Tucker.
Location: University of the Pacific, Stockton, California.

1964 *President* Frank A. Pitelka; *Secretary* Isabella A. Abbott; *Treasurer* Ralph I. Smith; *Member-at-Large* James M. Craig; *Local Chair* Dixie Lee Ray.
Location: University of Washington, Seattle, Washington.

1965 *President* Mildred M. Mathias; *Secretary* James M. Craig; *Treasurer* Ralph I. Smith; *Member-at-Large* Richard M. Eakin.
Location: University of California, Berkeley, California.

1966 *President* Donald S. Farner; *Secretary* James M. Craig; *Treasurer* Richard W. Castenholz; *Member-at-Large* Donald P. Abbott; *Local Chair* Donald J. Reish.
Location: California State University, Long Beach, California.

1967 *President* George Papenfuss; *Secretary* David H. Montgomery; *Treasurer* Richard W. Castenholz; *Member-at-Large* Yost U. L. Amrein; *Local Chair* Dallas A. Sutton.
Location: Chico State College, Chico, California.

1968 *President* Carl L. Hubbs; *Secretary* David H. Montgomery; *Treasurer* Dallas A. Sutton; *Member-at-Large* Demorest Davenport; *Local Chair* Austin Pritchard.
Location: Oregon State University, Corvallis, California.

1969 *President* Yost U. L. Amrein; *Secretary* David H. Montgomery; *Treasurer* Dallas A. Sutton; *Member-at-Large* Francis Haxo; *Local Chair* Leonard Muscatine.
Location: University of California, Los Angeles, California.

1970 *President* Joel W. Hedgpeth; *Secretary* David H. Montgomery; *Treasurer* Dallas A. Sutton; *Member-at-Large* David Walkington; *Local Chair* Maxwell S. Doty.
Location: University of Hawaii, Honolulu, Hawaii.

1971 *President* Ralph I. Smith; *Secretary* David H. Montgomery; *Treasurer* Dallas A. Sutton; *Member-at-Large* Richard Norris; *Local Chair* Elinor S. Benes.
Location: Sacramento State College, Sacramento, California.

1972 *President* Maxwell S. Doty; *Secretary* David H. Montgomery; *Treasurer* Dallas A. Sutton; *Member-at-Large* Larry Oglesby; *Local Chairs* Gary J. Brusca & James F. Waters.
Location: California State University, Humboldt, California.

1973 *President* James M. Craig; *Secretary* David H. Montgomery; *Treasurer* Dallas A. Sutton; *Member-at-Large* John S. Pearse; *Local Chair* Ross Dingman.
Location: University of San Diego, San Diego, California.

1974 *President* G. Frank Gwilliam; *Secretary* David H. Montgomery; *Treasurer* Jefferson J. Gonor; *Member-at-Large* John S. Pearse; *Local Chairs* Gilbert C. Hughes & William Vidaver.
Location: University of British Columbia, Vancouver & Simon Fraser University, Burnaby, British Columbia, Canada.

1975 *President* Theodore L. Jahn; *Secretary* David H. Montgomery; *Treasurer* Robert E. Olson; *Member-at-Large* Jack T. Tomlinson; *Local Chair* Jack T. Tomlinson.
Location: California State University, San Francisco, California.

1976 *President* G. Ledyard Stebbins; *Secretary* David H. Montgomery; *Treasurer* Robert E. Olson; *Member-at-Large* Jack T. Tomlinson; *Local Chairs* Donald B. Bright & Steven N. Murray.
Location: California State University, Fullerton, California.

1977[e] *President* Isabella A. Abbott; *Secretary* David H. Montgomery; *Treasurer* Robert E. Olson; *Members-at-Large* Steven N. Murray & John S. Pearse.
Location: University of California, Santa Cruz, California.

1978 *President* Leonard Muscatine; *Secretary* David H. Montgomery; *Treasurer* Robert E. Olson; *Members-at-Large* John S. Pearse & Ernest L. Karlstrom.
Location: University of Puget Sound, Tacoma, Washington.

1979 *President* Dallas A. Sutton; *Secretary* David H. Montgomery; *Treasurer* Robert E. Olson; *Members-at-Large* Ernest L. Karlstrom & Peter Castro.
Location: California Polytechnic State University, Pomona, California.

1980 *President* Jack T. Tomlinson; *Secretary* David H. Montgomery; *Treasurer* Colin O. Hermans; *Members-at-Large* Peter Castro & Roger Del Moral.
Location: University of Washington, Seattle, Washington.

1981 *President* Robert E. Olson; *Secretary* David H. Montgomery; *Treasurer* Colin O. Hermans; *Members-at-Large* Roger Del Moral & F.G. Hochberg.
Location: Santa Barbara Museum of Natural History, Santa Barbara, California.

1982 *President* Charles C. Lambert; *Secretary* David H. Montgomery; *Treasurer* Steven M. Murray; *Members-at-Large* F.G. Hochberg & Donald J. Reish.
Location: California State University, Long Beach, California.

