GILBERT L. VOSS:
A COMMEMORATION, BIBLIOGRAPHY AND DESCRIBED TAXA

Michael J. Sweeney and Clyde F. E. Roper

ABSTRACT

Professor Gilbert L. Voss served the leading role in American cephalopod research for nearly 40 years. He drew attention to the importance of cephalopods in marine ecosystems and as fisheries resources. Through his research and that of his students he significantly advanced the knowledge of cephalopod systematics, distribution and biology. An insight into Gil Voss’ ideas and attitudes concerning cephalopod research and teaching is given. Voss’s broad interests are indicated in his bibliography of over 210 diverse published items, including 73 book reviews, 16 editorials, and 124 research papers on cephalopods, fishes, crustaceans, botany, zoogeography, history of oceanography, anthropology, fisheries, and marine and deepsea biology. He authored or co-authored descriptions of two new families or subfamilies, 6 new genera and more than 65 new species or subspecies.

COMMEMORATION

Long before Gilbert L. Voss was an oceanographer he was a man of the sea: a youthful adventurer in small sailing and fishing boats in south Florida, a seaman in the U.S. Merchant Marines following high school, a World War II U.S. Coast Guard boatswain, a commercial mullet and charter fisherman. Thus, his initial education in what became a life-long commitment, marine sciences, began at a very practical level, that of making a living. Gil was nearly 30 years old when he entered undergraduate school at the University of Miami in 1947. His first publication appeared in 1948 and described a trip to the outer reef off Florida’s east coast. By the time he graduated in 1951 he had published seven papers, four about cephalopods of south Florida and western Atlantic waters. By the time he had finished his Ph.D studies at George Washington University in 1956 he had completed an additional 15 papers, mostly on cephalopods but others as well on sailfish, penaeid shrimp, seaweeds and shallow water ecology.

Professor Voss was widely known as a biological oceanographer, a specialist in deepsea and coral reef biology and the history and technology of oceanography.1 His long-term, deepsea biology program in the 1960’s and early 1970’s resulted in comparative deepsea research expeditions to the Gulf of Guinea, the western Atlantic and Caribbean and the Gulf of Panama. Scores of publications by Voss, his colleagues and students emerged from this program and contributed immeasurably to our knowledge of the deepsea. He was an early, continuous, outspoken and influential advocate for the conservation of South Florida’s coral reefs and the Florida Keys ecosystems. Through the culmination of his initial idea, tireless efforts and expert testimony at public hearings, the John Pennekamp Coral Reef State Park, the first of its kind in the United States, was established at Key Largo, Florida in 1959. His interest in the coral reef ecosystem was vigorously pursued throughout his lifetime, and not only led to his first publication but to a book, Coral Reefs of Florida (1987). Several research grants for coral reef studies resulted in numerous publications by colleagues and students on coral reef ecosystems. Just two months before his death, Gil (and co-principal investigator

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Professor Samuel Snedaker) had received funding of over a half million dollars for a study of the effects of pollution on the coral reefs and inshore habitats of the Upper Florida Keys.

In spite of the magnitude and significance of these contributions, Gil Voss’s primary research passion was cephalopods. His first paper dealt mainly with taxonomic descriptions and clarifications of the Floridian and tropical western Atlantic cephalopod fauna, which in the 1940’s and 1950’s was poorly known. The number of new species and new combinations introduced by Gill attests to that. Interestingly, among Gill’s earliest research objectives as a new faculty member at the University of Miami in the early 1950’s was to study the larval cephalopods that were so abundant in the plankton of the nearby Florida Current. After months of toil, Gil had to set aside the project because most of the larvae could not be identified to species—the adults were unknown. So, Gil Voss was forced, as it were, to study the systematics and zoogeography of adult oceanic squids, first those of the western tropical Atlantic, the Caribbean Sea and the Gulf of Mexico, then, as monographic studies ensued, of the world’s oceans. Ultimately, Voss published monographs and faunistic reviews on all orders of cephalopods (except Vampyromorphpha) from all over the world. To support these studies he amassed a most comprehensive collection of cephalopods in terms of species diversity. The new taxa described by Gil Voss are presented in a separate section (p. 17–18). They include two families or subfamilies, 6 genera or subgenera and more than 65 species and subspecies (some still are in press). Voss had described taxa in every group of Recent Coleoidea except Vampyromorphpha, a rather remarkable testament to the breadth of his knowledge and understanding of the systematics of the Cephalopoda.

