INTRODUCTION

The American Institute of Fishery Research Biologists (AIFRB) is a professional organization established in 1956 to promote conservation and proper utilization of fishery resources through the use of fishery and related sciences. The role of the Institute is the professional development and performance of its members, and the recognition of their achievements. All of its 26 founding members (henceforth called "Founding Fellows" because they were all eventually promoted to fellows) are now deceased. The Founding Fellows, by establishing an organization with high standards for admission and for conduct, performed an important service for the profession. Biographies of the 26 Founding Fellows are presented here to recognize their contributions to fishery science.

The biographies were assembled from many sources, including obituaries in the AIFRB Briefs, newspapers, and scientific journals and from personal communications with family members and colleagues of the Founding Members. There are abbreviated biographies of nearly all the Founding Fellows in various editions of American Men and Women of Science, and these, since they are based on information supplied by the Founding Fellows, were highly useful for supplying missing information and checking dates and locations. In addition to the biographies, there are "remembrances," written by friends of some of the Founding Fellows. The biographies vary greatly in length because there was considerable variation in the amounts of information that were available for different Founding Fellows.

Because the biographies were assembled from various sources, and even those that were almost entirely from single sources were edited to some extent for various reasons, none of them is attributed to an author. However, there is a REFERENCES section after the last biography that lists the sources of information (other than American Men and Women of Science). The remembrances, however, for obvious reasons are attributed to specific authors.

The biographies are far from perfect. Readers who find errors or omissions are urged to communicate with William H. Bayliff, wbayliff@iattc.org. Remembrances are particularly welcome, as these add flavor to biographies that might seem dull to some readers. Some of the biographies state that the subject had written many important papers, but do not give any further information about any of the papers. Specific information about those papers would also be welcome.

CLINTON E. ATKINSON

Clint Atkinson was born in Boise, Idaho, on November 5, 1913. He had a life-long interest in fish, both catching and rearing them. During his teenage years in Boise, he raised fish in tanks at his parents' home. Clint earned his B.S. degree at the University of Washington School of Fisheries in 1937. Much later, in 1964, he earned his M.S. degree at the same institution (then called the College of Fisheries).

He had a long and distinguished career in fisheries. He worked for the International Pacific Salmon Fisheries Commission (IPSFC) from 1938 to 1948. Research was conducted during that period at Hell's Gate on the Fraser River, where an obstruction that impeded the upstream migration of sockeye salmon eventually led to the construction of a fish ladder there. Clint left the IPSFC in 1948 to become Chief of the U.S. Fish and Wildlife Service (FWS) Middle and South Atlantic Fishery Investigations at Beaufort, North Carolina. The work during this period involved shad and other regional fisheries. He left Beaufort in 1952 to accept a position as Chief of the Pacific Salmon Investigations of U.S. FWS, which later became the U.S. Bureau of Commercial Fisheries (BCF).

During the 1940s and early 1950s, the School of Fisheries of the University of Washington and the International Fisheries Commission (later the International Pacific Halibut Commission) were housed in the same group of buildings on the University of Washington campus. Clint frequently joined Dr. William F. Thompson, Harry Dunlop, Heward Bell, and others for coffee at the Halibut Commission. One of the things that they discussed was the professional standing of fishery biologists, and these discussions eventually led to the formation of the American Institute of Fishery Research Biologists.

Clint was Director of the U.S. BCF Biological Laboratory in Seattle from 1957 to 1965. Its research during that period was directed mainly at high-seas distribution of salmon and at various problems associated with the International North Pacific Fisheries Commission.

Clint served as Regional Fisheries Attaché at the American Embassy in Tokyo, Japan, from 1966 to 1973. His work there involved collecting information and reporting on developments in the high-seas fisheries and initiating steps to avoid conflicts between the United States and East Asian and Pacific Island countries.

He retired formally in 1973, but he continued his fisheries activities as a consultant and advisor from 1974 to 2002. There was a broad scope to this phase of his work, including various aspects of biology and economics. He maintained a data bank of Japanese market statistics and related information. In 1978, he joined the faculty at the University of Washington, where he taught an upper division course in fisheries of the world. Between 1980 and 2003, Clint was a Visiting Scholar at the University of Washington.

During Clint's long and distinguished career, he received numerous awards. He received two Unit Meritorious awards for research on salmon and shad from the U.S. government. Japan granted him three citations for his contributions on salmon conservation and propagation. The Re-

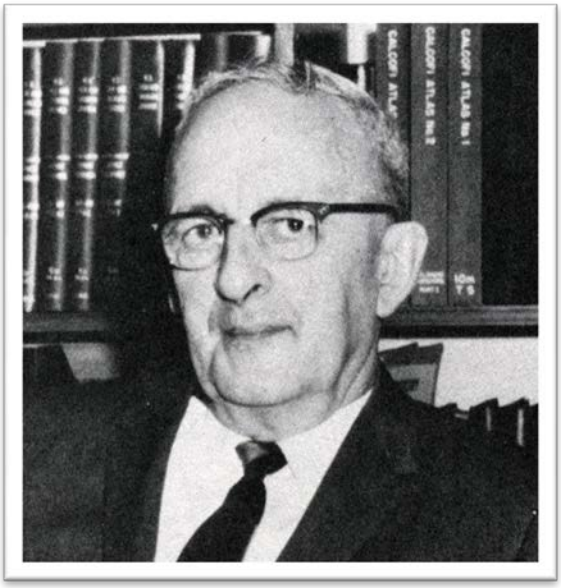
public of Korea gave him a citation for his leadership in re-establishment of salmon runs in that nation. Clint was a Founding Fellow of the American Institute of Fishery Research Biologists. He was a member of the AIFRB Executive Committee, and received its Distinguished Service Award in 1999. He was also a Fellow of the International Institute of Fishery Economics and Trade.

Clint's publications, produced over a period of more than 60 years, cover a wide range of topics, including biology, economics, aquaculture, and allocation of high-seas fisheries resources. During his retirement years, he was active in the local fishing industry in the United States, and was instrumental in helping several young companies get started in and stay connected with international marketing of their products.

Overall, Clint made things happen. He enhanced careers, programs, and people's lives. Family, friends, and professional associates were all better for their proximity to Clint. He was both a consummate professional and an admirable human being. His help to graduate students, fishermen, colleagues, and especially to an army of close friends and family set a standard we can all aspire to attain.

Clint died in Seattle, Washington, on May 14, 2007, at the age of 93.

F. HEWARD BELL



F. Heward Bell was born on July 4, 1902, in Swansea, Wales. He came to Canada as a child, and was raised there. As a young man, he attended the University of British Columbia in Vancouver, and graduated in 1924 with honors in biology. Upon graduation, he was appointed instructor in biology at that university. In 1925, he served as a research assistant for the Fisheries Research Board of Canada, tagging salmon off the west coast of Vancouver Island. Later in 1925, he was appointed Associate Scientific Assistant for the International Fisheries Commission, which later became the International Pacific Halibut Commission. On a leave of absence from the Halibut Commission in 1940-1941, he served as Assistant Director of the International Pacific Salmon Fisheries Commission of Canada and the United States. He became Assistant Director of the Halibut Commission in 1943 and remained in that position until he was appointed Director in 1963. He served in that capacity until his retirement in 1970.

During his early years with the Halibut Commission, he spent many months at sea on halibut vessels, either chartered or on regular commercial trips. He and another future Founding Fellow of the AIFRB, Richard Van Cleve, almost lost their lives aboard the schooner *Scandia* when it sank west of Kodiak Island, Alaska, in February1927. Throughout his 43-year career with the Halibut Commission, he knew and worked with many individuals who had been involved in the fisheries for halibut and salmon as early as the late 19th century off the coasts of Alaska, British Columbia, and the contiguous United States. Those relationships, in addition to his early training in biology, were influential in forming his concepts of managing a fishery. He collected voluminous records of fishing effort and catch, which became the basis for several important papers, *e.g*. IFC Bulletin 6, Biological statistics of the Pacific halibut fishery, by Thompson, Dunlop, and Bell (1931), and IFC Bulletin 8, Biological statistics of the Pacific halibut fishery, by Thompson and Bell (1934) and for the assessment and management of the halibut fishery. (William F. Thompson and Henry A. Dunlop were also future Founding Fellows of the AIFRB.)

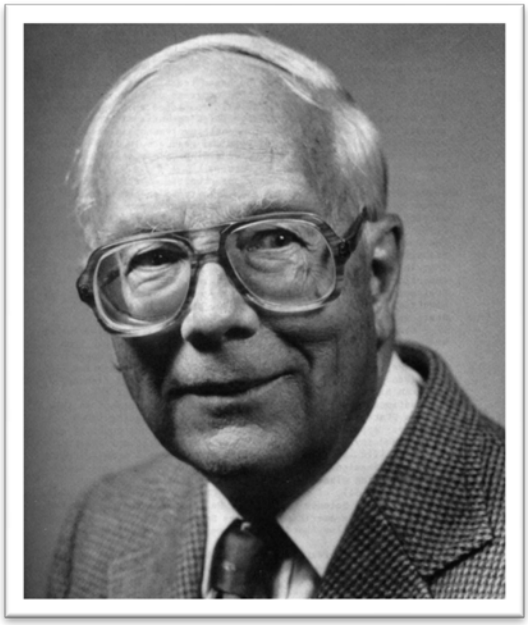
During the period of 1930 to 1970 he was a Special Lecturer in Fisheries at the University of Washington. He was a Founding Fellow of the American Institute of Fishery Research Biologists and a member of other scientific societies.

Heward Bell was awarded the 1953 Coronation Medal of Elizabeth Regina II for services rendered to Canada with respect to the Pacific halibut fishery. He was the first person to receive the Golden Halibut Award, presented annually by the Halibut Fishermen's Wives Association, and was awarded a Golden Halibut by the Halibut Association of North America for services rendered to the industry.

He retired in 1970, and after his retirement he wrote an important book, The Pacific Halibut: the Resource and the Fishery; every major fishery deserves a book like this, but few have it.

F. Heward Bell died on March 5, 1992, at the age of 89. He was a gentleman and a scholar, and the lives of all who knew him were enriched by the experience.

KENNETH D. CARLANDER



Kenneth Carlander was born in Gary, Indiana, on May 25, 1915. He earned his B.S., M.S., and Ph.D. degrees at the University of Minnesota in 1936, 1938, and 1943, respectively. From 1936 to 1938, while a graduate student, he worked at a laboratory technician for the Works Progress Administration at the University of Minnesota. (The Works Progress Administration (WPA) was a large and ambitious U.S. government agency employing millions of workers, mostly unskilled, to carry out public works projects, including the construction of public buildings and roads. Obviously, he was among the minority of skilled workers employed by the WPA.) From 1938 to 1946 (with an interruption for military service during World War II), he worked as a fishery biologist for the Minnesota State Department of Conservation.

In 1946, Dr. Carlander began a long career as a member of the faculty of Iowa State University. He began as an assistant professor, and was promoted to associate professor, professor, and distinguished professor. Concurrently, he served as leader of the Iowa Cooperative Fishery Research Unit from 1946 to 1965, consultant to the Ford Foundation in Egypt in 1965-1966, visiting professor at Satya Wacana Christian University in Java, Indonesia, in 1977-1978, and visiting professor at Texas A&M University in 1884. In 1985, after a long and distinguished career, he retired.

Dr. Carlander died in Ames, Iowa, on November 21, 2002, at the age of 87.

Four appreciations by former associates and students, which impart insights as to what a remarkable person Dr. Carlander was, are reproduced here with only minor modifications.

KENNETH D. CARLANDER: AN APPRECIATION by Robert J. Muncy

These proceedings of the 1985 International Symposium on Age and Growth of Fish are dedicated to Dr. Kenneth Dixon Carlander, who has devoted much of his professional career since 1938 to documenting and providing a better understanding of growth and aging processes in fishes. His interest and knowledge has been always graciously extended to anyone expressing interest and requesting assistance. His quest for better documentation and more readily accessible information to accommodate or facilitate developing widespread professional interest in this subject area resulted in the publication of his Handbook of Freshwater Biology (Carlander 1953) and complementary volumes (Carlander 1969, 1977). He offered suggestions for standardizing and evaluating age and growth studies, based on his own efforts to process diverse records of biological data on North American freshwater fishes.

A brief history of work on age and growth in fish is revealed in Carlander's publications and those of his students, and in his paper (Carlander 1986) in "Historical Perspective" in Session I of this symposium. Detailed studies of growth and age structure in populations of major sport fishes in Iowa lakes appeared in publication soon after Carlander's appointment in 1946 as Assistant Profes-

sor of Zoology at Iowa State University and Leader of the Iowa Cooperative Fisheries Research Unit. In the ensuing years, more than 50 scientific papers were published by Carlander and his graduate students, who used age and growth techniques in evaluating the performance of fish populations in Iowa streams, natural lakes, reservoirs, and farm ponds. Carlander evaluated new techniques for aging fish in 10 other papers, and sought to explain fish growth and aging to the general public in 10 popular articles. He also wrote 12 scientific critiques addressed to professional colleagues.

Long-term studies of fish population in Clear Lake, Iowa, in the 1950s and 1960s revealed the problems posed by missing scale annuli. Other studies showed that scale analyses did not adequately demonstrate the suspected impacts of flooding on fish populations in Iowa streams. Carlander attempted, through his graduate students' studies, to evaluate index marks on fish scales, and to use RNA-DNA ratio techniques on wild fish subjected to various environmental stressors.

Carlander's professional career, which has already spanned 47 years, has enriched the fisheries field far beyond his personal research contributions. Since he began teaching at Iowa State University in 1946, he has directed programs of 34 Ph.D. graduates and 59 M.S. students (of whom 22 also completed Ph.D. programs—12 at Iowa State). In addition, he offered enthusiastic encouragement and opportunities for personal involvement in aquatic studies to developing undergraduate and graduate students pursuing studies in other fields, thereby expanding understanding and appreciation of the aquatic sciences.

Carlander has provided many opportunities for foreign students to study at Iowa State University to enable them to assume prominent professional roles in their own countries. While serving as a visiting professor in Egypt (1965-1966) and Indonesia (1977-1978), he substantially increased his personal knowledge of the environmental and social problems that confront foreign fisheries students. His expanded views not only enriched his teaching and advisory roles, but also improved and influenced educational opportunities of students in the United States. Professionals trained by him fill many major positions in foreign countries, and in universities, private businesses, and state and federal governments in the United States.

Kenneth D. Carlander's accomplishments in fisheries research and education, in addition to his contributions to Iowa, have been recognized in many ways: selection to four scholastic honor societies; selection as a Fellow by the American Association for the Advancement of Science, the American Institute of Fishery Research Biologists, the Iowa Academy of Science, and the International Academy of Fishery Scientists; appointment in 1974 by Iowa State University as Charles F. Curtiss Distinguished Professor; appointment by Iowa governors to various councils and boards; and invitations to lecture at more than 30 universities and scientific laboratories. Carlander has been a member of more than 30 professional societies, serving on committees and boards of 11 and being elected President of the American Fisheries Society (1960-1961), of Sigmi Xi, Iowa Chapter (1963-1964), and of the Iowa Academy of Science (1968-1969). He was presented the Award of Excellence by the American Fisheries Society in 1979 and the Distinguished Fellow Award by the Iowa Academy of Science in 1980.

Probably his greatest reward has been the continued professional recognition by, and active involvement in the growth of the more than a century old fisheries profession in the United States. His colleagues—especially those who studied under and worked with him—take pleasure in this special opportunity to further recognize his many valued contributions.

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KENNETH DIXON CARLANDER by Gene Huntsman

Ken Carlander and Iowa State University were synonymous. After completing military service (ever-productive, Ken even produced, while he was in the service, a scientific paper on birds observed during maneuvers) and graduate research at the University of Minnesota on the fisheries of the Lake of the Woods, Ken became Assistant Professor of Zoology at Iowa State University and Leader of the Iowa Cooperative Fishery Unit. (Iowa State is home to the cooperative unit concept, a brainchild of Iowa's conservation pioneer, Ding Darling.) Ken remained at Iowa State throughout his active and emeritus career. By 1985, the date of his nominal retirement, he had directed programs of 34 Ph.D. graduates and 59 M.S. students (of whom 22 also completed Ph.D. programs—12 at Iowa State).

Ken had a vital interest in encouraging fisheries research in developing countries. To that end, Ken mentored numerous foreign students from, among many countries, Sudan, Liberia, Iraq, and India, and also served as a visiting professor in Egypt and Indonesia.

None of the above, however prestigious, can convey the deep affection in which Ken was held by his students. Always calm, always understanding, always tolerant, Ken made each of us feel accepted and capable of the work expected of us. His generosity was unequaled. At least one graduate student found long after completion of his degree that a supposed assistantship from the university that had supported him and his family during tight times had actually come straight from the pocket of Ken Carlander.

And I probably ought to nominate Ken for sainthood. Finishing a hot summer Friday of electro fishing, David Belmler and I were driving the 30 miles from the Des Moines River back to Ames when a 5-gallon container of strong formaldehyde solution overturned in the back of the station wagon assigned to the fisheries unit. The vile fluid filled the recessed wheel well in the aft floor of the vehicle. Completely saturated with fish, fish biology, heat, and the week's work, Dave and I were absolutely convinced that the formaldehyde would be overjoyed to spend the weekend in the wheel well so that its removal could provide us with a fitting beginning to the next Monday. We did not know that Ken and Jess Muncy were planning a very early departure in that same despoiled vehicle on Monday morning for the 150-mile round trip to Fort Dodge. Nor did Ken and Jess know in the cool of their pre-dawn departure that the morning's heat would vaporize the unsuspected, and then hidden, fish preservative and force them to ride the entire distance with their heads out the windows. Ken never mentioned the incident to Dave or me.

KEN CARLANDER AND IOWA DAYS by Dave Hoopes

My copy of the *Briefs* arrived in the mail today, and as I walked down our lane from the mailbox I was idly flipping through the pages when the notice of Ken Carlander's passing struck me

between the eyes and, I might add, deep in my heart. For you (Huntsman) were right when you said Dr. Carlander was deeply loved by his students.

I was privileged to have Ken Carlander as my major professor for both my Master's and Ph.D. degrees, spending a full five years under his quiet, insightful tutelage. When towns along the Mississippi River sought to control the enormous hatches of caddis flies and mayflies that practically halted river traffic for a period of time each year, Ken noted that poisoning the river could wreak havoc on the riverine ecosystem, and he convinced the local governments to support a study to determine the role played by these insects and to investigate possible alternative means of control. My office mate, Cal Fremling, a Ph.D. candidate, was elected to study the life history of several species in the hope of determining such alternatives. For my Master's thesis, Dr. Carlander suggested that I identify the role played by the immature forms in the aquatic food chain. The results of our studies unequivocally demonstrated the vital role that these insects played as food for a wide range of commercial and sport fish species. Cal was drawn to the fact that the mature adults were attracted to blue fluorescent lights, and he devised a series of light traps that were located along the river bluff at Keokuk, Iowa. These traps were quite successful in diverting mature insects, especially caddis flies, from impacting human health and activities. As a result of our work, the towns dismissed their plan to poison the river and adopted the much more benign approach of luring the adult insects away from points of conflict with riverside residents. Under Dr. Carlander's guidance, Cal and I were able to acquire a foundation of basic knowledge and apply that knowledge toward solving a practical problem in an environmentally-positive application.

