

Mentors: the generation 1935-1985

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ABSTRACT. The lives and scientific contributions of five eminent academic geologists and paleontologists; James Alloiteau (Museum National d'Histoire Naturelle, Paris, France), Dorothy Hill (University of Queensland, Australia), Marius Lecompte (University of Louvain, Belgium), Masao Minato (Hokkaido University, Sapporo, Japan), and Maria Rózkowska (Adam Mickiewicz University, Poland) are briefly summarized here. Each of these paleontologists made major contributions to the study of fossil corals and/or sponges, and each overcame considerable difficulties and disruptions in their lives to excel as mentors to us. All showed remarkable determination and love for paleontological research, and inspired their students and colleagues to understand details of structure and systematic positions of fossil corals and sponges. Each of these individual mentors was the subject of a presentation by a former student at the 11th International Symposium on Fossil Corals and Sponges in Liege, Belgium; thus, somewhat broader coverage of each is provided in the abstracts volume of the meeting.

KEYWORDS: Alloiteau, Hill, Lecompte, Minato, Rózkowska.

1. Introduction

This paper summarizes portions of a group of papers presented at the 11th International Symposium on Fossil Cnidaria and Porifera in Liege, Belgium, during August 19 to 29, 2011. These contributions were each composed by one or more former students of a well-known and influential mentor in our chosen field, research on fossil corals and/or sponges. The presentations focused on the lives and accomplishments of these mentors and possible character traits that led them to their various degrees of pre-eminence in our area, but taken in total, are far beyond the present allowable space to allow presenting them here in full detail. What follows is a distillation of, and selections from, individual presentations. All of these were published as brief but extended abstracts in the *Kölner Forum für Geologie und Paläontologie* (Aretz et al., 2011). Biographic information on deceased coral specialists of this vintage can also be found in proceedings volumes for meetings of the International Association for Study of Fossil Cnidaria and Porifera; Maria Rózkowska (Fedorowski, 1980), Jean-Pierre Chevalier (Coates, 1984), and William A. Oliver, Jr. (Sorauf & Fedorowski, 2010). Each of the five distinguished scientists treated here come from the generation that was studying and professionally active just before, during and after World War Two. Individuals are discussed by their former students below (with initials of contributing authors included) along with a brief summary of their lives and careers. These summaries focus on the major contributions of each and lead to a summing up of common characteristics that enabled them to excel as scientists, as role models for students and friends, and as mentors of the present generation of researchers on fossil corals and/or sponges.

2. James Henri Alloiteau (*E. R. and E. M.*)

James Henri Alloiteau (Fig. 1) was born in Chartres, France, in 1890 into the family of a gardener; and died in early 1969. His early studies in Paris were interrupted by the First World War. After this, he studied at the Sorbonne, and in 1926 obtained a diploma in geology. In 1939, he began paleontological research in the *Centre National de Recherches Scientifiques*, and this too was interrupted by war. During the Second World War, he was a member of the resistance, was arrested in 1943, and suspended from his position at the university, but returned to his research again at war's end.

In 1952, he published his systematics of the Scleractinia in the *Traité de Paléontologie* (Jean Piveteau, ed.), predominantly based on microstructural criteria and above all, on septal

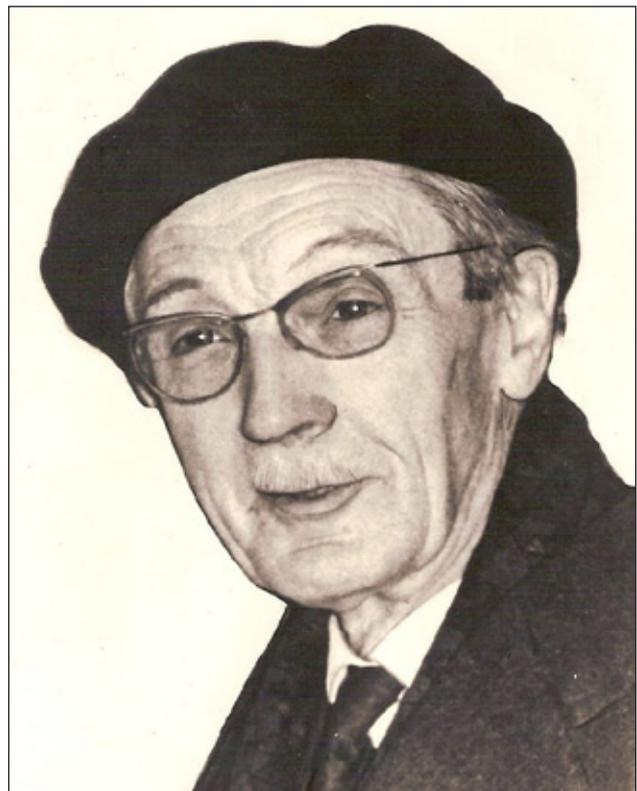


Figure 1. James Alloiteau, January 1966.

microstructure and its external expression, septal ornamentation. This new approach to scleractinian systematics was based primarily on his own observations of living and fossil corals. His proposed scheme of coral systematics has, in large part, survived to the present, despite more than a half of century of research by many other specialists since its publication. He defended his doctoral thesis in 1955, and soon thereafter published his widely acclaimed book, *Contribution à la systématique des Madréporaires fossiles* (1957).