1983 *President* John S. Pearse; *Secretary* David H. Montgomery; *Treasurer* Steven M. Murray; *Members-at-Large* Donald J. Reish & Peter Fankboner.
Location: Simon Fraser University, Burnaby, British Columbia, Canada.

1984 *President* Gilbert C. Hughes; *Secretary* David H. Montgomery; *Treasurer* Steven M. Murray; *Member-at-Large* Robert W. Angell.
Location: University of Denver, Denver, Colorado.

1985 *President* Lanna Cheng; *Secretary* David H. Montgomery; *Treasurer* Steven M. Murray; *Members-at-Large* Robert W. Angell, Gregor M. Cailliet & James W. Nybakken.
Location: Monterey, California.

1986 *President* James W. Nybakken; *Secretary* David H. Montgomery; *Treasurer* Steven M. Murray; *Members-at-Large* Gregor M. Cailliet & John G. Chan.
Location: University of Hawaii, Hilo, Hawaii.

1987 *President* F.G. Hochberg; *Secretary* David H. Montgomery; *Treasurer* Steven M. Murray; *Members-at-Large* John G. Chan & Donald J. Reish.
Location: California State University, Long Beach, California.

1988 *President* Louis D. Druehl; *Secretary* David H. Montgomery; *Treasurer* Steven M. Murray; *Members-at-Large* Donald J. Reish & Ralph I. Smith.
Location: San Francisco, California.

1989[f] *President* Mia J. Tegner; *Secretary* David H. Montgomery; *Treasurer* Steven M. Murray; *Member-at-Large* Susan D. Waaland.
Location: Tacoma, Washington.

1990 *President* Michael S. Foster; *Secretary* David H. Montgomery; *Treasurer* Thomas H. Suchanek; *Members-at-Large* James W. Nybakken & Christopher H. Harrold.
Location: Monterey, California.

1991 *President* Megan N. Dethier; *Secretariat* Gregor M. Cailliet, Michael S. Foster & James W. Nybakken; *Treasurer* Thomas Suchanek; *Members-at-Large* Sally J. Holbrook & Russel J. Schmitt.
Location: Santa Barbara, California.

1992 *President* Steven M. Murray; *Secretariat* Gregor M. Cailliet, Michael S. Foster & James W. Nybakken; *Treasurer* Thomas H. Suchanek; *Member-at-Large* Gayle I. Hansen.
Location: Newport, Oregon.

1993 *President* Michael Hadfield; *Secretariat* Gregor M. Cailliet, Michael S. Foster & James W. Nybakken; *Treasurer* Thomas H. Suchanek; *Member-at-Large* Robert C. Carpenter.
Location: Los Angeles, California.

1994 *President* Michael H. Horn; *Secretariat* Gregor M. Cailliet, Michael S. Foster & James W. Nybakken; *Treasurer* Thomas H. Suchanek; *Member-at-Large* Mark Denny.
Location: Monterey, California.

1995 *President* A. Richard Palmer; *Secretariat* Gregor M. Cailliet, Michael S. Foster & James W. Nybakken; *Treasurer* Frank Roddy; *Members-at-Large* J. Robert Waaland & Megan N. Dethier.
Location: Port Townsend, Washington.

1996 *President* Gregor M. Cailliet; *Secretariat* Gregor M. Cailliet, Michael S. Foster & James W. Nybakken; *Treasurer* Frank Roddy; *Member-at-Large* D. Siqueiros Beltrones.
Location: Universidad Autónoma de Baja California Sur, La Paz, México.

Notes

a. The *New Science* report of this meeting (Fig. 2) indicates H.J. Maxwell was the third Executive Committee member, but an undated copy of the By-Laws of the Biological Society of the Pacific and Francis B. Sumner's brief history in 1945 (see text) indicate it was S.S. Maxwell of the University of California, Berkeley.

b. 1969 letter from Secretary R.C. Miller of the Pacific Division of American Association for the Advancement of Science to Yost U. Amrein indicates J.F. Daniel, not Francis B. Sumner, may have been President of WSN in 1921.

c. The December, 1924 By-Laws and Membership Roll indicate these were the officers. However, other records indicate D.R. Hoagland may have been President, H.P. Magnuson Vice-President, and M.D. Thomas Secretary-Treasurer.

d. Beginning in 1955, the Vice-President became President the following year. In 1981 the Vice-President position was replaced by President-Elect. Vice-Presidents and President-Elects are not listed after 1954.

e. From 1976 through 1988 there were usually two Members-at-Large, the second (or only) also served as Local Chair for the meeting.

f. After 1989, there was usually only one Member-at-Large who also served as the Local Chair. If two people are listed then both assisted with local meeting arrangements.

Appendix D.
Recipients of Best Student Paper Awards, including Honorable Mentions.