I recount our experience because it illustrates a side of Ken Carlander not normally evident. Despite all the trappings of academe, the scientific treatises, the professional acclaim and honors, Ken never forgot that guiding his students toward careers as professional biologists required preparing them for the practical, as well as the theoretical, side of life. At 70, I am still involved in the fisheries field as a Lead Entity Coordinator in a statewide salmon recovery program here in Washington. I will always be grateful to Ken Carlander for showing me the way to a rewarding and satisfying career in fisheries science.

KENNETH D. CARLANDER by Robert Summerfelt

Kenneth D. Carlander earned three degrees in zoology from the University of Minnesota. His dissertation research, carried out under the supervision of Samuel Eddy, was concerned the commercial walleye fishery in Lake of the Woods, Minnesota. During World War II, he served as a medical staff member with the U.S. Army in India. After his military service, he accepted a faculty position at the Iowa State College (renamed Iowa State University in 1959), where he remained until his retirement in 1985. His retirement was celebrated by his colleagues with an "International Symposium on Age and Growth of Fish," in Des Moines, Iowa. The proceedings of the symposium were published under the title *Age and Growth of Fish* (Summerfelt and Hall, 1987).

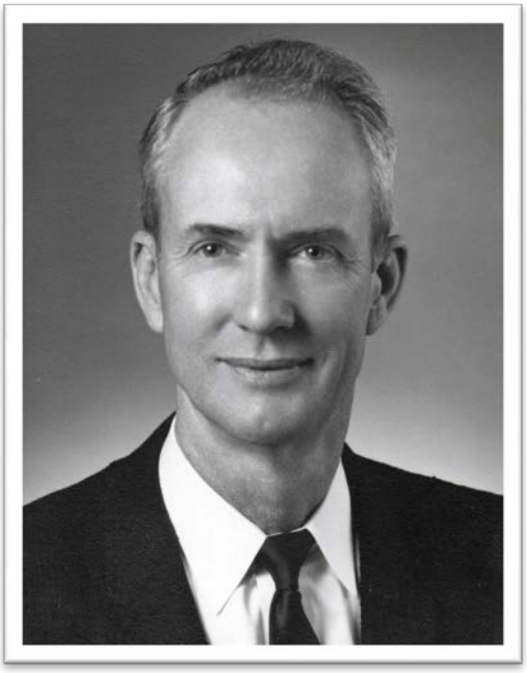
His first research publication, in 1939, dealt with walleye growth rate in Minnesota lakes. This was to be the first of his many contributions to documenting, standardizing, and evaluating the application of fish age and growth studies to fisheries management. He processed data from innumerable published and unpublished reports on growth and aging processes in fishes in his Handbook of Freshwater Biology, first in 1953, with complementary volumes in 1969, 1977, and 1997. The handbooks remain among the most cited references in fisheries science. Additionally, he was among the first to carry on truly long-term freshwater fishery population and community research through the numerous M.S. theses and Ph.D. dissertations of his students.

In his professorial career at Iowa State University, which spanned nearly 40 years, he guided the graduate programs of 34 Ph.D. and 60 M.S. students, of whom 31 also completed Ph.D. programs, 12 at Iowa State University. He was the exemplar of a quiet, gentle, and caring major professor. For many years, he sent a Christmas letter to former students with updates of the professional achievements and personal successes of his students. He was active in providing opportunities for international students to study fisheries in the United States. He had professional and personal interests (member of the United Nations Association) in international development. He was a visiting professor in Egypt (1965-1966) and Indonesia (1977-1978). He was a mentor for professionals who comprise a “who's who” in many American and foreign universities, and state and federal natural resource agencies.

Carlander was a fellow of the American Association for the Advancement of Science, the American Institute of Fishery Research Biologists, the Iowa Academy of Science, and the International Academy of Fishery Scientists. He was a member of the American Fisheries Society (AFS) for more than 50 years. He received the AFS Award of Excellence in 1979, and the North Central Division award for Excellence in Fisheries Science in 1989. He was vice president and president of the AFS from 1958 to 1961, and served the Society in many ways. He was also a member of more than 30 other professional societies.

He enjoyed gardening and birding, and before graduate school, he published nearly 100 articles on bird life, including 74 articles on birds of the Palo Duro for the *Amarillo News.*

FREDERICK C. CLEAVER



Frederick C. Cleaver was born on June 27, 1916, in Everett, Washington, the first son of an English sailor and an Iowa farmer's daughter who met on a train near Tacoma, Washington. He grew up in Kalama, Washington, where he graduated from high school in 1933, earning two letters playing football as a 135-pound guard.

He earned his B.S. degree from the School of Fisheries of the University of Washington in 1941 and his Ph.D. degree from the same institution in 1967.

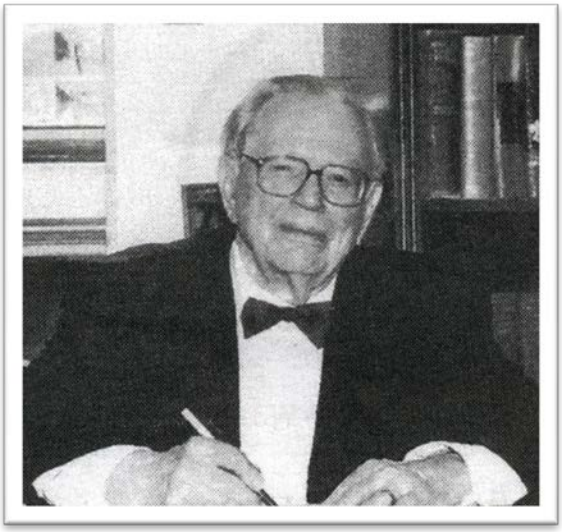
He worked for the Washington Department of Fisheries from 1942 to 1948, for the U.S. Fish and Wildlife Service in Honolulu, Hawaii, from 1948 to 1951, for the Oregon Fish Commission from 1951 to 1956, and again for the U.S. Fish and Wildlife Service from 1956 until his retirement in 1976. Dr. Cleaver's duties and assignments included research into the methodologies of determining sustainable yields of various fisheries, including Alaska king crab, salmon, and steelhead trout, and conducting biological research on various domestic and international fish populations, including flounder, herring, and tuna. In 1968, he became program director of the Columbia River Fisheries Program, where he managed programs to increase the runs of salmon and steelhead through the operation of hatcheries, establishment of bypass fish-ways at migration obstructions, and installation of screens at dangerous river diversions. He wrote and published numerous scientific papers, and reports from his research were instrumental in commercial fishing negotiations with Canada, Japan, and the former U.S.S.R.

He married Rosemary Hays of Portland, Oregon, in 1941. Rosemary passed away in June 1993, ending their long marriage of 52 years.

He belonged to many professional societies, including the American Fisheries Society, the Pacific Fishery Biologists, and, of course, the American Institute of Fishery Research Biologists—the organization that he helped establish in 1956.

Fred Cleaver died on February 6, 2002, at the age of 85, in Portland, Oregon.

ALBERT W. COLLIER



Albert W. Collier was born in Nowata, Oklahoma, on December 12, 1910. He earned his B.A. degree in biology from Rice Institute, Houston, Texas, in 1933. He began graduate studies at the same university, but the Great Depression caused him to halt those studies to provide family support by going to work.

Albert's amazing and varied professional career began in 1935 as a marine biologist with the Texas Game, Fish and Oyster Commission (TGFOC) in Rockport, Texas. In 1939, he left Rockport to accept a position with the U.S. Fish and Wildlife Service (FWS) in Alaska, where he studied salmon until 1942. With the outbreak of U.S. involvement in World War II, Albert was transferred to New Orleans, Louisiana, where he became a member of a team studying the Gulf of Mexico shrimp industry. After only a short time in New Orleans, Albert transferred his civil service position to the Naval Air Station in Corpus Christi, Texas, which he served until 1944. In that position, he served in the Gyro Instruments and Graphic Arts Divisions. This experience accounts for Albert's extensive knowledge of scientific instrumentation, and that and his natural talents explain his ability to design and modify instruments for research.

Again, Albert deferred his scientific interests to assist his family's mercantile business in Rockport, Texas, as manager of the seafood portion of the enterprise. He leased 100 acres of submerged land in Aransas Bay, and worked with the TGFOC as he transferred oysters from nearby overcrowded reefs to his reef. At that time, he was the largest commercial oyster farmer in the area. During that period, he served as mayor of Rockport. However, his absence from the scientific research did not last long.

In mid-1946, Gulf Oil Corporation sought Albert's assistance in conducting its investigation of allegations that petroleum activities in coastal Louisiana were responsible for massive oyster mortality in that state. While working on the Louisiana oyster problem, Albert was the leader in two landmark biological discoveries. He was one of three investigators who independently discovered that a previously-unknown protistan parasite was the cause of the abnormal oyster mortality (Mackin, J.G., H. Malcolm Owen, and Albert Collier, 1950, Preliminary note on the occurrence of a new protistan parasite, *Dermocystidium marinum* n. sp. [now known as *Perkinsus marinus*] in *Crassostrea virginica* (Gmelin), Science, 111 (2883): 328-329). Another significant contribution during this period was the elucidation of the role of "dissolved organic matter" in the nutrition and other activities of marine organisms.

In late 1950, Albert joined the newly-established U.S. FWS laboratory in Galveston, Texas. In a short time, he became the Director of that laboratory. As Chief of the U.S. FWS Gulf Fishery Investigations, he provided the leadership and stimulus for another important scientific discovery—this time for providing indisputable evidence that the marine dinoflagellate, *Gymnodinium breve*, was the cause of the fish-killing phenomenon in the Gulf of Mexico known as Florida Red Tide.

In 1956, when Texas A&M University decided to increase its presence in Galveston, Texas, the Oceanography Department recruited Albert to launch the A&M Marine Laboratory. At that time, Building 311, Fort Crockett, was a long-neglected facility infested with rats, roaches, and pig-

eons. Despite a poor level of institutional funding, he was able to obtain U. S. National Science Foundation (NSF) funding to transform the World War II building into a respectable research and educational facility. There was no money for office furniture—the maintenance man built Albert's desk from plywood—and the building was not air-conditioned until he obtained building renovation funds from the NSF.

Albert's reputation as a "can do" builder of marine facilities led Florida State University (FSU) in Tallahassee, Florida, to invite him to become Director of its Oceanographic Institute. Thus, in October 1962, Albert took his several research projects and his research team, except for Sammy Ray, to FSU. Until his retirement in 1976, as Emeritus Professor of Biology, Albert was heavily involved in teaching and research in marine biology and oceanography at both the undergraduate and graduate levels. He also directed the work of graduate students, 13 and 6 of whom were awarded M.S. and Ph.D. degrees, respectively. During that period, he was also heavily involved in research related to underwater warfare for the U.S. Navy. In addition, he served as Chairmen of the Committee for Naval Research that reviewed and evaluated research proposals.

Following retirement from FSU, Albert served as Visiting Scholar at the University of Arizona in Tucson, for three years. He was active in research in marine biology centered in the Gulf of California. His most notable achievement during that period was the publication of a manual of sea animals of the Gulf of California, which was illustrated with 150 of Albert's pen and ink drawings. In 1982, he retired to Green Valley, Arizona, to enjoy his numerous hobbies, including painting, writing, music, and billiards.

Albert was fellow of the American Association for the Advancement of Science, a Founding Fellow of the American Institute of Fishery Research Biologists, and a member of the American Chemical Society, the American Fisheries Society, the American Geophysical Union, the American Society of Limnology and Oceanography, the Biological Photographic Association, the Ecological Society of America, the Marine Biological Association of the United Kingdom, the National Shellfisheries Association, the Scottish Marine Biological Association, and the Texas Hall of Fame for Science, Mathematics and Technology.

Albert had a passion for education, and he deeply appreciated the role that good teaching plays in one's life. An example of his passion for education, in regard to AIFRB (provided by Bernard E. Skud): in a letter dated July 1, 1956, to W. F. Thompson, after reviewing the draft articles of incorporation, Collier noted, "In the case of education standards I would like to see the requirement for schooling in the liberal arts spelled out. If our profession is to rise above the technician category, and its members are to represent themselves and their organizations as they should, a broad and solid academic background is essential."

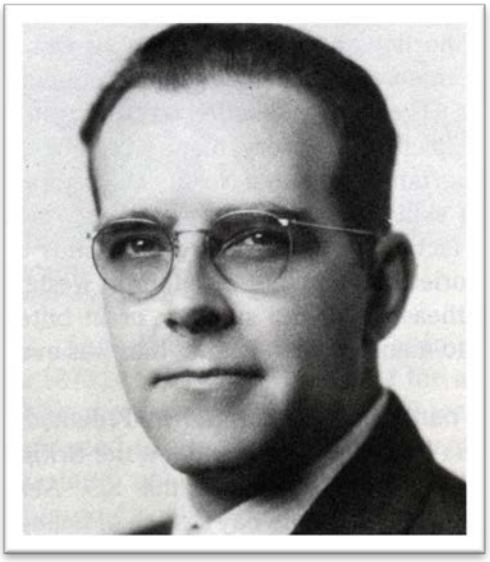
Another indication of Albert's love of education is noted in his acceptance speech on the occasion of his induction into the Texas Hall of Fame for Science, Mathematics and Technology on January 20, 2003. Albert Collier: "As I ponder the course of the professional career that brings me here, I am awed by the ups and downs, the sharp rights and lefts, and more u-turns than I care to recall. I wonder what carried me through all of that. The answer is good teachers." Then Albert proceeded to name specific teachers at each level of education and their specific contributions to his development from elementary school through college at Rice University.

Albert is a rare example of an individual who was successful in an academic situation without the benefit of an "academic union card," a Ph.D. degree. Unfortunately, the lack of this academic credential made him vulnerable to academics with Ph.D. degrees who were ready to take over his creations. Fortunately for Albert, however, there were always new scientific and academic endeavors in need of his perseverance and creativity to "breathe life" into, whether it be an infant or

struggling project. Albert was willing to accept the challenge of difficult projects that most seasoned or high-profile scientists would reject because of either low personal compensation or inadequate support to successfully achieve the proposed objectives. Because of his successful scientific and academic accomplishments, he was often addressed as “Dr. Collier,” which always resulted in the quick response, “I don’t have a Ph.D. degree.” The recipients of this denial were often shocked to learn that a person lacking a Ph.D. degree could make scientific contributions as significant as those of Albert Collier.

Albert W. Collier died in San Antonio, Texas, on November 28, 2009, at the age of 98.

HENRY A. DUNLOP



Henry A. Dunlop, also known as Harry, was born in Dunrea, Manitoba, Canada, on July 8, 1898. He earned a Bachelor of Arts degree in Zoology at the University of British Columbia in 1919 and a Master of Arts degree in Zoology in 1922, under Dr. McLean Fraser, a prominent fishery-oriented marine biologist, at the same university. He continued his graduate studies at the University of Toronto during 1924-1925 and at the University of Washington School of Fisheries between 1931 and 1936.

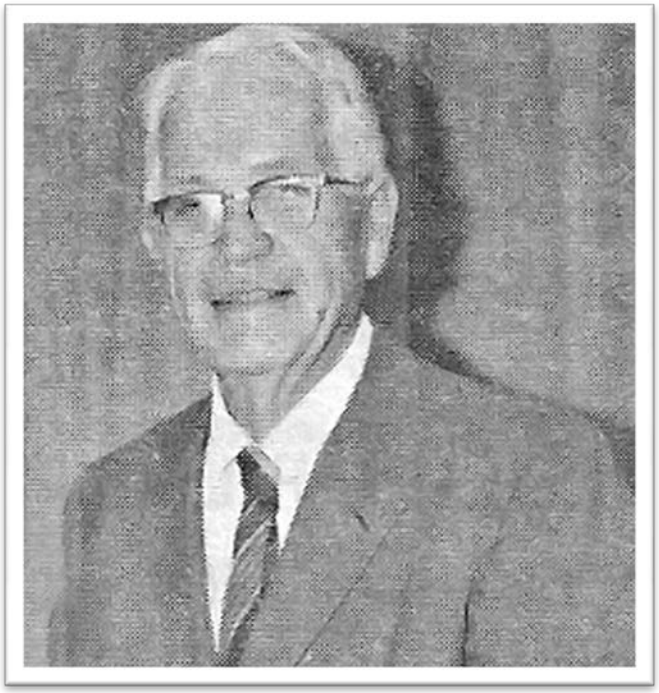
He joined the staff of the International Fisheries Commission, predecessor of the International Pacific Halibut Commission, in July 1925 as Assistant Director. He held that position until May 1939. He was appointed Acting Director of the Halibut Commission for the period of June 1939 to September 1940, at which time he was appointed Director of Investigations, a position that he held until his retirement in 1963. During his tenure, the rehabilitation of the resources continued, and by the early 1960s they were close to their optimum levels. This was accomplished under adverse and trying circumstances.

Maintaining a research program during World War II was most difficult, with a scientific staff at one time reduced to three persons, including the Director. Also, funds allotted for research and management were steadily eroded by inflation. During the postwar period, prolonged and frustrating effort over a period of seven years were required to secure treaty authority that would permit measures to alleviate the drastic reduction that had occurred during the fishing seasons. During the 1950s, further demands were placed on the staff to “prove in” certain commitments made by Canada and the United States with Japan, culminating in the eastern Bering Sea debacle in 1962, when the two countries abdicated their valid exclusive claims to the halibut stocks in that region. Mr. Dunlop was deeply concerned over the threat that the fishing fleets of Japan and the USSR posed for the Pacific halibut stocks, and he feared for the survival of the halibut fisheries of Canada and the United States.

Harry Dunlop was a member of the American Fisheries Society, the American Society of Ichthyologists and Herpetologists, and the American Association for the Advancement of Science. He was a charter member of the Pacific Fishery Biologists. In 1953, he received the Elizabeth II Coronation Medal for meritorious public service to Canada. He was also a Founding Fellow of the American Institute of Fishery Research Biologists. Early ideas and discussions that led to the formation of the AIFRB took place in the Halibut Commission’s offices. The role of cooperation between the members of the fishing industry and the regulating agency were crucial to the recovery of the halibut resource and in many ways influenced the discussions that led to the formation of the AIFRB.

Harry Dunlop returned to Vancouver when he retired in 1963. He passed away on May 3, 1966, at the age of 68.

DONALD H. FRY, JR.



Donald Fry was born in San Francisco, California, on September 2, 1905. He earned his A.B. and M.A. degrees at Stanford University in 1927 and 1928, respectively.