As a former commercial fisherman, a pragmatist, and a seafood enthusiast (especially for octopus), it was quite natural that Gil Voss would become interested in the resource potential of cephalopods and in the development of its fisheries. To this end he became a strong advocate for cephalopod fisheries development based on firm biological foundations, both in the United States and around the world. Voss published a number of cephalopod papers related to cephalopod fishery topics, including articles in topical, non-technical journals, especially Sea Frontiers.

In order to assess the impact Gil Voss made on the research and knowledge of cephalopods, it is necessary to look beyond the number of cephalopod publications, of which there are nearly 100. We need to consider what the cephalopod research world was like when Gil Voss began studying cephalopod systematics in 1949. The first quarter of the 20th century represented a pinnacle in cephalopod research with such giants as Chun, Hoyle, Joubin, Pfeffer, Berry, Naef, Sasaki and Robson. But, by the 1930’s the golden age was gone and a 20-year dark age followed, during which about the only systematic light on cephalopods was shown by William Adam of Belgium.

To set the scene in the immediate post-World War II years, there was not a single specialist in the Western Hemisphere under whom an aspiring teuthologist could study cephalopod systematics. In the United States, S. Stillman Berry was winding down a 50-year adventure with cephalopods, but he had no academic position through which to serve as a mentor. Grace Pickford had just completed classic monographic studies on Vampyroteuthis and was involved with North American benthic octopuses, but she too was unavailable in an academic advisory capacity. In Europe the situation was little better. William Adam of the Musée royal d’Histoirie naturelle de Belgique (now Institut Royal des Sciences Naturelles de Belgique) was very actively publishing on cephalopod systematics, as a curator,
Table 1. Cephalopod students of Gilbert L. Voss

<table>
<thead>
<tr>
<th>Name</th>
<th>Year</th>
<th>Degree</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kumpf, H. E.</td>
<td>1958</td>
<td>M.S.</td>
<td>Bathypolypus systematics</td>
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<tr>
<td>Roper, C. F. E.</td>
<td>1962</td>
<td>M.S.</td>
<td>Enoploteuthis systematics</td>
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<tr>
<td>Alvina (Burgess), L. H.</td>
<td>1965</td>
<td>M.S.</td>
<td>Octopus hummelincki biology</td>
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<tr>
<td>LaRoe, E. T.</td>
<td>1967</td>
<td>M.S.</td>
<td>Loliginidae of tropical W. Atlantic</td>
</tr>
<tr>
<td>Roper, C. F. E.</td>
<td>1967</td>
<td>Ph.D.</td>
<td>Bathyteuthis systematics</td>
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<tr>
<td>Young, R. E.</td>
<td>1968</td>
<td>Ph.D.</td>
<td>Cephalopods of southern California</td>
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<tr>
<td>LaRoe, E. T.</td>
<td>1970</td>
<td>Ph.D.</td>
<td>Rearing and maintenance of squid</td>
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<tr>
<td>McSweeney, E. S.</td>
<td>1971</td>
<td>Ph.D.</td>
<td>Galiteuthis glacialis morphology</td>
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<tr>
<td>Wollering, M. R.</td>
<td>1971</td>
<td>M.S.</td>
<td>Octopus briareus rearing</td>
</tr>
<tr>
<td>Cairns, S. D.</td>
<td>1973</td>
<td>M.S.</td>
<td>Cephalopods of Straits of Florida</td>
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<tr>
<td>Thomas, R. F.</td>
<td>1974</td>
<td>Ph.D.</td>
<td>Tremoctopus systematics</td>
</tr>
<tr>
<td>Opresko, L. K.</td>
<td>1974</td>
<td>Ph.D.</td>
<td>Octopus briareus development</td>
</tr>
<tr>
<td>Hanlon, R. T.</td>
<td>1975</td>
<td>M.S.</td>
<td>Octopus briareus growth and rearing</td>
</tr>
<tr>
<td>Palacio, F. J.</td>
<td>1977</td>
<td>Ph.D.</td>
<td>Cephalopods of Brazil</td>
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<tr>
<td>Hanlon, R. T.</td>
<td>1978</td>
<td>Ph.D.</td>
<td>Loligo Doryteuthis plexi biology</td>
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<td>Hixon, R. F.</td>
<td>1980</td>
<td>Ph.D.</td>
<td>Loliginids of Gulf of Mexico</td>
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<tr>
<td>Toll, R. B.</td>
<td>1982</td>
<td>Ph.D.</td>
<td>Gladii comparative morphology</td>
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<tr>
<td>Brakoniecki, T. F.</td>
<td>1986</td>
<td>Ph.D.</td>
<td>Loliginidae systematics</td>
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<td>Hess, S. C.</td>
<td>1987</td>
<td>Ph.D.</td>
<td>Cephalopod spermatophore morphology</td>
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<td>deMaintenon, M.</td>
<td>1990</td>
<td>M.S.</td>
<td>Myopsid cranium cartilage morphology</td>
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<tr>
<td>Candela, S.</td>
<td></td>
<td>Ph.D.</td>
<td>Beaks in diet of NW Atl. predators</td>
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</table>