Awards were first presented at WSN meetings in 1964. No awards were given at meetings with the American Society of Zoologists in 1980 and 1988. Paper and travel awards have been supported by the membership, and by donations from Atlantic Richfield, Delmar C. Seawright Memorial Fund, Henry L. & Ria C. Lee, David H. Montgomery Fund, and Pacific Gas & Electric Company. An endowment for these awards was begun in 1996 with funds from an anonymous donor

1964	Diane Robbins, Marcus Bell
1965	Richard Greene
1966	John Born
1967	Harold Houser, Sharon Edwards
1968	Richard Zingmark, Vicki Buchsbaum
1969	Neil Krekorian
1970	Wayne Williams, Thomas Scanland
1971	Kent McDonald, Rogene Thompson
1972	John Cornell
1973	Thomas Ronan
1974	Lynda Goff, Larry Ritchie
1975	Karen Miller, Sven Donaldson
1976	Alice Alldrege, Andrew Kindig
1977	Charles Holliday, Ronald Marian
1978	John Warner, Stewart Willason
1979	Mark Hixon, Miles Anderson
1981	James Watanabe, Gail Irvine, Steven Gaines
1982	Kirk Apt, Richard Bradley, Paul Dunlap, Brian Tissot, Amy Breyer, Douglas Eernisse, Ana Suer, Diane Stouder, Craig Young
1983	Alan Shanks, Steven Rumrill, Scott Smiley, Valerie Paul
1984	Valerie Paul, Lauren Mullineaux, Richard Lowell, Stuart Arkett, Scott Smiley, Cynthia Hunter
1985	Catherine Agegian, Ted Cranford, Matthew Grober, Steve Norton, Steven Rumrill, Michael Russell, Kirk Apt, Ken Clifton, Deena Deutsch, Annette Olson, Sally Walker, Janice Voltzow

1986	Bruce Carlson, Nanette Chadwick, Cynthia Hunter, Karla McDermid, Joseph Pawlik, Eric Schultz, Guy Hoelzer, B. Holthius, Steve Pennings, Patrick Reynolds, Jan Taylor
1987	Ladd Johnson, Daniel Brazeau, Guy Hoelzer, Kenneth Lohmann, Richard Greene
1990	Todd Anderson, Brian Bingham, Daniel Shapiro, Mark Carr, Rikk Kvitek, Peter Fong, Brenda Konar, Cindy Hurlbut, Debbie Palka
1991	Adrian O'Loghlen, Jane Watson
1992	Mark Norman, Phillip Levin, Carol Blanchette, Heather Brook, Jeff Harding
1993	Carol Blanchette, Mary Sewell, Dorothy Medeiros-Bergen, Sara Matthews
1994	Deborah Robertson, Matthew Edwards, Steven Lee, Sherri Rogers
1995	Matthew Edwards, Brian Gaylord, Lara Ferry, Barbara Schneider
1996	Michael Deal, Karina Nielson

Appendix E.
International Symposia co-sponsored by the Western Society of Naturalists

1973	Second International Symposium: *Coral Reefs*. Great Barrier Reef and Brisbane, Australia; July 17-21.
1974	International Symposium: *Indo-Pacific Tropical Reef Biology*. University of Guam, Marianas Islands, Palau, and Caroline Islands; June 23 - July 5. Proceedings: *Micronesia*, 1976, 12(1).
1975	International Symposium: *Marine Ecology of the North Pacific*. University of Ryukyus, Japan; August 3-17.
1975	Symposium: *The Need for Faunistic Information in the Pacific*. Vancouver, British Columbia, Canada; August 18-30.
1976	International Symposium: *The Ecology and Management of Mangroves and Some Shallow Water Communities (Coral Reefs, Tidal Forests and Estuaries)*. Jakarta and Ujung Pandang, Indonesia; June 27 - July 11.
1978	International Symposium: *Marine Biogeography and Evolution in the Southern Hemisphere*. University of Auckland, New Zealand and Suva, Fiji; July 16-29.
1980	Second International Symposium: *Biology and Management of Mangroves and Tropical Shallow Water Communities (Coral Reefs and Estuaries)*. University of Papua New Guinea, Port Moresby, and Madang; July 20 - August 2. Proceedings: *Bulletin of Marine Science*, 1981, 31(3).

1982 Second International Symposium: *Marine Biogeography and Evolution in the Pacific.*
University of Sydney and Perth, Australia; July 5-17.
Proceedings: *Bulletin of Marine Science*, 1983, 33(3).

1984 International Symposium: *Marine Plankton.*
Tokai University, Japan; July 22 - August 4.
Proceedings: *Bulletin of Marine Science*, 1985, 37(2).

1986 Second International Symposium: *Indo-Pacific Tropical Marine Biology.*
University of Guam, Marianas Islands, Truk and Caroline Islands; June 22 - July 9.
Proceedings: *Bulletin of Marine Science*, 1987, 41(2).

1988 Third International Symposium: *Marine Biogeography and Evolution in the Pacific.*
University of Hong Kong; June 26 - July 3.
Proceedings: *Bulletin of Marine Science*, 1990, 47(1).

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Contributions in Science

Number 2

History of the Western Society of Naturalists

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Yost U. L. Amrein