He was hired by the California Division of Fish and Game (CDFG) as an assistant fisheries biologist in 1928, was promoted to senior fisheries researcher in 1931, and to senior fisheries biologist in 1943. He spent the period of 1928 to 1957 at the CDFG's laboratory in Terminal Island, California, where he worked on Pacific mackerel and other species. Concurrently, from 1948 to 1957, he was a California representative to the Pacific Marine Fisheries Commission.

In 1957, Don took a 1-year leave of absence to work for the Food and Agriculture Organization (FAO) of the United Nations in Uganda. After that, he returned to the CDFG, at which time he was transferred to Sacramento, California, and promoted to supervisor of research and analysis for the CDFG's Salmon and Steelhead Investigations. He remained in that position until he retired in 1975.

Don was a Founding Fellow of the American Institute of Fishery Research Biologists and a life member of the Audubon Society. He served as president of the Sacramento Audubon Society in 1960. During the last months of his life, he was involved in developing the Bobelaine Nature Preserve, adjacent to the Sacramento River in Sutter County.

He died in Sacramento, California, on March 4, 1976, at the age of 70.

JOHN B. GLUDE

John B. Glude was born on August 2, 1918, in Silverdale, Washington. He received a B.S. degree in Fisheries in 1939 from the University of Washington and an M.P.A. degree in 1969 from the same institution.

He worked as a shellfish biologist for the Washington Department of Fisheries (WDF) from 1940 to 1941. During World War II, from 1941 to 1945, he was employed as an associate naval architect draftsman at Todd Pacific Shipyards in Tacoma, Washington. After the war, he returned to the WDF, where he was involved in research on the effects of pulp mill pollution on oysters and the importation of Japanese seed oysters to Washington.

In 1948, he moved to the U.S. Fish and Wildlife Service (FWS) laboratory at the Woods Hole Oceanographic Institution in Woods Hole, Massachusetts, where he was involved in research on the abundance and survival of softshell clams along the entire east coast of the United States. That project was moved to a former fish hatchery in Boothbay Harbor, Maine, in 1948. Soon thereafter, he became Director of the Boothbay Harbor Laboratory, where he instituted further research on artificial propagation of clams and other species.

He later became Director of the FWS laboratory in Annapolis, Maryland, where he worked on methods for farming shellfish, with an emphasis on oysters. He then moved to the U.S. National Marine Fisheries Service (NMFS) headquarters in Washington, D.C., where he was responsible for shellfish research covering seven regional laboratories and development of the first U.S. National Aquaculture Plan. Later, in 1970, he became assistant Regional Director of the northwest region of the NMFS in Seattle, Washington. After retirement, he started Glude Aquaculture Consultants, and was active in the United States and overseas, often consulting on behalf of the United Nations Food and Agriculture Organization. Over the course of his career, he published more than 100 scientific papers on clam and oyster culture.

He served for two years, in 1964 and 1965, as President of the National Shellfisheries Association, and also periods as Vice-President and President of the World Aquaculture Society, the latter in 1978-1979. He was a member of the American Fisheries Society and the Ecological Society of America, and he was a Founding Fellow of the American Institute of Fishery Research Biologists.

Throughout his life, he was an avid sportsman, enjoying fly fishing, hunting, and kayaking. He took up wind surfing at the age of 65!

Mr. Glude died in Annapolis, Maryland, on October 19, 2004, at the age of 86. John was influential and well-respected worldwide for his work on clam and oyster culture, and for his efforts on behalf of the World Aquaculture Society and the National Shellfisheries Association. He is missed by his many friends and colleagues from around the world.

HERBERT W. GRAHAM

Herbert William Graham was born in New Brighton, Pennsylvania on December l8, 1905. He graduated as valedictorian of his high school class in Ambridge, Pennsylvania, and praised the teacher who got him interested in science for the rest of his life. On a field trip with the Western Society of Botanists, he met a professor from the University of Pittsburgh, who offered him a scholarship. While a student there, he worked in the Botany Department of the Carnegie Museum, and participated in field trips to Minnesota and Arizona. Herb played the trumpet in the University band, and also in a local professional band. After graduating with a B.S. degree in June 1929, he had a graduate fellowship to study phytoplankton in Lake Erie. When that was completed, he received an appointment from the Carnegie Institute to serve as a chemist and biologist aboard the brigantine *Carnegie* in the South Pacific Ocean.

At that time, the *Carnegie* was the only sea-going non-magnetic observatory for obtaining geophysical data. Herb conducted chemical analyses of water samples and collected and examined plankton samples, with particular attention to the dinoflagellates. In Apia, Samoa, on November 28, 1929, Herb and two others left the vessel to collect some specimens while the vessel was being refueled. There was an explosion aboard the vessel, and it burned to the water line. Several scientists and crew members were severely burned, and the captain and cabin-boy died. All of this is documented in a book published in 1932: The Last Cruise of the *Carnegie* by J. Harland Paul, the surgeon on the vessel. (Herb's duties and activities are mentioned in the book. He was 24 at the time, and may have been the last survivor of that cruise.)

In 1930, having fortuitously escaped the catastrophe, Herb made two momentous decisions. He married Ruth, a partnership that lasted 67 years, and decided to go to graduate school at Stanford University. He had fallen heir to the phytoplankton collections taken by the *Carnegie* and to a large amount of chemical data. These formed the basis for his studies for the next seven years at the Hopkins Marine Laboratory in Pacific Grove, California, and at the Scripps Institution of Oceanography in La Jolla, California. He earned his M.A. and Ph.D. degrees from Stanford in 1934 and 1938, respectively. While at Hopkins, he had the good fortune to spot a sea otter—the first seen in Monterey Bay for decades. He was fortunate, too, to rent a cottage from and become a close friend of John Steinbeck, the famous author. He also befriended Ed Ricketts, co-author of Between Pacific Tides. (Ricketts was the model for the character "Doc" in Steinbeck's novels "Cannery Row" and "Sweet Thursday.") After receiving his Ph.D. degree, he accepted a position as Assistant Professor of biology at Texas Christian University in Fort Worth, Texas. Herb returned to California in 1939, where he had accepted a position as Associate Professor of zoology at Mills College for Women in Oakland. He remained there until 1948, by which time he had risen to the rank of Professor of Biological Sciences. He was Chairman of the Zoology Department from 1941 to 1943. During World War II, his students included women training as nurses. He was an advisor for pre-medical

students, and taught courses in zoology, animal ecology, and parasitology, and continued his research on dinoflagellates.

Herb joined the U.S. Fish and Wildlife Service (FWS) in 1948 as an oceanographer in the Philippine Rehabilitation Program, based in Manila. This assignment ended in 1950, when he was asked to take the Directorship of the U.S. FWS Red Tide Laboratory in Sarasota, Florida. In June 1951, he was appointed Director of the FWS (later Bureau of Commercial Fisheries and National Marine Fisheries Service) Laboratory at Woods Hole, Massachusetts. He was responsible for developing new research programs relative to the growing international fisheries and to the renewed interest in marine fisheries, resulting from the passage of the Saltonstall-Kennedy Act. During his tenure as Director, Herb was instrumental in acquiring a new research vessel, the *Albatross IV*, a new laboratory building, and a public aquarium. He was able to strengthen the Service's contacts with the Marine Biological Laboratory at Woods Hole through his friendship with Mary Sears, who had been with the Office of Naval Research when he was with the Carnegie Institute.

Among other duties, Herb was a U.S. representative to the International Commission for the North Atlantic Fisheries (ICNAF). Among the visitors to the laboratory during those years were Vice President Hubert Humphrey and Hurricane Carol, the latter in 1954. While at Woods Hole, Herb published chapters in books and papers in journals on a wide variety of subjects. The fishery papers were concerned mainly with Gulf of Maine groundfish and topics such as mesh size of trawls. He was among the earliest to discuss ways to manage multi-species fisheries. In an unpublished report (Woods Hole Laboratory Reference Document 55:04), he described special problems in the New England groundfish fishery, and suggested a seasonal change in "fishing habits" as one means of minimizing the incidental catch, while maintaining the annual value of the catch to the fishermen. (A change of this type implemented in the Bering Sea during the 1970s was successful in reducing the incidental catch of halibut by foreign vessels with no loss in the annual catch of the target species.) In addition to papers concerning the *Carnegie* collections and those relating directly to fisheries, he wrote about plant succession, sedentary marine organisms, respiratory mold allergy, chlorophyll in marine plankton, and climatic trends.

Herb retired as Director of the Woods Hole Laboratory in 1971. He remained active as a charter member of the Barnstable County Beekeepers Association and taught children the art of beekeeping. He helped design and build his son's house. He was an avid gardener, and enjoyed local band concerts. Herb regularly attended luncheons of retirees from the laboratory. The discussions at these events covered a broad spectrum. On a day when the topic was mudpuppies, it was Herb who could recall the generic name.

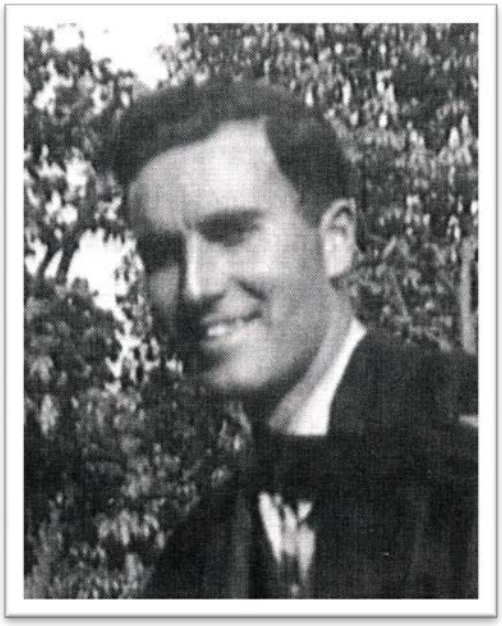
Herb reminisced with a friend, AIFRB fellow Bernard E. Skud, about their experiences together. At a meeting in St. Andrews, N.B., Canadian scientists introduced the U.S. visitors to an evening of curling. None of the U.S. group had ever curled before, but all were athletically inclined and were confident that they could master the game. Herb, the oldest and slightest of build, was very adept at handling the curling stones, and not only out-performed his U.S. colleagues, but held his own with the expert Canadians.

Herb's interest in bee-keeping began when he was 10 years old. When he left Pennsylvania with Ruth to attend Stanford in 1930, he drove across the country in a Model A Ford with a bee hive on the running board. When he taught at Mills College, the students in his biology class were given an "open-hive demonstrations," and for 40 years Herb gave those demonstrations to school children. Herb and Bernard Skud participated in an ICNAF meeting in Poland in 1969. While driving in the countryside, he spotted some bee hives in a farmyard, and decided to investigate. The farmer didn't speak English, but Herb and he were able to communicate in sign language. Herb found out all

about the operation, including the fact that the hives were constructed with newspapers. Herb's son David set up a hive outside the picture window at Herb's house for him to watch the activities of the bees. Herb's passion for bees, in addition to that for marine biology, remained as keen as ever after his retirement. His reply to the frequently-asked question as to the secret of his long life was: "Eat honey and wheat germ and have pure thoughts."

Dr. Herbert Graham died at home in Woods Hole, Massachusetts, on January 29, 2009. He was 103 years old.

J.A.R. HAMILTON



James Arthur Roy Hamilton was born in Framlingham, England, on May 1, 1919, and as an infant moved with his family to New Westminster, B.C., Canada. After earning his B.A. and M.A. degrees at the University of British Columbia in 1944 and 1947, respectively, he was awarded his Ph.D. degree at the University of Washington in 1955. His dissertation was entitled "An Investigation of the Effect of Baker Dam on Downstream Migrant Salmon."

Roy worked for the International Pacific Salmon Fisheries Commission, a joint Canadian and United States organization that was responsible for the restoration of sockeye salmon in the Fraser River, from 1943 to 1956, starting as a Biologist and, eventually, as Senior Biologist and Assistant Administrator for Research. During that period, he conducted research on the ecology of salmon, age analysis, and the effect of dams on fish.

In 1956, Dr. Hamilton accepted the position of Environmental Coordinator with the Pacific Power and Light Company in Portland, Oregon. He conducted research on fish and dam problems, particularly the ecology of seaward migration of young salmon. During this period, he held concurrent positions as consultants for the U.S. Army Corps of Engineers and the Washington Department of Fisheries. Roy and the late George Eicher (another AIFRB Fellow), who was hired by Portland General Electric in the same year, were among the first (if not the first) fishery biologists hired by electric power companies.

In addition to being a Founding Fellow of the AIFRB, Dr. Hamilton was the Chair of the Ethics Committee in 1956, the first District Director of the Southwest Washington and Oregon District (1962-1965), and AIFRB President in 1971-1972. The inaugural issue of *Briefs* was published in February 1972, and in the "Message from the President," he said that *Briefs* was intended to be "a dignified communication designed to reflect the posture and vitality of the Institute." In an August 1980 *Briefs* article, he wrote about the need to "direct more attention to the needs of the inland fisheries biologist."

Roy's other activities included Committee Member, Second Governors' Conference on Salmon; British Columbia Academy of Sciences; American Fisheries Society; Pacific Fishery Biologists (a Past President); and the American Society of Limnology and Oceanography.

Roy retired to Comox, B.C., Canada, in 1999. During his retirement years, he was an active member of his church, charitable organizations, and business associations. He died in Comox on May 29, 2009, at the age of 90.

JOHN LAWSON HART

John Hart was born in Toronto, Ontario, Canada, on May 8, 1904. In his undergraduate years at the University of Toronto, he was influenced first by Dr. W.A. Clemens, and later by Dr. J.R. Dymond, to pursue a career in fisheries biology, and from 1922 to 1925 he studied the life history of the whitefish, mainly in Lake Nipigon. During this early period, according to Dr. F.E.J. Fry, John Hart did "a fundamental and pioneering piece of work" in Shakespeare Island Lake in Lake Nipigon by producing "one of the early population estimates that was made of a population of fish"—work that was continued by Dr. W.E. Ricker. In recollection, John recently referred to this period, which involved all the vicissitudes of primitive outdoor living and crude scientific equipment, as "one of the very happy times of my life."

In the late 1920s, he continued-his studies on whitefish in the Bay of Quinte in Lake Ontario, and these formed the basis for his Ph.D. degree, which he received in 1930 from the University of Toronto.

After a brief period as lecturer in zoology at the University of Alberta in Edmonton, he joined the Biological Board of Canada (later the Fisheries Research Board of Canada (FRBC)) in 1929 at the invitation of Dr. Clemens, who was then Director of the Board's research station at Nanaimo, British Columbia. He remained with the Board for 38 years until his retirement in 1967.

His first assignment at Nanaimo was to investigate the Pacific pilchard (California sardine) stocks off British Columbia, which were the basis for an important reduction (oil and meal) fishery. From age and growth studies, he noted that only the larger and older fish were found off British Columbia. Through contacts with California scientists, including Dr. W.F. Thompson, he became convinced that pilchards spawned only in waters to the south of British Columbia. He postulated that only the large year classes, spawned off California and Mexico, reached the British Columbia coast in abundance. This classic study enabled him to forecast accurately the decline and collapse of the British Columbia pilchard fishery, as the new year classes became progressively less abundant through either natural causes or overfishing off California.

In the early 1930s, Dr. Hart also initiated studies on the Pacific herring, another pelagic species about which little was known. He recognized in those early years the urgent necessity of determining the size of fish stocks in order to advise on the permissible catch. He soon concluded that morphometric studies would not be adequate to delineate the intermingling races of Pacific herring, and, with the assistance of Dr. A.L. Tester, he launched an extensive tagging and recovery program, which formed the basis for definitive studies by Tester in later years.

In the early 1940s, John Hart's interests in marine fisheries changed in response to the urgent need for information on dogfish, lingcod, and other groundfish fisheries, which were expanding rapidly to offset wartime shortages of vitamin A and meal products. Sparse scientific data were available on the complex of fishes being caught by the fast-developing otter-trawl fishery, and little was known of the impact of this fishery on long-established hook-and-line fisheries for lingcod, sablefish, and halibut.

To provide answers to these difficult questions, John set up a groundfish investigation in 1943, which, through his wise leadership, made significant scientific advances in the years that followed.

His interest in the marine fauna was broad. During his years at Nanaimo, he studied, in addition to the species previously mentioned, fur seals, capelin, dogfish, butter sole, albacore, amphipods, smelt, and Pacific pompano. He strongly believed that research was not complete until the results were published, and findings from all of his own research are in print. This conviction was impressed upon his staff when he became a research administrator, along with his belief in the importance of making research results available to potential users. As late as 1963, he produced a publication entitled "Useful Publications for Oyster Farmers of the Maritimes." In all, he published almost 100 papers, including one in Norwegian.

When John Hart was appointed Director of the Nanaimo station of the FRBC in 1950, he initiated new or enlarged research programs in fish physiology, behavior, and parasites. In the early 1950s, he participated in the beginnings of the International North Pacific Fisheries Commission, and a few years after moving to the directorship of the St. Andrews station in 1954 he became closely connected with developments in the International Commission for the Northwest Atlantic Fisheries. He felt strongly that ICNAF's survival depended on instituting effective international controls on fishing. At St. Andrews, he was involved in the extensive Canada-U.S. Passamaquoddy Fisheries Investigations from 1956 to 1959. As director, he played an important role in opening up the vast Canadian Atlantic herring fishery, in promoting the exploitation of underutilized Atlantic species, and in initiating studies on the ecology of the coastal ocean bottom—an area that has considerable current importance.

John Hart was a clear thinker and a master of the English language. He always weighed his words before he spoke or wrote. One day in the early 1940s, he went into the office of a young scientist who was struggling to compose a difficult paragraph in his first paper. He suggested, "You haven't thought out what you want to say. Think before you write, and after you've written think and write again. The fledgling scientist, who later became a journal editor, has often recalled that sound advice.

He was, above all, a man of principle and a gentleman, He was completely honest with his associates and with himself. He was decisive, and never went back on his word. At the same time, he was open-minded and was influenced by people whose opinions he trusted. He made friends cautiously, and sometimes seemed aloof and reserved on a first meeting. He had a broad sense of humor, which often was delightfully puckish in the company of friends.