James Alloiteau awakened general interest in scleractinian microstructures, a direction of research neglected in the 20th century until the 1950s, although traditionally, it was

prominent in publications of 19th century coral workers. Some of his new and increased understanding of coral microstructure has been used extensively in following systematic treatment of the Scleractinia, such as that of Vaughan and Wells, without modification. In the following generation, it was James Alloiteau who was most responsible for continuation of research on skeletal structures of corals and systematics based on them. Moreover, his “French school” also initiated new techniques for microstructural studies in ultra-thin sections. These have been united with scanning electron microscopy and molecular studies to further develop modern scleractinian taxonomy in accordance with skeletal structures. While at the Sorbonne, Alloiteau recruited young paleontologists for his team at the *Muséum Nationale d’Histoire Naturelle* in Paris. Each was a specialist in a different group at different stratigraphic levels: J.-P. Chevalier, Cenozoic scleractinians; M. and L. Beauvais, Cretaceous and Jurassic scleractinia; J. Lafuste, Tabulata; P. Semenoff-Tian-Chansky, rugosans, and F. Debrenne, archaeocyaths. Under the guidance of Alloiteau, each of these coral workers completed theses to become Doctorates of the State, along with J.-P. Cuif (Triassic Scleractinia) and S. Barta-Calmus (Tertiary Scleractinia). In addition, while in charge of this research group, he provided post-doctoral research positions at the museum for coral specialists from Israel, Poland, Bulgaria, Argentina, Belgium, and Germany.

James Alloiteau is the author or co-author of over 30 scientific papers, published in France as well as in international scientific journals. His special contribution to understanding corals was to focus on their microstructure (1952, 1957, 1958). The legacy of Alloiteau continued to influence coral studies for decades, as all the members of the “French Coral Group” use microstructure as a practical systematic criterion for supra-generic taxa. This is widely accepted as a fruitful method. Members of the Alloiteau group have thus contributed greatly to microstructural studies of the Scleractinia, with results confirmed by molecular studies. For his scientific achievements and contributions to society, James Alloiteau was awarded numerous titles, including *Chevalier de la Légion d’honneur* and *Officier d’Académie*.

3. Dorothy Hill (J. S. J.)

Dorothy Hill (Fig. 2) was born in Brisbane in 1907, the third eldest of seven children. Dorothy was raised in Brisbane, with a classical education that included Latin, French, Mathematics, and Science. She had a truly admirable career in addition to her contributions to coral and archaeocyathid paleontology. She was honored by her university, her province, and her country for academic and societal accomplishments; a list of honors too long to provide details here (see Campbell & Jell, 1999).

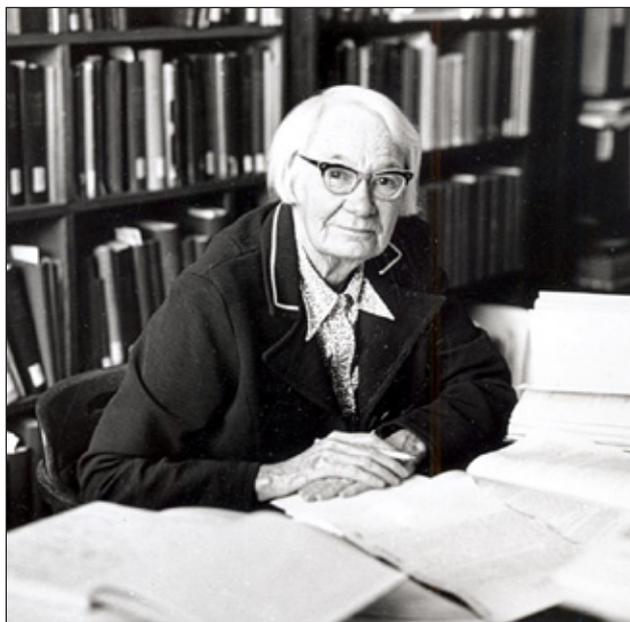


Figure 2. Dorothy Hill, in her office, 1978.