not a professor. J. Z. Young’s brilliant career was well underway and was concentrated in aspects of cephalopod neuroanatomy. And, at that time, Katharina Mangold was still dissecting elephant brains in Switzerland, just prior to her conversion to cephalopod research. The only other relatively active worker was Iwao Taki of Hiroshima University, Onomichi, Japan and he was primarily a malacologist. This historical perspective is to point out that Gil Voss had to go it alone in his pursuit of cephalopod research. He accumulated an exceptional library, built comprehensive and representative collections, had correspondents and taught himself.

Within a decade Voss had become a recognized world authority on the systematics and distribution of cephalopods, in addition to being a broadly based marine biologist. With the evolution of the graduate program in marine sciences at University of Miami, a number of students selected Professor Voss for their thesis advisor. (Initially only Master’s degrees were offered at the Institute of Marine Sciences; the first Ph.D. was awarded in 1962.) Voss’s first Master’s student finished in 1956 with a study on a species of fish. Herman Kumpf completed the first Master’s degree in cephalopods in 1958 with a study of the Bathypolypus species complex in the North Atlantic. Master’s degrees were finished sporadically during the next few years (Roper, 1962; Alvina (Burgess), 1965; LaRoe, 1967) followed by a rapid succession of Ph.D. dissertations (Roper, 1967; Young, 1968; LaRoe, 1970; McSweeney, 1971). Numerous Master’s and Ph.D. students followed through the 1970’s and 1980’s. Table 1 lists chronologically the names of students who received degrees on cephalopod topics under the supervision of Professor Gilbert L. Voss, giving a total of eight Master’s and 13 Doctor’s degrees. Topics of theses and dissertations cover a broad range of subjects: systematics and zoogeography, faunal studies, comparative morphology, fisheries, biology, embryology, behavior. While not all these individuals have been able to pursue careers in cephalopod research, some have, to the extent that almost 200 publications about cephalopods have resulted. That begins to provide a measure of the impact Gil
Voss had been on cephalopod research. In total, Gil Voss was supervisory professor for 53 masters and Ph.D. students.