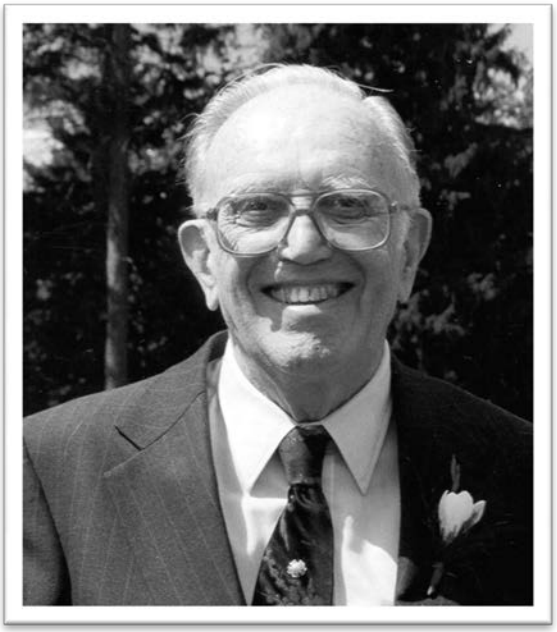
In 1967, John retired as Director of the St. Andrews station. Soon he became restless and found a new career as a systematist of Pacific fishes, attacking the writing of a new book, "Pacific Fishes of Canada," on the subject with great vigor. His broad interest in and research on the fish fauna of the British Columbia coast from the early 1930s gave him a sound basis for writing this book. Never complacent, John worried that in this endeavor he might be "an amateur playing in a professional league." This concern proved unfounded, and in the last months of his life numerous favorable reviews of his book reached him from all over the world. It was the crowning of a highly-productive life.

John was active in many international scientific societies throughout his life, and was elected a Fellow of the Royal Society of Canada at an early age. He was also a Founding Fellow of the American Institute of Fishery Research Biologists and a member of the American Association for the Advancement of Science, the American Fisheries Society, and the American Society of Ichthyologists and Herpetologists. But being a humanist as well as a scientist, he found time to participate fully in the Rotary Club in Nanaimo and in the Kiwanis Club in St. Andrews. One of his keenest interests in later years was the establishment of the Passamaquoddy Lodge, a home for senior citizens in St. Andrews.

Dr. John Lawson Hart died on December 6, 1973, at his home in St. Andrews, New Brunswick, at the age of 69. With his passing, Canada lost a dedicated aquatic scientist and an able research administrator whose career spanned over half a century.

A new government research vessel, the *J. L. Hart*, was launched in 1974 on the Atlantic coast, working out of St. Andrews. Nothing could be more fitting in memory of a man who devoted himself to studies of life in Canada's lakes and oceans.

CLARENCE P. IDYLL



Clarence Purvis Idyll was born in Edmonton, Alberta, Canada, on February 10, 1916, and was raised in Vancouver, B.C. He graduated from high school when the Great Depression was at its deepest, but his mother was determined that he would get the education that she had missed. His family moved close enough to the University of British Columbia in Vancouver for him to get there by bus, and he was launched on a long career as a student.

A biologist in British Columbia at that time had the best chance of making a living as an entomologist or a fishery biologist. When he got a summer job in a research fish hatchery on Vancouver Island, run by the Fisheries Research Board of Canada, that did it. He received his B.A. degree with first-class honors in zoology from the University of British Columbia in 1938, and he continued his studies there until he received his M.A. degree in zoology in 1940. The Depression was still being felt, and the prospect of a job in science did not appear promising, so during the second year of his graduate work he also took Teacher's Training and emerged with a certificate to teach high school.

Upon completion of his master's degree, he was hired to teach mathematics and physical education by the Superintendent of Schools, who later became his father-in-law. He found teaching difficult, and decided that there must be easier ways to make a living. From 1941 to 1948, he worked intermittently for the International Pacific Salmon Fisheries Commission while pursuing graduate studies at the School of Fisheries of the University of Washington, from which he eventually earned his Ph.D. degree in 1951.

In 1948, while still enrolled in graduate studies at the University of Washington, he joined the University of Miami staff as a research associate in fisheries for the Florida State Board of Conservation and various foreign governments. Soon thereafter, he was invited to join the faculty of the newly-created Department of Marine Sciences at the University of Miami, now known as the Rosenstiel School of Marine and Atmospheric Sciences, in Coral Gables, Florida, as an Assistant Professor of Fisheries Science. Most of Dr. Idyll's professional life was spent at the University of Miami. When he arrived at the University, he was the only faculty member of the Department of Fisheries, and he was given the exciting challenge of creating a southeastern school of fisheries science that would be the warm-water equivalent of the acknowledged leader in the field, the College of Fisheries (formerly the School of Fisheries) at the University of Washington, from which he had graduated. He was promoted to Associate Professor in 1953 and to Professor in 1956.

The total enrollment in the first course he taught consisted of one student, who later became the Director of the U.S. Bureau of Commercial Fisheries. Many of his students, American and foreign, went on to become scientists and teachers—in some cases heads of research groups and professors and deans of schools of fisheries around the world. He was named Outstanding Teacher of the Year in 1969. The research carried out in his department was chiefly on spiny lobsters, mullet, and shrimp. To a considerable extent, this research was supported by the state of Florida and U. S. government contracts and foundation and private grants. The National Geographic Society provided

research grants over many years, and its support made it possible for the University to pioneer in the adaptation of Japanese research on shrimp farming. The University of Miami was one of the first universities to participate in the National Sea Grant Program and the first to have an aquaculture project supported by that program. In that project, shrimp were successfully raised from eggs to adults. By 1971, when he left the University of Miami, the Department of Fisheries consisted of 12 to 15 teaching and research faculty members.

While at the University of Miami, Dr. Idyll was involved in many activities, including consultations for the Food and Agriculture Organization (FAO) of the United Nations (UN), the U.N. Development Programme (UNDP), the U.S. National Academy of Sciences, the U.S. National Oceanic and Atmospheric Administration (NOAA), the U.S. National Parks Service, and the government of British Honduras. He also served on the editorial boards of several scientific journals.

In 1971, Dr. Idyll joined the professional staff of FAO, in Rome, Italy. Over the years he had become a dedicated believer in the value of open communication among nations, including that engendered by such institutions as the United Nations. FAO was the first specialized agency created after the United Nations was organized, and has as its mission the promotion of food production, particularly in developing countries. His work during the three years he was at FAO included a mix of scientific, political, and social problems. There were satisfactions in seeing some fishery development and management projects succeed, but there were sometimes disappointing failures, sometimes because of the inadequacy of the experts provided by FAO, but more often because of the inability of the host country to provide the promised and essential backup of local staff and materials resources or because of incompetence or dishonesty in the governments of the host country.

Dr. Idyll left FAO in 1974 to accept a position with NOAA in Washington, D.C., where he became the Study Director of the Senate Ocean Policy Study and later became the Chief of the Division of Fisheries Development and Services in the Office of International Fisheries, with responsibility for liaison concerning cooperative fishery activities between the U.S. National Marine Fisheries Service, international organizations, including FAO and other UN agencies, and foreign countries. He retired from the U.S. government in 1984.

After retirement, he increased the amount of consulting that he did for FAO, the U.S. Agency for International Development, the UNDP, the Technical Advisory Committee of the Consultative Group on Agriculture Research, and other groups.

He received the Conservation Award from the Florida Wildlife Federation in 1967. He was a member of the American Association for the Advancement of Science, the American Fisheries Society, the American Society of Ichthyologists and Herpetologists, and the American Institute of Biological Sciences, and was a Founding Fellow of the American Institute of Fishery Research Biologists.

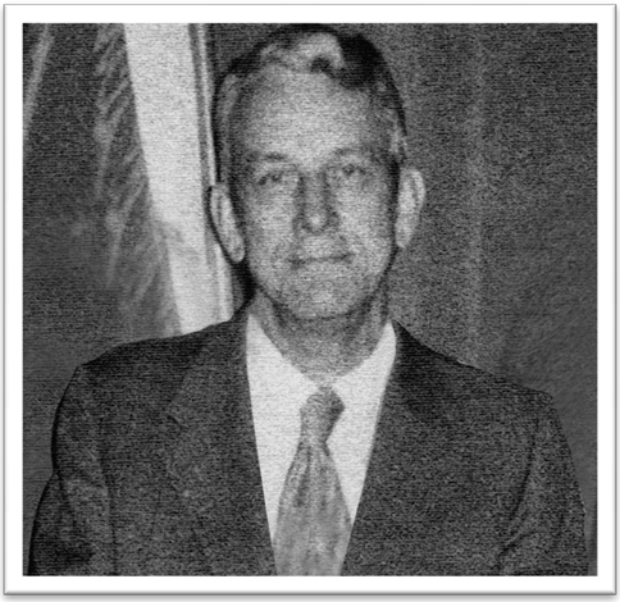
In addition to numerous scientific papers, Dr. Idyll published three books, Abyss: the Deep Sea and the Creatures that Live in It, Thomas Y. Crowell Company, New York (1964); The Sea against Hunger, Thomas Y. Crowell Company, New York (1970), and Exploring the Ocean World: a History of Oceanography (Thomas Y. Crowell Company, New York, 1969), all of which went through more than one edition or printing. (He was the sole author of the first two, and editor and contributor to the third.) In addition, he had many articles published in major magazines, including Scientific American, Science Digest, and the National Geographic. He was fond of classical music and travel, both foreign and domestic, and he became an accomplished photographer, with some of his photographs published in books and major magazines.

He always said that there were three great forces that dominated his life: the sea, internationalism, and luck. His almost accidental choice of his professional field led him to interesting and

satisfying work, and to world-wide contacts and experiences. Fisheries science is lucky that he chose that profession.

In 1989 he and his wife, Marion, moved to Asbury Methodist Village in Gaithersburg, Maryland, where he served as the Dean of the Keese School of Continuing Studies, was the Chairman of the Coordinating Council for Asbury Village (CCAV), was one of three persons who organized the Partnership Action Council (PAC) and wrote the original paper that created the PAC—a partnership between residents and administration, and served on the executive committee of the PACs while he chaired CCAV. His wife of almost 60 years, Marion, died in 2000. Dr. Idyll died in Gaithersburg on June 3, 2007, at the age of 91.

DONALD R. JOHNSON



Donald R. Johnson was born on April 27, 1917, in Portland, Oregon. He studied fisheries at Oregon State University in Corvallis, Oregon, from which he obtained his B.S. degree in 1939. He began work as a biologist for the International Pacific Salmon Fisheries Commission in 1939, but in 1942, shortly after the United States entered World War II, he joined the U.S. Army and was sent back to Corvallis for engineer training. While there, he met Kathleen Moore, and on January 2, 1944, they were married.

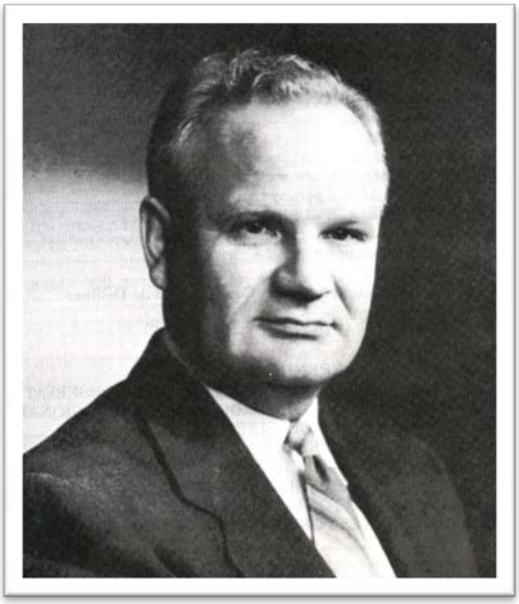
After the war, during which Don served as a sergeant in the Army Signal Corps in New Guinea and the Philippines, he joined the staff of the Oregon Fish Commission, where he focused on salmon management. In 1949 he was promoted to Assistant Director of Research. In 1951, he accepted the position of Chief Supervisor of Research for the Washington Department of Fisheries (WDF). (He was almost certainly recruited for that position to restore the effectiveness of the WDF after the events described in the biography of William A. Smoker.) In 1958, he left the WDF to become Regional Director of the Pacific Southwest Region of the U.S. Bureau of Commercial Fisheries, where he remained until 1966. He then returned to the Pacific Northwest, serving as Regional Director of the Pacific Northwest Region of the U.S. National Marine Fisheries Service until his retirement in 1980.

He served as a visiting lecturer at the University of Washington during 1951-1958 and 1966-1970 and as an affiliate professor there from 1970 to 1980. Also, he served as a commissioner for the International Pacific Salmon Fisheries Commission and the Northwest River Basins Commission. He was a member of the American Association for the Advancement of Science and a Founding Fellow of the American Institute of Fishery Research Biologists.

Don was a completely straightforward and honest person, who fully supported the people who worked under his supervision. Everyone in the fisheries profession had great respect for him.

He was active in the United Methodist Church in Bellevue and Belfair, Washington. Don died in Bellevue on March 28, 2000, at the age of 82.

JOHN L. KASK



John Laurence Kask was born of Estonian immigrant parents at Sylan Lake, Alberta, Canada, on March 21, 1906. In his youth, he worked as a commercial fisherman in British Columbia. He earned his B.A. degree at the University of British Columbia in 1928 and his Ph.D. degree at the University of Washington in 1936.

During his long professional career he held many important jobs. His positions included the following: Assistant, Biological Board of Canada, 1928; Assistant Scientist, International Fisheries Commission (now the International Pacific Halibut Commission), 1929-1938; Associate Scientist and Assistant Director, International Pacific Salmon Fisheries Commission, 1939-1943; officer, U.S. Army, 1943-1945; Curator of Aquatic Biology, California Academy of Sciences, 1945-1948; Chief Biologist, Food and Agriculture Organization (FAO) of the United Nations, 1948-1950; Chief Investigator and Assistant Director, Pacific Oceanic Fisheries Investigations (U.S. Fish and Wildlife Service, Hawaii), 1951; Chief Officer of Foreign Activity and Assistant Director of Fisheries, U.S. Fish and Wildlife Service, Washington, D.C., 1951-1953; Chairman and Science Administrator, Fisheries Research Board of Canada, 1953-1963, Director, Inter-American Tropical Tuna Commission (IATTC), 1963-1969. He succeeded Dr. Milner B. Schaefer, another Founding Fellow of the AIFRB, in the last position.

During 1947, while employed by the California Academy of Sciences, he served as a consultant for the government of Costa Rica, and during 1947-1948 he served as a consultant for the U.S. Department of State, for which he helped rehabilitate the Japanese fisheries, which were in need of assistance after World War II. After his retirement, for about 10 years, he did consulting work on fisheries and biological oceanography for FAO.

Dr. Kask will perhaps be most remembered for his accomplishments as Chairman and Science Administrator for the Fisheries Research Board of Canada from 1953 to 1963. When he accepted that position, there were about a dozen research stations scattered around Canada, which operated more-or-less independently. He was instructed by the Minister of Fisheries to coordinate the work of those stations and make them more responsive to problems besetting the fishing industry. He succeeded in doing this, and also in making the Fisheries Research Board of Canada one of the finest fisheries research organizations in the world. His prophecies during that period about the dangers of overfishing and pollution proved to be correct.

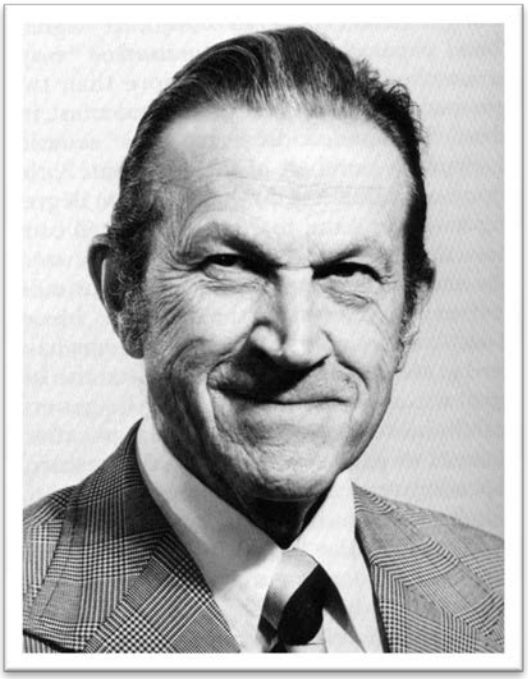
During Dr. Kask's tenure at the IATTC, Mexico and Canada adhered to the Convention in 1964 and 1968, respectively, and catch quotas for yellowfin tuna were first adopted in 1966. Some other highlights of his period as Director were the carrying out of oceanographic studies on the high seas and at the entrance of the Gulf of California, in the Panama Bight, and in the Gulf of Guayaquil.

Dr. Kask was an excellent speaker and writer, and he had the ability to handle people well. During his varied career, he influenced dozens of people who eventually attained positions of great responsibility. All who knew him respected and admired him greatly.

He was a member of the American Association for the Advancement of Science, the American Fisheries Society, the American Society of Ichthyologists and Herpetologists, and the American Society of Limnology and Oceanography, and a Founding Fellow of the American Institute of Fishery Research Biologists.

Dr. Kask died in San Diego, California, on August 8, 1998, at the age of 92.

KARL F. LAGLER



Karl F. Lagler was born on November 15, 1912, in Rochester, New York. He earned his A.B. degree at the University of Rochester in 1934, his M.S. degree at Cornell University in 1936 (zoology and fisheries), and his Ph.D. degree at the University of Michigan in 1940 (zoology) under the late Carl L. Hubbs. A member of the Michigan faculty for 43 years, Karl supervised the graduate work of more than 110 students, who eventually became leaders in fishery management all over the world. He helped found the Department of Fisheries in the School of Natural Resources in 1950, and served as its Chairman for 15 years. He was Professor of Fisheries and of Zoology and was closely associated with the Institute for Fisheries Research of the Michigan Department of Natural Resources (formerly the Department of Conservation), training numerous personnel who joined that organization. He also maintained close ties to the Museum of Zoology, to which he contributed many valuable fish collections made during his far-flung travels. He was named the Justin W. Leonard Distinguished Professor of Natural Resources in 1977, six years before his retirement.

Dr. Lagler travelled widely as a much sought after consultant and biologist for government and private agencies, including the United Nations (Food and Agriculture Organization and World Health Organization), the U.S. Fish and Wildlife Service, the Wildlife Management Institute, the Sport Fishing Institute, and several state conservation departments. Karl had a particular interest in fisheries development projects in third-world countries, with an emphasis on minimizing ecological perturbations. His travels took him to western Europe, Alaska, Southeast Asia (Mekong River Survey), Africa, South America, Kampuchea, and Bangladesh. In 1983, he served as a leader of the University of Michigan Gambia River Basin Studies.

His diversified research interests included predation, natural history, anatomy, hybridization, fishery biology, ecology, and planning and development of man-made lakes. His publications number more than 150 technical and semi-popular papers and manuals, plus several well-known books, including senior authorship (with John E. Bardach, Robert R. Miller, and Dora R. May Passino) of "Ichthyology," which went through two editions, and "Freshwater Fishery Biology." Karl was probably best known to ichthyologists for his collaboration in the production of Hubbs and Lagler's "Fishes of the Great Lakes Region," initiated as a set of keys in 1939; the book was last revised in 1964. In addition to its value as an identification guide and for remarks on postglacial history and zoogeography, this work set the standards for counting and measuring fishes. In 1961 he received the Gold Medal and Diploma of the French Academy of Agriculture for co-authorship of a volume on fisheries of world continents.

He was a fellow of the American Association for the Advancement of Science, a fellow of the International Academy of Zoologists, a Founding Fellow of the American Institute of Fishery Research Biologists and President of that organization during 1967-1968, a life member of the American Society of Ichthyologists and Herpetologists, an Honorary Member of the American Fi-

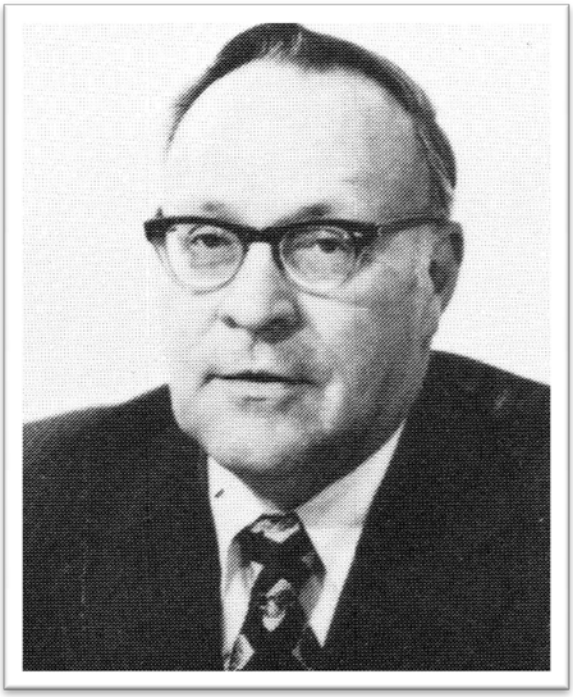
sheries Society, and a member of the American Society of Limnology and Oceanography and the Society for the Study of Evolution.

Active in public affairs, he early realized the educational value of television and hosted more than 100 television programs.

Karl's contagious enthusiasm and seemingly endless energy permeated his active life style. He had a fine sense of humor, and was most generous in helping his many students advance their careers. He had an excellent command of the English language, and was able to impart this ability effectively to students and colleagues alike. His keen, active mind never lacked for useful suggestions in problem solving, a challenge he eagerly sought.

Dr. Lagler died of a heart attack in Ann Arbor, Michigan, on August 25, 1985, at the age of 72.

DONALD L. MCKERNAN



Donald L. McKernan was born in Eugene, Oregon, on January 29, 1918. He graduated in 1940 from the University of Washington with a B.S. degree in fisheries.

He worked as a laboratory assistant for the U.S. Bureau of Fisheries from 1938 to 1941 and as a research biologist for the Washington Department of Fisheries from 1941 to 1945. In 1945, while still in his 20s, he was named Director of Research for the Oregon Fish Commission. In 1952, he left that position to become Assistant Director, under Dr. O.E. Sette, another future Founding Fellow of the AIFRB, of the Pacific Ocean Fisheries Investigations of the U.S. Fish and Wildlife Service (FWS) in Honolulu, Hawaii. In 1955, he left Hawaii to become Administrator of Commercial Fisheries in Alaska for the U.S. FWS. In this post, prior to Alaskan statehood, he was in charge of research and management for all Alaskan fisheries. Notably, he moved the headquarters of the Alaska research and management personnel from Seattle to Auke Bay, Alaska. From 1957 to 1966, he was the first Director of the newly-created U.S. Bureau of Commercial Fisheries (BCF). In 1966, Mr. McKernan left the BCF to serve as Special Assistant for Fisheries and Wildlife to the Secretary of State. Given the personal rank of Ambassador, Mr. McKernan supervised all activities of the United States concerned with international aspects of fisheries and wildlife, whether bilateral, multilateral, or in the United Nations system. He left that position in 1974 to become the first Director of the Institute for Marine Studies (now the School of Marine Affairs) at the University of Washington, and he remained in that position for the rest of his life.

Mr. McKernan accepted temporary assignments during his professional career. In 1950, for example, he was a fishery specialist on the staff of the Supreme Command of the Allied Powers (SCAP) in Tokyo, where he was concerned with stimulating the development of post-war fisheries in Japan. In the spring quarter of 1951, he taught two courses at the University of Washington. He was a member of the American Association for the Advancement of Science, the American Fisheries Society, the American Society of Limnology and Oceanography, and a Founding Fellow of the American Institute of Fishery Research Biologists.

Mr. McKernan died in May 1979, at the age of 61. He was highly intelligent, and seemingly possessed unlimited energy. Unlike some people with those attributes, however, he was a kind and considerate person who would go out of his way to help anyone who was in legitimate need of help. It is regrettable that he did not live longer.

JAMES W. MOFFETT

James W. Moffett was born in American Fork, Utah, on August 3, 1908. He earned his B.A. and M.A. degrees at the University of Utah in 1933 and 1935, respectively, and his Ph.D. degree at the University of Michigan in zoology and limnology in 1939.

He worked as an aquatic biologist for the Institute for Fishery Research, a division of the Michigan Department of Conservation, from 1939 to 1941. He then accepted a position with the U.S. Fish and Wildlife Service in California, where he worked on lakes in the Sierra Mountains, and later became chief of the Central Valley Investigations, which had its headquarters at Stanford University in Palo Alto, California.

Dr. Moffett left California in 1950 to accept a position as chief of the Great Lakes Fishery Investigations of the U.S. Bureau of Commercial Fisheries (BCF), in Ann Arbor, Michigan. He remained in Ann Arbor for the rest of his life. Dr. Moffett became nationally and internationally known for his planning and supervision of research that led to the development of an effective program for control of the sea lamprey, which had severely damaged commercial and sport fishing for lake trout in the Great Lakes. He also had been in charge of the research that led to the introduction of the coho salmon, a Pacific Ocean species, into the Great Lakes. He was a member of the U.S. delegation in negotiations with Canada on the Great Lakes fishery treaty, and served as Acting Executive Secretary of the Great Lakes Fishery Commission from 1956 to 1957. He then became Laboratory Director of U.S. BCF Great Lakes Research Laboratory in 1959, and in that capacity reorganized the fishery and limnological research programs to increase their effectiveness.

The success of the sea lamprey program was recognized in 1959 by a Unit Award from the U.S. Fish and Wildlife Service. He received the U.S. Department of Interior's Distinguished Service Award posthumously in 1968.

Dr. Moffett was the author of numerous scientific papers based on his work in California and in the Great Lakes. He a member of many scientific societies, including the American Institute of Fishery Research Biologists (Founding Fellow) and the American Fisheries Society (President, 1959-1960)

He was an active member of the Church of Jesus Christ of the Latter Day Saints, for which he served as a missionary in Germany in 1927-1930.

Dr. Moffett died, after a long illness, in Ann Arbor, Michigan, on June 6, 1967, at the age of 58.

EDWARD C. RANEY

Edward C. Rainey was born in Pittsburgh, Pennsylvania, on May 23, 1909. He graduated from Pennsylvania State Teachers College in Slippery Rock in 1931, and taught high school from 1932 to 1935. He earned his M.S. degree in ornithology at Cornell University in 1935, and taught biology at Oneonta Teachers' College in 1935 and 1936. He was an assistant in zoology at Cornell from 1936 to 1939. He earned his Ph.D. degree in vertebrate zoology there in 1938, and continued there as instructor from 1939 to 1942. He served as a lieutenant in the U.S. Navy from 1942 to 1945. After World War II, he returned to Cornell, serving as assistant professor from 1946 to 1948, associate professor from 1948 to 1952, professor from 1952 to 1971, and emeritus professor from 1971 until his death in April 1984. In addition to his many other duties, he served as curator of the fish collection at Cornell.

He and Stanley Moyer created Ichthyological Associates, a consulting firm, in 1968. Ichthyological Associates conducted extensive research on the effects of power generation on aquatic resources, one of his many interests.

Dr. Raney was a leader among ichthyologists. He possessed a broad knowledge of the fishes of the world, and his particular area of expertise was the fishes of the eastern United States. He was author of more than 75 papers dealing with the systematics, behavior, and ecology of fishes. He was an expert on aquatic environmental problems and served on numerous environmental advisory committees. He was a member of more than 30 professional societies, and a Founding Fellow of the American Institute of Fishery Research Biologists. He served as secretary (1948-1951) and president (1955-1956) of the American Society of Ichthyologists and Herpetologists. His students are among the leaders in ichthyology today, in no small part because of his mentorship and enthusiasm in the study of fishes.

Dr. Raney died in Ithaca, New York, on April 20, 1984, at the age of 74.

MILNER B. SCHAEFER

Milner B. Schaefer was born in Cheyenne, Wyoming, on December 12, 1912. He earned his B.S. degree in Fisheries at the University of Washington in 1935. Later, in 1950, he was awarded his Ph.D. degree from the same institution.

His early employment was as a scientific assistant with the International Fisheries Commission (now the International Pacific Halibut Commission) during 1934-1935, the Washington Department of Fisheries (assistant biologist, 1935-1937; biologist, 1937-1939), and the International Pacific Salmon Fisheries Commission (scientist, 1939-1942).

He served as an officer in the U.S. Navy from 1942 to 1946. (During this period, he suffered recurrence of a heart-valve inflammation and damage, which he bore unperturbedly throughout his career, until it culminated in his untimely death.)

After World War II, he was employed by the South Pacific Fishery Investigations of the U.S. Fish and Wildlife Service, at Stanford, California (1946-1948) and in Honolulu, Hawaii (1948-1950). Among his colleagues during that period were Elton Sette, Fred Cleaver, Donald McKernan, and Albert Tester, all of whom would later become Founding Fellows of the AIFRB.

From 1951 to 1963, Dr. Schaefer served as Director of Investigations for the newly-formed Inter-American Tropical Tuna Commission (IATTC). The IATTC needed capable direction during its formative years, and it certainly got it from Dr. Schaefer. What Dr. William F. Thompson had done for the International Fisheries Commission during the 1920s and 1930s, Dr. Schaefer did for the IATTC during the 1950s and early 1960s. During that period, he wrote his famous papers on the production model (also called the "Schaefer model"), published in IATTC Bulletins, Vol. 1, No. 2, and Vol. 2, No. 6 (and later published as chapters in several books by compilers who appreciated their importance). This model is not used as often now as it was a generation ago, but it is the only stock assessment model that can be used when only catch and effort data are available for a fishery. During that period, he also served as a research associate at Scripps Institution of Oceanography (SIO). This was not just an honorary title; he used his connections at SIO to arrange for IATTC scientists to accompany SIO research vessels to conduct research applicable to tunas in the eastern Pacific Ocean.

In 1962, he left the IATTC to accept a position as Professor of Oceanography and Director of the university-wide Institute of Marine Resources at SIO. (He was succeeded as Director of Investigations of the IATTC by Dr. John L. Kask, another Founding Fellow of the AIFRB.) He remained at SIO for the rest of his life, except for a period from July 1967 to February 1969, when he served as science adviser to the Secretary of the Interior, Mr. Stewart Udall.

Dr. Schaefer was a member of the coordinating board of the University of California's Water Resources Center beginning in 1963. He was a member of several committees of the National Academy of Sciences-National Research Council (NAS-NRC) concerned with natural resources, with the application of science and technology to economic development, and with freedom of scientific exploration on the high seas. These included the Committee on Oceanography's Panel on

Radioactivity in the Marine Environment, the Panel on International Marine Scientific Affairs, and the Steering Committee for Study of the International Decade of Ocean Exploration. He was also a member of NAS-NRC Nutrition Board's Scientific Advisory Committee on Marine Protein Resource Development. He was a member of the Food and Agriculture Organization of the United Nations Panel of Fisheries Experts, and Expert Panel for Facilitation of Tuna Research (Chairman, 1964-1966), and the Indicative World Plan Working Group on Marine Resources Appraisal. He was a member of the State of California's Advisory Committee of the Department of Fish and Game. Other memberships included the Department of State's Advisory Committee on Fisheries Oceanography; Consultant, National Council of Marine Resources and Engineering Development; and Board of Directors, Aqua International.

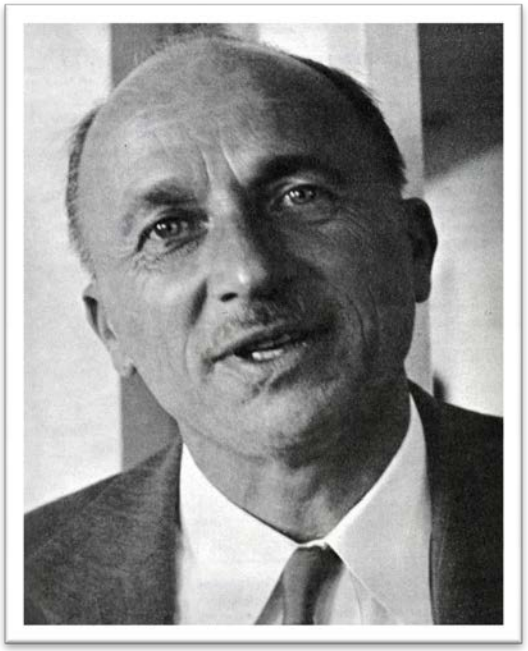
His professional and scholastic memberships included the American Fisheries Society, the American Geophysical Union, the American Institute of Fishery Research Biologists (Founding Fellow), the American Society of Ichthyologists and Herpetologists, the American Society of Limnology and Oceanography (President, Western Division, 1956-1957), the American Statistical Association, the Biometrics Society, the California Academy of Sciences (Fellow), the Marine Technology Society, Pacific Fishery Biologists (President, 1939-1940), Phi Beta Kappa, Sigma Xi, and the U.S. National Academy of Sciences (the only Founding Fellow of the AIFRB accorded that honor).

Dr. Schaefer's principal research was involved with marine ecology and population dynamics, with emphasis on fisheries development and conservation, but it also included studies on marine pollution, disposal of atomic wastes, and economic and social aspects of multiple uses of marine resources. He was the author of more than 100 scientific publications in those fields.

In the three decades that Milner B. Schaefer served fisheries science, the field could boast a scant half dozen United States scientists who shared his broad views of marine fisheries as involving much more than domestic commercial and sport fisheries. The prescience in his recognition of the ultimate international impact of marine fisheries and of the worldwide environmental and pollution aspects of the field is now verified by daily developments. It was this unique continuing penetration and insight into an obscure, but powerful, gathering of events, their ultimate vital global importance, and the underlying necessity of a much-neglected and somewhat unpopular field, that most sharply mark the stature of Dr. Milner B. Schaefer and most starkly delineate the magnitude of his influence on marine science.

Dr. Schaefer died on July 26, 1970, at the age of 57.

OSCAR ELTON SETTE



The biography of Dr. Oscar Elton Sette that follows was written by Patricia Powell of the California Department of Fish and Game and published in the Fishery Bulletin of the U.S. National Marine Fisheries Service, Volume 70, Number 3, pages 525-535. This was a special issue of that journal honoring Dr. Sette. Dr. Sette was alive at the time that the biography was written, but he died during the month that it was published.

The twentieth century marked a turning point in the development and advancement of many scientific disciplines. Pioneer leaders at this time turned to research, focusing their explorations on ways and means of increasing man's knowledge about himself and of the world in which he lives. Within a lifetime, these leaders made an impact on society that changed social and economic structures and continues to do so. Oscar Elton Sette, fishery biologist, is one of this select group. His contributions to marine fisheries and his astute administration of fishery research place him among the foremost of his contemporaries. He pioneered research in two oceans. He was among the first to expand the concept of fishery biology to include other disciplines, and succeeded in integrating this science with those of oceanography and meteorology, elevating it to a major status and advancing its economic importance worldwide.

A midwesterner by birth, Sette spent his early years in an environment quite different from that which was to hold his attention for more than fifty years. His parents, Martin and Louise, lived in Clyman, Wisconsin, where his father owned a retail lumber business. On March 29, 1900, their fourth child Oscar Elton Sette was born. The Settes also had two daughters and another son. A few years after Elton's birth, the family moved to the small town of Juneau, Wisconsin, for business reasons.

It was in Juneau that Elton, as he preferred to be called, learned reading, writing, and arithmetic; and developed a lasting love of nature, together with a scientific curiosity concerning all living things. He says his great love was for "natural history studies," particularly those of butterflies. At a very early age, he collected butterflies, which he classified, and had a truly remarkable collection of Lepidoptera by the time he finished high school. He continued to collect these insects throughout his life, and when work pressures were great in later years, claims this hobby afforded the release he needed to prevent ulcers. He also collected stamps.

Martin Sette always wanted to retire on a lemon ranch, and with this in mind bought five acres near Chula Vista, California. Later he bought another five acres. When some of his investments went "sour," he decided to live on the ranch and grow lemons. The family moved to southern California in 1910. During some lean years that followed, Elton's mother, who firmly believed in the principle of "waste not, want not," instilled a sense of frugality in her children. This quality, which Mr. Webster defines as "careful management of resources," has been reflected in her son's thinking down the years.

Between the ages ten and sixteen, Elton was kept busy with school activities and the pursuit of his hobbies. He graduated from the eighth grade when he was twelve, and then attended high school in National City, California, for four years. He was an outstanding student and planned to

enter college, expecting to get degree from the University of California at Berkeley in Entomology. However, fate, by the name of Elmer Higgins, stepped into the picture in 1916. Owing to a chain of circumstances in which Dr. Higgins played a part, Elton's plans for college did not materialize. Instead of becoming a "bug-hunter," his interest was diverted from butterflies to fisheries. His first encounter with this gentleman came during his senior year in high school. The following is a quote from an anecdotal review of Elton Sette's career as written by Elmer Higgins:

> "My first contact with Elton Sette occurred in September 1916, when a trim, compact boy in knickers and shirt filed into my chemistry classroom and laboratory with a couple dozen other students in National City (Calif.) High School. I was a 'freshman' science teacher on my first job after receiving my secondary school teacher's Certificate and in my zeal I must have borne down rather heavily on my students, but most of them took it and seemed to like it.
>
> "Came the end of the first 'advisory period' and I reported three or four students to the Principal as failing to make satisfactory grades. Among them was Elton Sette. The next day, the Principal came to me with a worried expression to ask what was the trouble, explaining that Elton was starting his senior year and everyone expected him to graduate with honors. I agreed that Elton was learning chemistry (witness the very good grades he earned in the frequent little written quizzes), but he seldom was prepared to recite on the day's assigned section in the textbook and, moreover, his laboratory notebook was quite incomplete.
>
> "Elton apparently had acquired the habit of listening intently in class to the recitations and discussions of his more diligent classmates, sorting and storing the pertinent facts in his retentive and discerning mind, and instantly recalling them to write an excellent examination paper. The Principal gravely agreed to speak to Elton. Elton's performance immediately improved, and he went on to graduate as the Valedictorian of his class."

Almost two years passed before Sette encountered Elmer Higgins again. He had been attending San Diego Junior College, with definite plans to enter the University of California in the fall of 1918. Then, one day as he was walking down a street in San Diego, they happened to meet. Higgins invited Elton to accompany him on an exploratory trawling trip. When Elton saw what came up in the nets, he was fascinated. He knew right then he wanted to become a fishery biologist. Elmer Higgins was now working at the California State Fisheries Laboratory in San Pedro as a scientific assistant. Dr. Wm. F. Thompson, Director of the Laboratory and in charge of fishery investigations in southern California, was especially interested in the albacore fishery, and needed observations of landings from San Diego. He asked Higgins if he knew of any former student who could be recruited for summer work. Higgins immediately wrote Sette who agreed to check the canneries for albacore landings. So, Elton Sette, through the chance intervention of Elmer Higgins, began his career working with fisheries at 18.