Dr. Voss had an interesting and effective philosophy in regard to graduate students. He believed that the only way a student would become trained as an independent research scientist was to insist on independent inquiry through the entire degree process—no spoon-feeding. Voss encouraged students to publish, not only their theses and dissertations but other papers based on topics related to these or on any subject that represented independent research. I (C.F.E.R.) never discussed this with Gil, but I think he had an excellent approach that helped students learn the sometimes painful process of publishing a first paper. He would discuss a student’s work and review the manuscript prepared by the fledgling teuthologist or marine biologist. He made some comments and suggestions, but he wouldn’t run the manuscript through the same kind of rigorous review (perhaps scathing if called for) given to a colleague’s manuscript. When that first manuscript came back from the editor, filled with reviewer’s comments that seemed overwhelming, even devastating, to the student, Gil would then calmly discuss the validity of the comments and criticisms pointing out their relative merits. That technique exposed the new author to the outside world of reviewers with a paper that hadn’t been perfected and protected by the professor—thus, development of independence.

Another technique led to independence for his students. Of all the theses and dissertations Gil supervised that were later published, not a single one ever bore his name as an author. It was the student’s work, the student’s responsibility, the student’s reward, and the student’s success. Consequently, it was Gil’s success.

In addition to the publications and students Gil produced, his impact on the development of research on cephalopods around the world was enormous. Researchers and students came to Miami to spend a few days or a few months studying in Gil’s laboratory, with its comprehensive collections and library, and discussing cephalopods with Gil. The specimens and literature were important elements in the process, but surely the greatest contributions to the knowledge accumulated by the visitors were from direct contact with Gil Voss, in both formal and informal settings. He was so enthusiastic about cephalopod systematics and fisheries, so emphatic about the crucial role cephalopods play in marine ecosystems and so encouraging in support of researcher’s and student’s work, that he infected them with enthusiasm and affected how they worked and published on cephalopods.

Gil Voss was an extremely active participant in national and international activities concerned with cephalopods. He always was eager to discuss papers, ideas, proposals that would advance research on cephalopods, be it basic systematics and biology, fishery development and utilization, or broad-scale oceanic ecosystem mega-projects. Voss was a founding member of the Cephalopod International Advisory Council (CIAC) and was influential in helping to develop the directions and programs of this organization.

When we examine the development of Gil Voss’s research career in cephalopods we see continuous growth (see Bibliography). Initial works were more focused, descriptive studies (e.g., 1950; 1953b; 1954b; 1956c). Later, monographs, reviews and comprehensive studies were added to his repertoire (e.g., 1962h; 1963c; 1967; 1972g; 1973b; 1977c). Then more synthetic and theoretical works appeared (e.g., 1988i; 1988s). Furthermore, throughout Gil’s career he maintained a steady flow of articles and book reviews written for the educated lay person interested in the marine sciences. These were published primarily in the National Geographic Magazine and in Sea Frontiers, the journal of the International Oceanographic
Foundation with which Gil was associated since its founding, most recently as its Interim Editor until his death. These articles are an example of Gil Voss as a consummate educator, not only of undergraduate and graduate students in marine sciences, but of the public as well.

In summary it seems certain that Professor Gilbert L. Voss was responsible for stimulating and influencing a new wave, a resurgence, of research on cephalopods that has been sustained and increased over his 40-year career. So important is his influence on the resurgence of cephalopod systematic research, hardly a paper has been published in cephalopod systematics and zoogeography, and even other aspects of cephalopod biology and fisheries, that doesn't cite at least one paper published by Voss. This has been the case for nearly 4 decades and it will continue to be so for many decades into the 21st Century.

In the next few days as we listen to the broad diversity of presented papers and read abstracts of submitted papers in this symposium in honor of Gilbert L. Voss, we will be impressed with how many of them have some genealogical link, whether directly or indirectly with Gil Voss. Thus we celebrate the exciting life, stimulating career and lasting contributions of Gilbert L. Voss.