He did not enroll at the University in Berkeley that fall as planned. Instead, he joined other young men his age and served in the U.S. Army. World War I was in the final stages. Upon his discharge in 1919, he joined the staff of the State Fisheries Laboratory.

A definite program of scientific investigation concerning the sardine was inaugurated in 1920 by Dr. Thompson. The increasing commercial importance of this fishery made it necessary to learn about sardine habits and determine the effects of fishing on the resource. Elton Sette was assigned to this investigation from the beginning. He was sent to Monterey, the center of the great sardine canning industry.

In his first report, Sette wrote "Hopkins Marine Station courteously granted the Fish and Game Commission use of quarters and facilities." Other accounts described his office as "a day-dreamer's paradise, punctuated with bird watching, and girl watching, in the picturesque cove below." In spite of distractions, he states the investigation was carried on "energetically." His first

article was published in *California Fish and Game* in October 1920. In this publication he described the Monterey fishery, his work, and expressed a prophetic interest in the yearly fluctuations in abundance and sizes of the fish as well as concern for the fishery unless "intelligent conservation measures" were adopted. This early interest in the underlying causes of fluctuations in pelagic fish abundance and what can be done to prevent the depletion of these resources has remained with him throughout the years.

In September 1920, he took a leave of absence to attend Stanford University to finish college. His two years there were rich ones, for under David Starr Jordan's guidance Stanford was the center of fisheries research on the west coast. Many Stanford graduates became outstanding leaders in various aspects of fishery science. It was a great peer group, and lifelong associations were formed in the inspiring, informal gatherings where ichthyology and research problems were discussed. But it was not all work or talk. Sette found time to play tennis and collect butterflies on Jasper Ridge. He graduated with a Bachelor of Arts in Zoology in June 1922.

After graduation Sette continued his work with the State Fisheries Laboratory, as a scientific assistant, alternating between Monterey during the sardine fishing season and the San Pedro Laboratory to work on tuna investigations in other months. His first major contribution to fishery literature reported his analyses of the sardine data he collected at Monterey as well as various sampling systems he used. It was submitted for publication in April 1924.

Sette used an increasing amount of statistical analysis in his study of the sardine fishery. This came to the attention of U.S. Commissioner of Fisheries, Henry O'Malley, who persuaded him t6 move to Washington, D.C., and join the U.S. Bureau of Fisheries as Chief of the Division of Fishery Industries. He held this position from 1924 to1928. Managing this division included supervising research in fishery technology, particularly the canning and preservation of fishery products, and the distribution of technological and production information to the public. He also was given the special task of improving the Federal Government's system of collecting and publishing statistics. During this time, his own publications were confined to annual statistical arid economic reports of United States fisheries, and articles concerning commercial fisheries for Bureau publications or trade journals.

The year 1924 was one of change and growth for Elton. Living in the capital city was quite different from that of the west coast, the new job was entirely different from that of his previous experience, and he relinquished his bachelorhood. He had met and fallen in love with Elizabeth G. Jackson whom he married on December 20 of that year.

The new job was stimulating, but Sette never lost his interest in fishery biology, nor in the challenge to manage large fluctuating fish resources. So he began on his own to study the Atlantic mackerel, which had yielded widely different catches over a period of years. Once again Elmer Higgins entered his life. Higgins had been appointed Chief of the Division of Scientific Inquiry, U.S. Bureau of Fisheries, and was stationed in Washington, D.C. He encouraged Elton in his mackerel research and offered him a position in his Division as full-time investigator. Sette decided to accept in1928. Meanwhile, increased appropriations from Congress made it possible to establish regional research teams to investigate important fisheries, or types of fisheries. Because of his experience and personal competence, Sette was made Chief of the North Atlantic Fishery Investigations, a position he held until 1937.

He established headquarters at the Museum of Comparative Zoology at Harvard University, and recruited a staff to study the life histories of marine fish important to the New England coast as well as the effect of fishing on their abundance. At the same time, Sette concentrated his own attention on the Atlantic mackerel. The published results of this study represent a significant contri-

bution to fisheries research and is a classic in the literature. During the summer months he acted as Director of the Bureau's Fisheries Station at Woods Hole. He also found time to continue his studies, at the graduate level, and obtained his Master's Degree in Biology at Harvard in 1930. Of Sette and his staff, Dr. Higgins wrote:

> "... (they) worked in a sort of happy symbiosis with the staff of the M.C.Z., the Faculty, and graduate students, many of whom were employed by the Bureau on temporary appointments. Thus, the haddock investigations began, the cod investigations wound up, the weakfish studies of the mid-Atlantic coast were extended, and oceanographic examination of the Gulf of Maine was brought to a virtual completion. All of these efforts resulted in a number of significant papers."

One of Sette's most endearing qualities to those who worked under him, especially students and young men starting their careers in marine science, was his ability to meet with them and discuss work at their level, to draw them out, and inspire them to put forth their best effort. One such student was Dr. Daniel Merriman, present Director of Sears Foundation for Marine Research. He worked part time for Sette in the summer of 1930 while he was taking an invertebrate course at the Marine Biological Laboratory. He has written:

> "I cannot imagine how I got the job unless it was through the good offices of Dr. Henry Bigelow, a close family friend. My record at Harvard had nothing to commend me, and the only thing I can think of was a teen-age association with Dr. A.G. Huntsman at St. Andrews, New Brunswick. In all events, I sorted mackerel eggs and larvae to a fare-thee-well. But the point is, the work never became tedious under Sette's watchful eye. I thoroughly enjoyed it and him, and in vicarious fashion I learned a lot; it was by far my most rewarding summer to date. Bigelow, Huntsman and Sette: three men who nudged an aimless youngster into a happy and rewarding career. I shall always be eternally grateful to O.E.S. for his patience and stimulus."

Forty years later another young man; just starting his career, has written:

> "During the summer of 1965 I worked in Dr. Sette's Lab as a seasonal aid type. I learned more in 2 1/2 months working with Dr. Sette and his staff than I did in the 4 years at the College of Fisheries. The people who work with Dr. Sette work as a team. Each individual has his own talents and Dr. Sette augments these talents. Somehow through empathy and compassion he frees you to your limitations and helps you to work beyond your own ability. Each specialist from secretary to oceanographer is fully aware of the entire effort—there are far too few Dr. Settes."

So wrote Richard A. Winnor, Associate Marine Biologist, California Department of Fish and Game, in 1972.

Sette's pleasant days at Harvard and Woods Hole lasted nine years, in which time knowledge of fishery resources on the Atlantic coast was advanced significantly. Meanwhile a crisis was developing on the Pacific coast. The sardine fishery, which gave indications of mushrooming back in the early twenties, had expanded beyond all expectations within two decades. From 1916 through 1939, the catch more than doubled each six years, and reached its maximum in 1936 with a billion and a half pounds landed. State fishery biologists were concerned and warned against overfishing. Nationally, concern for the nation's food supply was developing, and demands were being made for a better scientific basis of fishery management. Since the state was unable to control the fishing industry through legislation, a Congressional investigation was made. Because of his proven ability to manage a fishery resource, his past experiences with the sardine fishery, and his contacts with the industry, Sette was sent to California by Congressional mandate, to head a sardine research program inaugurated by the Bureau, a position of great responsibility. He was made Chief of the new South Pacific Fisheries Investigations, with headquarters on the Stanford campus. His duty statement proclaimed "he was to direct and perform research on the nature and causes of fluctuations in pelagic fish populations." This fooled no one. N.B. Scofield, Chief of the State Bureau of Marine Fishe-

ries, resented federal intervention in California fisheries investigations and openly remarked the best thing Sette could do was to pack his bags and go back to Washington. The industry also wanted no federal intervention and regarded Sette's operations with suspicion. However, his mild and friendly personality had won him many friends among the industry in the early twenties. Those who did not know him had a great respect for his work and his personal honesty, as did the biologists with the Division of Fish and Game, many of whom were old friends. His marked success in handling this delicate situation is an example of Sette's personal tact and diplomacy.

For several years strong disagreements existed between the industry and the Fish and Game Commission. Canners were critical of techniques used by the State's biologists and of their evaluation of the sardine data. As a result, the San Francisco Sardine Association and the California Sardine Products Institute engaged Sette as a paid consultant from 1942 to 1947. Their respect for his judgement was so great they followed his advice without question when he said he could not conscientiously recommend industry requests for additional tonnage. Julian Burnette, a prominent business man who was active in industry affairs during that time, commented that Sette never spoke unless he had something to say, and when he did, people listened.

Marine fishery research was practically eliminated during World War II owing to a manpower shortage and the use of fishing vessels for the war effort. Between 1943 and 1945, Sette served as Area Coordinator of Fisheries for California. He applied strict control on all plants and vessels that were operating in the California fisheries. He assigned boats to different plants and shifted them around so all plants would be in operation and no waste would occur. Controlling a fiercely competitive industry was an especially difficult assignment. His success was rewarded by a meritorious promotion in 1944, in his capacity as Chief of the South Pacific Fisheries Investigations where he remained until l949.

The post-war years witnessed a boom in commercial fishing and ushered in a period of expansion in fishery research. The search for new sources of protein to meet the demands of a growing population, as well as the economic aspects of harvesting large pelagic fish stocks attracted monied interests internationally. The need to discuss mutual problems and exchange information between scientists engaged in fishery research in other countries resulted in a series of international meetings. Sette attended several of these as an official representative for the United States.

Meanwhile the sardine fishery in California experienced an alarming decline. Concern over the depletion of this resource gave rise to public demand for answers from fishery biologists to explain what caused the fluctuation of this once great fishery. The answer to this problem already had challenged Sette's thinking for a quarter of a century. It was obvious that such answers could be sought only through the cooperation of various agencies working together on a multidisciplined research program. In 1947 the California State Legislature established the industry-financed Marine Research Committee. The Committee, consisting largely of industry members, and with Sette as its scientific advisor, inaugurated the California Cooperative Sardine Research Program which became the California Cooperative Oceanic Fisheries Investigations, or CalCOFI. Five agencies participated at the Federal, State, and University levels. Sette's fine hand was evident throughout the planning stage. He was largely instrumental in integrating the disciplines of fishery biology with those of oceanography and meteorology as this program developed. His personal contributions to the program and his participation in symposia at annual meetings were significant.

The fishing pressure exerted on tuna stocks throughout the Pacific Ocean prompted the federal government to initiate tuna research in the mid-Pacific in 1949. Money was appropriated to build a large, well-equipped laboratory adjacent to the University of Hawaii campus and to purchase two vessels designed for this specific program. Sette was appointed Director of the new Ho-

nolulu Laboratory and made Chief of the Pacific Oceanic Fishery Investigations, or POFI as it was called. Here, under his leadership, an exceptional research staff was assembled. The team, consisting of fisheries biologists, oceanographers, and meteorologists, jointly launched another pioneer program to study environmental phenomena and their relationship to oceanic fishes. In their studies of tuna resources along the equator, a subsurface current was detected. The name of this current honors its discoverer, Townsend Cromwell. The masses of other data published provided a great source of new information about the central Pacific Ocean.

While in Hawaii, Sette was an enthusiastic gardener and he took great pride in his flowers, fruits, and vegetables. He recycled matter for his own compost long before recycling became a popular conservation measure. His zeal for composting caused a family crisis. Apparently his wife, Elizabeth, thought the compost was responsible for breeding centipedes, which reach considerable size in Hawaii. Often they found their way into the house where Mrs. Sette received several bites. These she was quick to blame on her husband and his compost.

He was also an avid tennis player, and a good one. While at POFI he encouraged and organized tennis tournaments at the Lab. When a tournament was held, it was mandatory that a player show up for the matches, no matter how severe the hangover.

Representatives of the tuna industry did not think Hawaii was the right location for the Bureau's tuna investigations. They wanted this research centered in California near the tuna canneries and the fishing fleet. Charles Carry, Director of the Tuna Research Foundation and spokesman for the industry, often gave Sette a bad time about this and other matters. In this connection, Carry tells about an incident that happened in Santiago, Chile, where he and Sette were attending an international fisheries meeting in 1955. In all of Carry's frequent trips to the Honolulu laboratory, he had never seen Elton take a drink, and knew it was because he suffered from stomach ulcers. But in Santiago, Elton drank with the rest of the group. Carry asked why. Sette replied, "I have learned not to take myself too seriously, nor you, Charlie."

Each new assignment in Sette's life was an expansion of his original interest. For five years at POFI, his primary responsibilities were to direct research and exploration on potential fishery resources. Then in 1955, a new program called Ocean Research came off the Bureau's drawing board, and once more Sette was called to pioneer a new direction in fishery research. He was returned to the Stanford campus as Chief of Ocean Research and director of another new laboratory broadly chartered to examine all available data concerning the oceans and relate these to the abundance and distribution of fish. He set about the herculean task of analyzing masses of sea surface temperature data, weather observations, and all known information concerning fish availability. With the help of a small but highly skilled team of biologists, oceanographers, and meteorologists, an atlas containing 168 monthly mean sea surface temperature charts for the Pacific Ocean north of latitude 20°, covering the years 1949-1962, was published. This remarkable man still found time to complete his graduate work, receiving his Doctorate in Biology from Stanford University in 1957; to give lectures at the University; to continue collecting butterflies on Jasper Ridge as he had done in his student days; and to publish on a species of Lepidoptera from central California.

Sette always has been a firm believer in the value of informal meetings. He was instrumental in organizing the Pacific Tuna Conferences; he helped structure and actively participated in the CalCOFI Conferences as he had in the Sardine Meetings from their beginning in 1920. He chaired, or was a committee member of, numerous planning and steering committees throughout the years. EPOC was a natural outgrowth of his experience working with groups.

In 1954 at a meeting of the Oceanography Fisheries Meteorology Committee, Sette proposed that various groups engaged in related investigations in the eastern Pacific join together to

coordinate the planning and execution of work at sea, and to exchange information on research program results. His proposal was acted upon in the Committee's 1955 meeting, and EPOC, or the Eastern Pacific Oceanic Conference, was born. EPOC held its first meeting in 1956 with Elton Sette as chairman and Joseph L. Reid, Jr., as Secretary. For fifteen dedicated years both men served EPOC and the entire ocean science community. They made possible a forum for discussion of oceanographic research and provided a medium by which the far-flung investigations of diverse academic and governmental agencies could be coordinated.

Dr. Sette's administration of international oceanographic investigations to study stocks of fishes that recognize no political boundaries brought him in close contact with scientists of other countries who also were interested in these pelagic resources. He attended many international meetings to discuss common problems. He was an official United States delegate to the Indo-Pacific Fisheries Council in Singapore in 1949 and to the International Technical Conference on the Living Resources of the Sea in Rome in 1955. He acted as Advisor to the U.S. Delegation at a Fisheries Conference in Santiago, Chile, in 1955, and at the Law of the Sea Conference in Geneva in 1958. He participated in numerous other meetings as a committee member, council correspondent, or by presenting a paper.

He has served as a consultant on oceanography to the Director of the Bureau of Commercial Fisheries and as special consultant to the Atomic Energy Commission. He was a member of the Ocean Resources Panel of the National Academy of Sciences and as an advisor to the University of California, Institute of Marine Sciences.

Numerous professional and technical societies have his support as an active member, including Phi Beta Kappa and Sigma Xi. He is a founding fellow of the American Institute of Fishery Research Biologists, and a Fellow of the American Association for the Advancement of Science. Others include: American Fisheries Society; American Institute of Biological Sciences; American Society of Ichthyologists and Herpetologists; American Society of Limnology and Oceanography; American Wildlife Society; Biometric Society; California Academy of Sciences; Oceanographic Society of the Pacific; and Western Society of Naturalists.

For outstanding service to the Federal Government, Oscar E. Sette was presented the U.S. Department of Interior's gold medal award for distinguished service on January 16, 1961. The medal and citation delivered by Assistant Secretary Leffler before an audience of several hundred reads in part as follows:

> "... In recognition of his important contributions to the scientific program of the Bureau of Commercial Fisheries and his eminent career in Government, the Department of the Interior bestows upon Dr. Sette its highest honor, the Distinguished Service Award.
>
> FRED A. SEATON
> Secretary of the Interior."

It seems more than coincidental that sitting on the stage beside Dr. Sette that day was Dr. Elmer Higgins, who also received the Distinguished Service Award for outstanding achievement.

Dr. Sette's accomplishments are legion. It would be difficult to select any one as the most outstanding. He modestly sums up what he considers to be his major achievements in two succinct statements. These are: contributions to knowledge regarding pelagic sea fish and fisheries; and, the planning, organization, and directing through their formative years, the four research programs he administered for forty-two years. Equally significant, and perhaps greater, is the sustaining influence he exerted throughout the years as Chairman of EPOC and a guiding member of CalCOFI and other such research groups. Here, his uncanny ability to foresee a problem situation and sidestep the issue before it became a crisis was especially valuable. Also important are the untold hours of ser-

vice rendered government agencies, the scientific community, the industry, and others as a technical advisor, special consultant, official delegate, leader, and friend. Over and above all is the remarkable contribution of the man himself through his personal warmth, his unusual ability to inspire, his patience and perception as a teacher, his gift of enthusiasm for his own work and that of others, and most of all, his genuine interest in and love of people.

There is an impressive list of publications to Sette's credit, in spite of his time-consuming administrative responsibilities. Several have been mentioned above. Other important papers include:

Estimation of the abundance of the eggs and larvae of the Pacific pilchard off southern California during 1940 and 1941 (Sette and Ahlstrom, 1948, Jour. Mar. Res., 7: 511-542);

Considerations of midocean fish production as related to oceanic circulatory systems (Sette, 1955, Jour. Mar. Res., 14: 398-414);

Problems in fish population fluctuations (Sette, 1961, Rep. Calif. Coop. Oceanic Fish. Inves., 8: 21-24);

Ocean environment and fish distribution and abundance (Sette, 1966, *In* Exploiting the Ocean, Mar. Tech Soc. Conf. Exhibits, 2nd Ann. Meeting: 309-318);

A perspective of a multi-species fishery (Sette, 1969, Rep. Calif. Coop. Oceanic Fish. Inves., 13: 81-87).

Sette also found the time to keep up with current literature in his own fields as well as that of others which intrigued his scholarly or scientific interests. His own library was extensive, and he personally, indexed most of the material pertaining to ocean sciences. Sette's memory was retentive, and when asked, he could call to mind papers on specific subjects, although the article may have been written years ago.

When asked his choice of a place to live, he chose California, with its long coastline and mild sunny climate. He and Mrs. Sette made their home in Los Altos where they had resided for many years. They were a devoted family, and enjoyed having their only daughter, Josephine-Helene Barnes, and her family living nearby in San Jose.

Needless to say, the Settes' garden was a place of beauty, as well as a practical source of food. Planned with the precision of a research program, the yard was planted in rotation to produce a continuous supply of fresh vegetables and flowers from early spring throughout the fall months; and, they enjoyed a succession of fruit in season from the many varieties he had cultivated or skillfully grafted to parent trees. The flowers attracted the butterflies Sette loved, and had given rise to a backyard investigation, in his spare time, of a subtropical species *Agraulis vanillae*, which appeared early in 1960, enticed by the passion flower plants growing in the garden. Hoping to keep the small population alive during the winter months, Sette started growing passion flowers in the lathe house to protect the eggs and larvae from unaccustomed cold. He began to study the fluctuation of their populations, observing the time of emergence and the relationship to warmth and sunshine. This correlation to warm, sunny spring days fostered an interest in amateur meteorology, which developed into another hobby. Daily he observed the humidity and the barometric pressures and follows the passing lows and highs with interest. This keen sense of awareness of his surroundings was a delightful part of his personality.

On paper, in compliance with government regulations, Dr. Oscar Elton Sette, Senior Scientist, "retired" in March 1970. He was immediately rehired as an "annuitant," which is permissible in Federal service, to continue his research and prepare for publication a backlog of data. The Ocean Research program was concluded in June 1970 and the laboratory at Stanford was closed. He is presently attached to the Tiburon Laboratory, Natural Marine Fisheries Service, in charge of the

Ocean Ecology unit, headquartered in Menlo Park. With the assistance of a secretary-librarian his keen mind is busily engaged with many of the unsolved problems facing fisheries researchers. He is working on several papers, one of which is the analysis of the Alaska herring fishery. His duty statement on his appointment papers fill two typed pages, single-spaced. They end with … "a high degree of confidence is placed on his productivity, competence, and judgement. He is recognized as a top authority and distinguished scientist in his field." It is interesting to note that his present title is: Fishery Biologist (Research).

For more than half a century Dr. Oscar Elton Sette, fishery biologist, leader of leaders, has continued to pioneer the development and advancement of fishery research as an outstanding scientist, a great humanitarian, and a warm and sincere friend to all of his associates.

Dr. Sette died in Los Altos, California, on July 25, 1972, at the age of 72.

OSCAR ELTON SETTE

The tribute to Dr. Oscar Elton Sette that follows was written by Philip Roedel, Director of the U.S. National Marine Fisheries Service, and published in the Fishery Bulletin of the U.S. National Marine Fisheries Service, Volume 70, Number 3, pages 523-524. This was a special issue of that journal honoring Dr. Sette. Dr. Sette was alive at the time that the tribute was written, but he died during the month that it was published.

I cannot imagine a more pleasant task than this—to write a prefatory statement for the Oscar Elton Sette issue of the *Fishery Bulletin*. It is also a most difficult task, for one must choose one's words with care lest he become maudlin and guilty of oversell on the one hand, or reserved to the point of disparagement on the other.

I do not propose to list Elton Sette's accomplishments and honors (these are recited elsewhere), but only to comment on and quote others on certain aspects of his career that may help us attain perspective.

It was not long ago that I left the 18th meeting of the Eastern Pacific Oceanic Conference (EPOC), before its conclusion and before Elton Sette stepped down as Chairman of that eminently successful "non-organization." He had conceived the idea and served as the sole (always temporary) Chairman through the history of this informal, unstructured conference, at which attendees speak freely, representing only themselves in their capacity as experts and not necessarily speaking the party line of their parent organizations. The success of EPOC in developing ideas and plans, in bringing about coordinated efforts over a wide spectrum of scientific disciplines, is a measure of the way the man works: low key, low pressure, high performance.

Over a decade ago, on January 16, 1961, he received the Department of the Interior's highest honor, the Distinguished Service Award. In his citation, Secretary of the Interior Fred A. Seaton said this:

> Dr. Sette is an internationally recognized leader in marine science, highly respected by his contemporaries in University, State, and Federal Service. His ability has speeded progress in the knowledge of the sea and its resources and reflected prestige and credit upon the Bureau of Commercial Fisheries and the Department. Since joining the Bureau of Fisheries, a predecessor agency of the Fish and Wildlife Service and Bureau of Commercial Fisheries, on January 8, 1924, he has made outstanding contributions, not only as a scientist, but as an organizer of investigations, eminent administrator, and an unusually successful teacher...
>
> He has always placed special importance on the training of scientists under his supervision and has devoted much time and effort to their development. These efforts have had an important in-

fluence upon fishery science in the United States and Canada, as attested by the numbers of his former employees who now hold leading positions in the profession.

That such things should be said of a man who has already made a significant impact for the good upon society is appropriate and expected. But I find two earlier statements of perhaps greater interest for they show that his attributes were recognized at the very earliest stage of his career.

Some 50 years ago (fifty!), W.F. Thompson was Director of the fledgling California State Fisheries Laboratory. He employed a young college student, O.E. Sette, apparently in 1919, and wrote this for the January 1921 issue of "California Fish and Game":

> Mr. O.E. Sette, who has been with the [California] Commission for more than a year, has also returned to his college work, having left for Stanford on September 1 [1920] ... The Commission is fortunate in being able to retain the interest and services of Mr. Sette, whose work has been of high value.

Then, in January 1924:

> The fisheries investigation work of the Commission appears to be a training school for government fisheries men, for several who have been mainstays have been tempted to other positions by higher salaries ... now comes word that O.E. Sette has accepted a prominent position with the United States Bureau of Fisheries ... Nor is it an easy matter to find the right kind of scientifically trained men to fill these vacated positions. Although discouraging, those in charge are planning to carry on by acquiring the best material available to fill these positions.

His worth was obviously apparent at a most tender age to no less stringent a taskmaster than W. F. Thompson.

From a personal standpoint, I knew him by reputation from my first delvings into fisheries literature as a student. My first real contact with his work came when, as a very junior biologist at that same State Fisheries Laboratory, I was given the task of recompiling some length frequencies of Pacific mackerel, which were measured in units called "settes." The man I knew of, the measurement not. It turned out he established the half centimeter as appropriate for mackerel during his days at the laboratory. The unit later became known as the sette, and the term was used for over a decade until the half centimeter finally fell from grace, being deemed insufficiently precise. I first met him some years after my encounter with the sette and found that the good reports that preceded him were excelled only by the man himself.

So with this issue we honor as best we can, someone who has earned the respect and admiration of those fortunate enough to have crossed his path during his long and most honorable career. He is in the truest sense a gentleman**.**

Dr. Sette died in Los Altos, California, on July 25, 1972, at the age of 72.

SETTE'S NAMESAKE by Allen-Shimada

The NOAA Ship R/V *Oscar Elton Sette* is named for Dr. Oscar Elton Sette, a pioneer in the development of fisheries oceanography and, according to many fisheries scientists, the father of modem fisheries oceanography in the United States. He is recognized both nationally and internationally for many significant contributions to marine fisheries research. The R/V *Oscar Elton Sette* replaces the R/V *Townsend Cromwell*. The R/V *Oscar Elton Sette* supports the scientific missions of NOAA's National Marine Fisheries Service Pacific Islands Science Center in Honolulu, Hawaii. The ship normally operates throughout the central and western Pacific, and conducts fisheries assessment surveys, physical and chemical oceanography, marine mammal projects, and coral reef research. It collects fish and crustacean specimens, using bottom trawls, longlines, and fish traps.

Plankton, fish larvae, and eggs are also collected with plankton nets and surface and mid-water larvae nets. The ship routinely conducts scuba diving missions for the Honolulu Laboratory.

Ample deck space enables the *Oscar Elton Sette* to carry a recompression chamber as an added safety margin for dive-intensive missions in remote regions. The ship is involved in NMFS Honolulu Coral Reef Restoration cruises, which concentrate scientific efforts on the removal, classification, and density of marine debris and discarded commercial fishing gear from fragile coral reefs. Using the Internet and satellite communications, the R/V *Oscar Elton Sette* maintains a web site titled Student Connection (http://atsea.nmfs.hawaii.edu), which provides semiweekly communication between students and the ship. Students can follow the vessel's daily operations through regularly-posted pictures and write-ups through this site.

WILLIAM A. SMOKER

William A. Smoker was born on July 28, 1915, in Ishpeming, Michigan, where his parents operated a dairy farm. They abandoned their farm in the agricultural depression of the mid-1920s and migrated to California, where they settled near San Jose. Bill helped support the family as a farm worker, finished high school, and entered a community college there. He earned his B.S. degree in Forestry at the University of California, Berkeley, in 1938 and entered graduate school in Fisheries at the University of Washington the next year. He met Margaret, his future wife, while he was a patient at the university infirmary, where she was his nurse.

He was drafted into the army in the summer of 1941. His unit was deployed to the southern coast of Washington immediately after the attack on Pearl Harbor. Family lore has it that he went AWOL to marry Margaret because their rings had already been inscribed with December 20, 1941, and that she drove during a blackout from her parents' home in Renton to Grays Harbor to meet him at the church. He served as a combat rifleman in the 41st Infantry Division, the Jungleers, during the Papuan campaign in New Guinea, where he was awarded the Bronze Star for valor. He was commissioned an officer in Australia in 1944, assigned to the Corps of Engineers Map Service, and transferred to Washington, D.C., where he served until the end of the war.

After Bill's discharge, he immediately resumed his graduate studies at the University of Washington. In 1947, while still in graduate school, he was hired as a biologist by the Washington Department of Fisheries (WDF).

In 1951, many of the employees of the WDF were assigned the task of distributing election campaign literature on street corners. A group of biologists met in Bill's Seattle living room to discuss what they should do, and the meeting culminated in a telephone call from Bill to the governor, telling him that they had all resigned in protest over the unprofessional treatment. They mostly won, as the governor didn't accept their resignations. Don Johnson, Assistant Director of Research at the Oregon Fish Commission, was appointed shortly thereafter to be Chief Supervisor of Research of the WDF, and Bill was appointed Assistant Supervisor of Research. That struggle was part of the impetus for the formation of the American Institute of Fishery Research Biologists (AIFRB) and its establishment of standards of professionalism. Bill Smoker and Don Johnson became Founding Fellows of the AIFRB.

Bill earned his Ph.D. under Dr. W.F. Thompson in 1955. In his dissertation, he demonstrated a statistical relationship between historical records of coho salmon production in western Washington and records of stream flow and rainfall. His dissertation continues to be read more than half a century after its completion.

He was recruited by Clarence Anderson into the Alaska Territorial Department of Fisheries in 1956, and was serving as its Chief Scientist when the State of Alaska Department of Fish and Game was formed in 1960. He joined Director George Y. Harry in the new U.S. Bureau of Commercial Fisheries Auke Bay Laboratory in Juneau, Alaska, in 1960, and served as Assistant Director

during 1961-1967 and Director from 1967 until he retired in 1982. During the period that he was at Auke Bay, he also served as adjunct professor of fisheries at the University of Alaska.

He was a member of the American Association for the Advancement of Science and the American Fisheries Society, and, as stated above, a Founding Fellow of the AIFRB.

After Bill's retirement, he and Margaret remained in Alaska, where they enjoyed their home overlooking Auke Bay, their grandchildren, fishing and swimming, attending meetings of retired federal workers and teachers, and annual trips to the Seattle Opera Festival. Bill frequently visited the Auke Bay Fisheries Laboratory, and was actively pursuing his interests in hydrology and climatic effects on coho salmon survival until shortly before his death on March 6, 1997, at the age of 81. Margaret preceded him in death in February 1997, only a couple of weeks before that. The family name continues to live in fisheries science and management, as his two sons and both of their wives are members of the profession in Alaska.

GERALD B. TALBOT

Gerald B. Talbot was born in Wetaskiwin, Alberta, Canada, on December 12, 1912. When he was 5 years old, his family moved to Tacoma, Washington, where he graduated from high school in 1930. After working in the service department of a car dealership for seven years (the last year as service manager), Gerry enrolled at the University of Washington, where he earned a B.S. degree in Fisheries in 1944, garnering academic honors along the way. He received his M.S. degree in Fisheries, also from the University of Washington, in 1948, and took additional graduate-level courses at Duke University in the summers of 1950-1952.

Gerry began his career in fishery research as a biological assistant with the International Pacific Salmon Fisheries Commission (IPSFC) in 1941. For the next nine years he was a fishery biologist with IPSFC, working on an array of Fraser River sockeye salmon projects—racial studies, enumerations of spawning populations, *etc*., but the IPSFC research that he was best known for was "A biological study of the effectiveness of the Hell's Gate fishways" (Inter. Pacif. Salmon Fish. Comm., Bull., 3, Part 1: 3-80).

Gerry left the IPSFC in 1950 to become project leader of an investigation of shad runs on the Atlantic coast that was getting under way at the Beaufort, North Carolina, laboratory of the U.S. Fish and Wildlife Service (FWS). He took part in field research on the Hudson River shad, and wrote a paper, "Factors associated with fluctuations in abundance of Hudson River shad" (Fish. Bull., U.S. FWS, 56 (101): 369-413), that received honorable mention from the Wildlife Society for the best fishery research paper published in 1954.

Gerry was named director of the Beaufort laboratory in 1952, with responsibility for all fisheries investigations carried out by the FWS and the Bureau of Commercial Fisheries in the mid-Atlantic states (New York to North Carolina). He held that position until l962, except for a leave of absence in 1958 to serve as a technical expert for the Food and Agricultural Organization of the United Nations, assisting the government of Pakistan in research on the Indus River hilsa fishery.

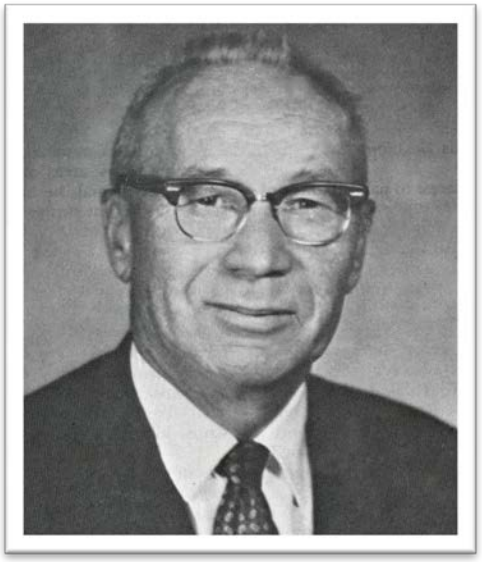
From 1962 to 1970 Gerry was Director of the Tiburon, California, Marine Laboratory of the U.S. Bureau of Sport Fisheries and Wildlife (BSFW). That job was followed by a special study of the sardine and anchovy fisheries of California that he carried out for BSFW before he became director of its Southeast Reservoir investigations in Clemson, South Carolina. He retired from federal service in 1974, having published nearly 30 papers during his career as a fishery biologist.

Gerry was a member of the American Association for the Advancement of Science and the American Fisheries Society, and was a Founding Fellow of the American Institute of Fishery Research Biologists. He is remembered by his co-workers for his great integrity and his keen sense of humor.

After retirement from fisheries, Gerry managed a condominium in Bellevue, Washington, for 10 years before retiring from that work in 1989. Gerry and his wife Elizabeth enjoyed traveling (visiting numerous foreign countries), backpacking, and other outdoor activities, including those centered around frequent visits to their cabin on Middle River in northern British Columbia.

Gerry died of Parkinson's disease in Redmond, Washington, on December 12, 2000, his 88th birthday.

ALBERT L. TESTER



Albert L. Tester was born in Toronto, Ontario, Canada, on November 27, 1908. He received his B.A. degree in 1931, his M.A. degree in 1932, and his Ph.D. degree in 1936, all from the University of Toronto. In 1931 he joined the Pacific Biological Station of the Biological (now Fisheries Research) Board of Canada, where he conducted highly-significant work on herring.

In 1948, he joined the Department of Zoology at the University of Hawaii, where he remained, except for a short time away, until his death. From 1955 to 1958, he was Director of the Pacific Oceanic Fisheries Investigations of the U.S. Fish and Wildlife Service in Honolulu. In 1957 he served as chief of the Service's Division of Biological Research in Washington, D.C., a job he found to be hectic and frustrating. Consequently, in 1958, he returned to the University of Hawaii as Senior Professor of Zoology.

At the University of Hawaii, Dr. Tester studied the life history of the baitfish used to catch tuna and the response of tuna to various stimuli as part of an overall program designed to improve tuna fishing in the Pacific Ocean. Long after he stopped active tuna research, he continued his contributions in this area through his participation on the Governor's Task Force on Hawaii and the Sea, and on the Marine Resources Committee of the Pacific Islands Development Commission.

His most valuable and best-known work was in the field of elasmobranch biology, which he began in 1960 and continued until his death. He had, in fact, planned to do further work on sharks after his retirement. His interests in elasmobranch biology were broad, and included studies on the ecology, behavior, and sensory biology of sharks, and also practical aspects of shark attack and control. From 1967 to 1969, he directed the Cooperative Shark Research and Control Program of the State of Hawaii, and in 1967 he was appointed to the Shark Research Panel of the American Institute of Biological Sciences.

Dr. Tester's major research interest was shark sensory systems. He conducted significant morphological and behavioral studies of olfaction, vision, and the chemical senses. During the last seven years of his life, he intensively studied the acoustico-lateralis system, especially the innervation and morphology of neuromasts and the cupula structure in the lateral line, and broadened his interests to include the inner ear, especially that of the carcharhinid sharks.

He was the author of more than 100 publications. In 1974, in recognition of the excellence of his work, the University of Hawaii awarded him the University's Research Medal.

While Dr. Tester's scientific contributions are highly significant, many will remember him best as a dedicated teacher, who greatly enjoyed his work with students, and as an active and respected participant in the University community. He served a term as chairman of the Department of Zoology, and then continued to be a major influence in many areas of college life. Warm and congenial, he had a winning sense of humor that surfaced at informal gatherings. Whether demonstrating the hula (which he led the Zoology faculty in learning in the 1950s), or singing, or playing the organ, he was an affable host, the complete man.

He died on November 27, 1974, his 66th birthday.

WILLIAM F. THOMPSON

William Francis Thompson was a major figure in fisheries research on the west coast of the United States during the early and mid-20th century. He came to prominence in an era of increased awareness in the United States of the need for conservation of wildlife, and for over 50 years he was a major contributor to fishery science and management and to fishery education. During this period, Thompson was possibly the most widely-known fishery scientist in North America.

Born in St. Cloud, Minnesota, on April 3, 1888, Will Thompson moved west with his family to Everett, Washington, in 1903. He demonstrated an early interest in natural history, and majored in zoology at the University of Washington in Seattle from 1906 to1909. David Starr Jordan, President of Stanford University in Palo Alto, California, learned of Thompson's drive and dedication, and offered him a scholarship in 1909. Thompson transferred to Stanford University, where he became a research assistant to Jordan. Thompson graduated with a B.A. degree in zoology in 1911. He published 10 papers on the taxonomy of marine fishes during 1910-1914, mostly as a junior author with Jordan.