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CEPHALOPOD TAXA DESCRIBED BY GILBERT L. VOSS

Abralio lucens Voss, 1963c
≈Abralio multithamata fide Tsuchiya and Okutani (1988)

Abralia grimpai Voss, 1959a

Abralia redfieldi Voss, 1955b

Ascocranchia Voss, 1962:
≈Helicocranchia fide N. Voss (1980)

Ascocranchia joubini Voss, 1962:
≈Helicocranchia sp. undetermined fide N. Voss pers. comm.

Benthoctopus canthylus Voss and Pearcy, 1990

Benthoctopus macrophallus Voss and Pearcy, 1990

Benthoctopus oregonensis Voss and Pearcy, 1990

Benthoctopus robustus Voss and Pearcy, 1990

Benthoctopus yaquinae Voss and Pearcy, 1990

Callioneuthis celebica Voss, 1960c
≈Histioeuathis celebica fide N. Voss (1969)

Callioneuthis celebica pacifica Voss, 1962d
≈Histioeuathis celebica pacifica fide N. Voss (1969)

Callioneuthis corona corona N. Voss and G. Voss, 1962
≈Histioeuathis corona corona fide N. Voss (1969)

Callioneuthis elongata N. Voss & G. Voss, 1962
≈Histioeuathis elongata fide N. Voss (1969)

Caryoteuthis Voss, 1960e
≈Megalocranchia fide N. Voss (1980)

Caryoteuthis oceanica Voss, 1960e
≈Megalocranchia sp. undetermined fide N. Voss pers. comm.

Chiroteuthis capensis Voss, 1967e

Chiroteuthis joubini Voss, 1967e

Doryteuthis reesi Voss, 1962d

Eledone marginae Voss, 1964b
Eledone thysanophora Voss, 1962j
Euprymna albatrossae Voss, 1962d
Euprymna phenax Voss, 1962d
Euaxoctopus Voss, 1971a
Euaxoctopus panamensis Voss, 1971a
Euaxoctopus pillsburyae Voss, 1975b
Graneledone antarctica Voss, 1976a
Graneledone macrotyla Voss, 1976a
Graneledone pacifica Voss and Pearcy, 1990
Graneledoninae Voss, 1988s
Grimpoteuthis bathysceles Voss and Pearcy, 1990
Grimpoteuthis bruni Voss, 1982
Grimpoteuthis tufis Voss and Pearcy, 1990
Heteroteuthis atlantis Voss, 1955b
Heteroteuthis disper fide Nesis (1982)
Idioleuthis biserialis Voss, 1962j
Idioleuthis macrocheir Voss, 1962j
Inioleuthis capensis Voss, 1962j
Loligo surinamensis Voss, 1974b
Megalocranchia megalops australis Voss, 1967e
=Teuthowenia pellucida fide N. Voss (1985)
Megalocranchia papillata Voss, 1966c
=Helicocranchia papillata fide N. Voss et al. (in press)
Notodorus sloani philippinensis Voss, 1962d
=Notodorus hawaiiensis fide Dunning (1988)
Octopus balboi Voss, 1971a
Octopus burryi Voss, 1950
Octopus maya Voss and Solis Ramirez, 1966
Octopus rapandi Voss, 1979a
Octopus selea Voss, 1971a
Octopus stictochrus Voss, 1971a
Octopus zonatus Voss, 1968
Oregonioteuthis springeri Voss, 1956c
=Lycotheuthis diadema fide Toll (1983)
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=Megalocranchia sp. undetermined fide N. Voss Pers. comm.
Pholidoteuthis adami Voss, 1956c
Pickfordiateuthididae Voss, 1953b
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Rossia antillensis Voss, 1955b
Rossia bullisi Voss, 1956c
Rossia tortugaensis Voss, 1956c
Rossia (Semirossia) equalis Voss, 1950
=Semirossia equalis fide Boletzky (1971)
Selenoteuthis Voss, 1959a
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Sepia prionata Voss, 1962d
=Sepia papuensis fide Adam and Rees (1966)
Sepiadoridium gracilis Voss, 1962d
Sepiola trirrata Voss, 1962d
Tetracheledone Voss, 1955b
Tetracheledone spinicirrus Voss, 1955b

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