Pursuing graduate work at Stanford in the fall of 1911, Thompson came under the influence of Charles Henry Gilbert a zoology professor and eminent early fishery biologist. Gilbert thought highly of Thompson, and arranged jobs for him during the summers, first with the California Fish and Game Commission (1911) and then with the British Columbia Provincial Fisheries Department (1912 and 1913). These assignments entailed surveys of shellfish resources.

Excelling at these studies, Thompson was then entrusted by the Provincial Fisheries Department to undertake a comprehensive, full-time investigation of the Pacific halibut in British Columbia. Thompson conducted an intensive study of this species from 1914 to 1917, and published the results in seven landmark papers.

In 1917, research on the halibut began to wind down as concern intensified in Canada over the ravages of World War I. Thompson was then hired by the California Fish and Game Commission to investigate that state's marine fisheries. While there, he helped found and direct the Commission's first marine fisheries research laboratory. Thompson focused his investigations initially on albacore, and then on Pacific sardine, as the commercial harvest of the latter species began to increase.

The International Fisheries Commission (now the International Pacific Halibut Commission) was established in 1923 by treaty between the United States and Canada to investigate and regulate the fishery for Pacific halibut. Thompson, the logical choice, was appointed Director of Investigations for the newly-formed Commission, so he left California and began his work for the IFC in Seattle in 1925. Expanding his earlier Pacific halibut studies, he engaged a small staff of scientists that undertook the applied research necessary for the scientific management of the halibut fishery. Thompson remained as Director of Investigations for the IFC until 1939. During his tenure, the abundance of halibut increased, as did the commercial harvest. The halibut fishery was eventually considered a model of a well-managed fishery.

Things did not bode well for the School of Fisheries or any other applied programs at the University of Washington in 1930. The new President of the University, Dr. Matthew L. Spencer, wanted scholarship and high academic standards. Courses in cannery and fishing methods may not have met the new President's ideas of scholarship. President Spencer notified the School of Fisheries faculty in April 1930 that the School would be disbanded the following June. All faculty members were dismissed except for Leonard P. Schultz, an ichthyologist, who was then assigned to the College of Science. This triggered protests from the students enrolled in Fisheries, and then an inquiry by the Governor. The outcome was that the University created a Department of Fisheries in the College of Science. This action allowed the fisheries students to complete their degrees in Fisheries. The creation of this new Department also signaled large changes in the direction of Fisheries at the University.

William F. Thompson was appointed Director of the School of Fisheries in 1930. This appointment was initially a part-time position, in addition to his duties at the IFC. Thompson was a very focused man, concerned with fine detail. By August 1931, he had collected his thoughts and wrote to President Spencer with recommendations for revision of the curriculum of the School. Thompson proposed to emphasize basic science and fishery biology in place of the previous emphasis on industrial fishery technology. Thompson's desire was to graduate students who were well grounded in the basic sciences and capable of teaching in them or continuing advanced work. He did not wish to graduate technicians, although he wrote Spencer that the School had an obligation to teach specialized knowledge to technicians.

The International Pacific Salmon Fisheries Commission (IPSFC) was established in 1937 to restore the sockeye salmon runs of the Fraser River in British Columbia. Thompson, by then recognized as one of the premier fishery scientists of the era, was chosen to be the director of this newly-formed organization. He initially retained his other positions as Director of the IFC and the School of Fisheries, thus holding three jobs simultaneously! Thompson followed his previous approach to fisheries research by building a small, but talented, staff of scientists and broadly attacking a wide range of research projects pertinent to the current fisheries problems. He directed research that resulted in the construction of fish ladders at Hell's Gate on the Fraser River. These ladders were built to enable salmon to bypass obstructions to their upstream migration caused by certain high water-level conditions. Thompson and the IPSFC were generally credited with restoring the abundance of salmon in the Fraser River. He resigned from the IFC in 1939 and the IPSFC in 1942 and returned to the University of Washington as the full-time Director of the School of Fisheries.

Thompson was Director of the School of Fisheries for over 17 years (1930-1947). During his tenure, the school developed into a preeminent facility to train fishery scientists, and it graduated many individuals who subsequently became prominent fishery scientists and leaders in fisheries research and administration.

After the close of World War II, the salmon packers of Bristol Bay, Alaska, became concerned about the declining abundance of salmon in Alaska. In 1945 they asked Thompson to undertake a preliminary study of the situation and to make recommendations for action. Thompson visited Bristol Bay, reviewed much of the available data on the salmon fisheries of the region, and wrote a report to the packers. He called for long-term studies of the runs to various watersheds of Bristol Bay, noting that such investigations were then lacking. The salmon packers funded an expanded investigation by Thompson in 1946 and 1947. The salmon canners of southeastern Alaska soon thereafter asked that Thompson also undertake scientific investigations in that region.

Realizing that a comprehensive investigation of salmon in Alaska would ultimately require a relatively large organization, Thompson organized the Fisheries Research Institute at the University

of Washington. The university's Board of Regents approved the institute in 1947 and placed it administratively in the Graduate School and therefore distinct from the School of Fisheries. Thompson resigned the directorship of the School of Fisheries in 1947 and was named Research Professor and Director of the new institute.

Over the years, the Fisheries Research Institute undertook detailed studies of Pacific salmon in various areas of southeastern, central, and western Alaska. In the early years, this research was funded mainly by the Alaska salmon industry. Later, the federal government provided major support for these studies. The Institute, well known for the high quality of its research, made major contributions over a 50-year period to knowledge of Pacific salmon biology. During the early part of this era, Thompson, who was involved in most aspects of salmon research, became recognized as an expert on salmon of Alaska and the Pacific Northwest. Thompson maintained close relations with the Alaska salmon industry that, in turn, respected and trusted him. He generally received broad support from industry and government for his research.

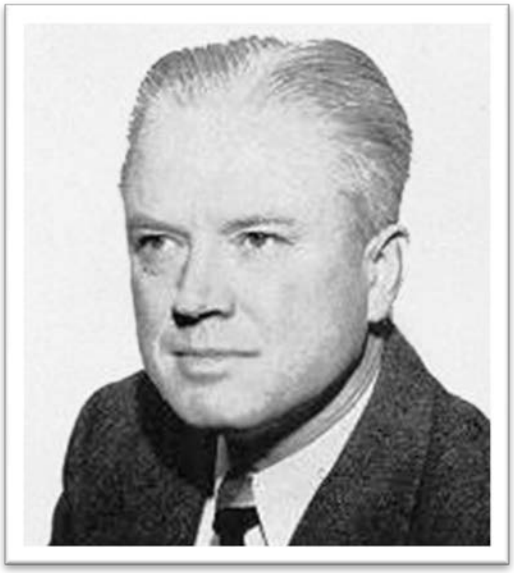
Thompson retired from the directorship of the Fisheries Research Institute in 1958 at the age of 70. He remained as a consultant to various fishery agencies, including the U.S. Bureau of Commercial Fisheries (now the National Marine Fisheries Service), the IPSFC, and the U.S. Army Corps of Engineers. Thompson also remained close to the salmon fishing industry as an advisor. Scientists and administrators held him in high esteem and welcomed his honest and forthright comments and criticism.

Will Thompson died on November 7, 1965, at the age of 77. He left a legacy as a preeminent fishery scientist of his era. He influenced a myriad of fishery scientists by studying the characteristics of the fisheries, rather than the environment, to develop management strategies. Thompson's work with the halibut and salmon of the Pacific Northwest and Alaska became classic, but at times controversial, studies of commercial fisheries. He published about 150 scientific papers, and was well known for his original studies of population dynamics of commercial fishes.

Under Thompson's leadership, the School of Fisheries at the University of Washington became world-renowned. He was the doctoral advisor for many of the principal scientists who carried out fishery work on the Pacific coast after World War II. He was also the major fishery researcher on the West Coast during the interlude between the two World Wars. Thompson was known as a highly-focused individual and an intense worker, who, at times, possessed a difficult personality.

Always possessing a high concern for ethics, Thompson helped found the American Institute of Fishery Research Biologists in 1956 to ensure high standards in the profession. Thompson's pioneering accomplishments remain in high esteem today.

RICHARD VAN CLEVE



Richard Van Cleve was born in Seattle, Washington, on March 6, 1906. He earned his B.S. degree from the University of Washington in 1927 and his Ph.D. degree from the same institution in 1936.

He was employed as a scientist for the International Fisheries Commission (now the International Pacific Halibut Commission) from 1926 to 1941, making contributions to the oceanography of the North Pacific Ocean and to the early life history of Pacific halibut. He was also a lecturer at the University of Washington from 1935 to 1941. He and another future Founding Fellow, F. Heward Bell, almost lost their lives aboard the halibut schooner *Scandia* when it sank west of Kodiak Island, Alaska, in February1927. He was Chief of the Bureau of Marine Fisheries of the California Division of Fish and Game from 1941 to 1946. During that period, in addition to his duties with marine fisheries, he supervised the anadromous fisheries research and development program in connection with the California Central Valley reclamation projects. He then accepted the position of Chief Biologist of the International Pacific Salmon Fisheries Commission, where he was responsible for direction of its research program and the formulation of regulations for the fishery for Fraser River sockeye salmon.

In 1948, Dr. Van Cleve embarked on a long and distinguished academic career at the University of Washington School of Fisheries (later the College of Fisheries), serving as Professor and Acting Director from 1948 to 1950, Director from 1950 to 1958, Acting Dean from 1958 to 1959, Dean from 1959 until his partial retirement in 1971, and Emeritus Professor after that.

The College of Fisheries was fortunate to have Dr. Van Cleve's distinguished services as a teacher, administrator, and scientist for 34 years. During his tenure, the Fisheries Research Institute, the Center for Quantitative Science, the Washington Cooperative Fishery Unit, and the Institute of Food Science and Technology were added to it. At the same time, the curriculum was restructured, following his view that fishery biology required development as a science that involved the application of the fundamental principles of biology, chemistry, physics, mathematics, and engineering to the varied and complex problems connected with the management of fishery resources. He saw the need to consider both the target species and the environment quantitatively, as well as qualitatively. He recognized that the rapid development of all branches of science required increased breadth and depth of training for those who participate in research.

In spite of his busy schedule, Dr. Van Cleve was always willing to spend time helping a colleague, staff member, or student with advice on his or her research. His talents and dedication provided much to the advancement of fisheries education and research. However, he considered his achievements to be modest, and took greater pleasure in the accomplishments of his students and colleagues.

Dr. Van Cleve's many and varied international contacts brought additional depth to programs within the College of Fisheries. After World War II, he served as a consultant to the Supreme Commander of the Allied Powers in Japan and to the U.S. Department of State concerning tuna negotiations with Mexico and salmon negotiations with Canada. He advised the Minister of Agriculture and Fisheries of India on restructuring its fishery programs. He consulted with the U.S. Bureau

of Commercial Fisheries on its development of Alaska fishery programs and the California Division of Fish and Game on its Central Valley water problems. He served as advisor to the West German government and as a consultant to the United Nations in Tunisia. Also, he developed a program for Southeast Asian fisheries in Thailand and Cambodia for the Smithsonian Institution.

Dr. Van Cleve died on August 27, 1984, at the age of 78, but his legacy will continue indefinitely.

LIONEL A. WALFORD

Lionel Albert ("Bert") Walford was born in San Francisco, California, on May 29, 1905. In his early years, and through graduate school, he was faced with special challenges, including the support of his parent and finding ways to keep his house and home together during the Great Depression.

After graduating from Stanford University in1929, he went to work for the California Division of Fish and Game (CDFG), during which time he prepared his "Handbook of Common Commercial and Game Fishes of Ca1ifornia," issued in 1931 as Fish Bulletin 28. This Bulletin was one of the first fish manuals to use photographs, rather than drawings, and to establish "official" common names. It set a style for presentation, and Dr. Walford should perhaps be remembered more for this than for his "Marine Game Fishes of the Pacific Coast," which would be published later.

After a short period with the CDFG, he went to Harvard University, where he studied under the great fisheries oceanographer, Dr. Henry Bigelow, receiving his M.A. and Ph.D. degrees in 1932 and 1935, respectively. An accomplished raconteur, Bert would often hold forth at great length about his times at Harvard and "the yard," where he survived the vicissitudes of both graduate school and the Great Depression. Undoubtedly, his later comprehensive views of fisheries, fishery management, and the marine sciences were forged in those days in New England. Subsequently, he returned to the California to pursue various academic, research, and management positions. More than once, he described how he spent his days supervising the untutored Civilian Conservation Corps (CCC) staff members at fish weirs designed to garner knowledge about a variety of riverine and anadromous species. (The CCC was a public works relief program that operated in the United States from 1933 to 1942 to provide employment to 18- to 25-year-old unmarried men.) Eventually, in 1935, he found a position within the fledgling University of California system in Santa Barbara, teaching various courses in marine science.

In 1936, he left academic life to pursue research endeavors that he thought could best be accomplished in a U.S. government position. He once confided to a colleague that, "I looked over that 'sea of freshmen faces' and knew that 'I could and they couldn't.'" This was not arrogance—only a realistic recognition that his earlier training and experiences could best be used in research—something hard to do at Santa Barbara in 1935-1936. It was during this period, however, that he wrote "Marine Game Fishes of the Pacific Coast," which was published in 1937 by the University of California Press.

After joining the federal government in 1936, he held a variety of jobs, quickly advancing to positions of leadership and establishing himself as a presence in Washington, D.C., and in a range of research venues in which state-of-the-art fisheries investigations were in progress. It was during these times that Bert was able to view widely the field of marine science, especially in terms of fishes and fisheries. He recognized that while many varied species were being studied, scientists then knew little about their genetics, histology, early life histories, disease, pathologies, and parasites. All of these matters became "grist for his mill," a series of topical papers and his culminating effort,

"Living Resources of the Sea," Ronald Press (1959). This volume became a standard text at many colleges and universities offering courses in fish, fisheries, and living marine resources. It was not a text on methodologies, a listing and description of marine fishes, or a "cookbook" on biometrics; rather, it was, and remains, a statement of what the truly big issues were in the mid-1950s and in the latter half of the 20th century. The book deals not solely with problems specifically related to the marine fisheries; significantly, it explores the habitats in which fishes exist and the conditions necessary for their survival. Dr. Walford had an uncanny ability, not only to recognize the issues that would soon become topics for exploration, but also, the matters that would become festering problems in the last decade of the century. He noted that "natural" environmental changes must be considered if we are to understand the comings and goings of fishes; he also was one of the first to hypothesize that DDT and other contaminants would be of concern at the time of the nation's bicentennial. During a major wildlife conference in 1948, Bert sat in on a series of papers that indicated that the halogens were already a serious problem for certain stream and riverine fishes, and for other wildlife. This became an issue frequently discussed with Rachel Carson, then a writer and editor at the U.S. Fish and Wildlife Service headquarters in Washington. From such thinking evolved the idea that the future fisheries agencies *must* consist not solely of fisheries biologists—rather the laboratories should house teams of scientists comprised of various disciplines to include, but not be limited to, oceanographers, biochemists, physiologists, embryologists, students of early-life history, geneticists, population dynamicists, mathematical ecologists, pathologists, parasitologists, and microbiologists.

Even then recognizing the urgency of the fact that soon we could have on earth 8 to 10 billion souls who must be fed, in part from the seas, he set about hiring a new generation of marine scientists, Moreover, as a principal director of federal marine fisheries research, he could direct the early efforts of these researchers. Most of this generation went on to produce new data and information with great distinction. Most, unfortunately, began to disappear in the mid-1980s and early 1990s. Retirement does take its toll! Fortunately the early efforts of Dr. Walford took root, and today there are not only federal laboratories dedicated to fish disease, aquaculture, and pollution effects, most marine science centers throughout the United States and the World have such facilities.

His book, "Living Resources of the Sea: Opportunities for Research and Expansion," should be read in the context of similar offerings of the time (and today) to see just how farsighted Bert Walford was. When he became director at the Sandy Hook Marine Laboratory in 1960, he implemented the use of scuba divers, submersibles, television, and other innovative tools in fisheries research. Often this was accomplished with a very thin budget. Moreover, he counted a wide range of people, from Nobel laureates to technicians, among his confidants, and suffered fools not at all well.

He was a member of the American Association for the Advancement of Science, the American Society of Ichthyologists and Herpetologists (serving as Ichthyological Editor from 1937 to 1947), the American Society of Limnology and Oceanography, and a Founding Fellow of the American Institute of Fishery Research Biologists. He served on committees of the International North Pacific Fisheries Commission, the International Northwest Atlantic Fisheries Commission, the U.S. National Academy of Sciences, and the U.S National Research Council.

Dr. Lionel Walford died in April 1979 at the age of 73. When he is considered among <u>*his*</u> peers, the likes of Dennis Crisp, C.M. Yonge, Gunnar Thorson, Athelstan Spilhaus, and Willard Bascom, he stands very tall indeed—and he casts an even longer shadow. His likes no longer stroll the beaches, nor stand watch from the bridge; the membership of the AIFRB should be proud that he was a Founding Member of the Institute.

MORE WALFORD MEMORIES by Churchill B. Grimes

When I read Jack Pearce's tribute to Bert Walford, it kindled fond memories about my brief friendship with Dr. Walford from 1977 until his death in 1979. Ken Able and I were brand new Assistant Professors at Rutgers University in the fall of 1977. Dr. Walford had already retired from the U.S. National Marine Fisheries Service, and had become Director of New Jersey Sea Grant. Ken and I drove to Sandy Hook, terrified much of the way, being "country boys" unaccustomed to the congestion and competitive pace of New Jersey traffic, to introduce ourselves to Dr. Walford and discuss prospective Sea Grant-sponsored research we might propose. We were somewhat apprehensive at the prospect of meeting him, having heard of Dr. Walford's reputation for being a bit acerbic. And, after all, he was the Walford of the "Ford-Walford plot." Fortunately, Dr. Walford took a quick liking to us, I think mainly because we were what some might describe as overzealous fools about fish. He was so inclined himself, even in his early 70s, and I liked that.

During this first of many visits, Dr. Walford suggested that it might be interesting to do some research on golden tilefish (*Lopholatilus chamaeleonticeps*), because a recreational and longline fishery was developing for them in the mid-Atlantic-Southern New England area. Ken and I drafted a proposal to Sea Grant to study their life history and population dynamics, and asked Dr. Walford to review the first draft. We got a small taste of his caustic pen; I recall a few editorial comments like "sophomoric." The project ultimately got funded, and Ken and I spent the next seven years following Dr. Walford's advice, and working on one aspect or another of the biology and fisheries for golden tilefish.

I always went to visit Dr. Walford whenever I was anywhere near his Sea Grant offices at Sandy Hook. We grew to really like each other, and we spent many an hour yapping about one aspect or another of fish. He fostered my career as a young scientist, and enriched my life in the process.

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