She graduated from the University of Queensland with a gold medal, and earned her MSc in one year. She was awarded a scholarship to undertake studies at Cambridge University, where she earned the PhD in two years. Her dissertation on Carboniferous coral faunas of Queensland and Scotland was published in part as a Palaeontographical Society Monograph (1938). After postdoctoral years at Cambridge and service in the Australian Navy, she joined the University of Queensland, where she taught and conducted research for the rest of her life. In addition to her coral studies, she was an extremely prominent professor on campus and was instrumental in the development of her department and the university during her tenure until her retirement in 1972. Dorothy was also deeply involved throughout her career with the scientific study of the Great Barrier Reef. As secretary of the Great Barrier Reef Committee (1945-1955), she arranged finances for the establishment of the research station on Heron Island. She was recognized as a lady of great intellect and energy, of the highest integrity and loyalty, and an advocate of equality for women.

Her coral work at Cambridge was greatly influenced by Stanley Smith of Bristol University, who fostered her interest in skeletal structure and its relationship to soft tissue. At this time she published the *British terminology of rugose corals* in 1935, her well-received paper on coral microstructure. *The British Silurian rugose corals with acanthine septa* (1936) followed soon after. Her seven years at Cambridge were a great influence both career-wise and personally. The stay provided her with all she needed for the study of fossil corals which in turn facilitated her understanding of the geological history of Australia. She resumed description of Australian coral faunas, emphasizing their stratigraphic usefulness. The quality of her work, her understanding of the coral skeleton and her knowledge of the world-wide stratigraphic distribution of Paleozoic corals were soon recognized, prompting overseas workers to send her collections for study. She published taxonomic papers on material from the following: the Devonian and Permian of New Zealand, Ordovician of Norway, Ordovician of USA, and the Ordovician of Canada. Additionally, she had introduced concepts of palaeobiogeography of coral faunas that are still prominent today. She contributed to the first Coelenterata volume of *The Treatise on Invertebrate Paleontology* (1956). After retirement, Dorothy was appointed Emeritus Professor and continued her work on the revision of the Tabulata and Rugosa *Treatise* (1981). She regarded this as the culmination of her life’s work on corals. The two volumes are not just a compilation of past papers on Paleozoic corals but are the comprehensive and careful distillation of five decades of experience. They are the single most important reference on Paleozoic corals.

With discovery of large archaeocyathid faunas in Antarctica, Dorothy began to interpret the structure of their skeletons using thin sections, as she had for corals. She published several taxonomic papers and a major monograph on these Antarctic faunas, the latter based on fossils collected by a former student on the Trans-Antarctic Expedition. She then revised the treatise volume on the Archaeocyatha (1972).

Dorothy Hill was a pre-eminent Paleozoic coral and archaeocyath specialist. She was an inspiring lecturer and a superb supervisor, producing several generations of students with the necessary tools to carry on the research she fostered throughout her career. She epitomized the twin virtues of humility and sincerity, and was a person of boundless energy, enormous intellect and great vision. Throughout her life she also showed exceptional organizational and administration skills in groups as small as field parties or as large as international scientific societies.

4. Marius Lecompte (J. E. S.)

Marius Lecompte (Fig. 3) died in 1970, at the age of 68. He was born in Morlanwelz, Belgium and upon graduation from school taught the natural sciences at a secondary school in Chimay (Ugbaghs, 1977). With money he saved from work as a mining geologist in Katanga, Belgian Congo (1927-1930), he supported himself as a doctoral student at the University of Louvain. In 1933, he began his career at the Royal Museum of Natural History in Brussels, where he rose to become head of



Figure 3. Marius Lecompte, in academic procession, 1950s.

Paleontology (1952). After World War Two, he began teaching at Louvain as an instructor (1945), and became Professor in 1949.

Beginning study of the Middle and Upper Devonian tabulate corals in the Dinant Basin, Lecompte first focused on species described by Goldfuss in the 19th century, widely quoted and utilized but until this time, never studied in thin section. His first paper was on tabulates described by Goldfuss, based entirely on thin sections of types and his research on them, wisely chosen as preparation for his studies on Devonian tabulates which resulted in his major monograph on tabulate faunas from the Dinant Basin (1939), in quarto-size. These were based, he noted, on study of five to six thousand thin sections.

After World War II (1951, 1952), Lecompte published classic studies of Devonian stromatoporoids, two major monographs. He noted that the monographs were based on study of 9,000 to 15,000 thin sections, and he presented lengthy discussions of skeletal structure and microstructure. Lecompte reviewed the systematics of 13 genera of Devonian stromatoporoids, three of which were newly proposed along with numerous species. Based on his understanding of the genera involved, he established family boundaries for the Paleozoic stromatoporoids very like those later utilized in the section he wrote for the *Treatise on Invertebrate Paleontology* (1956). The treatise contribution was built on his previously published summaries of stromatoporoids, tabulates and rugosans in the earlier *Traité de Paléontologie*, edited by Piveteau (1952).

His paper on the reef phenomenon and sedimentology of Devonian strata of the Ardennes (1954) was classic. His publications on the origin and ecological characteristics of Frasnian reefs of the Ardennes were major contributions to clarification of relationships of Middle and Upper Devonian strata and accompanying reefal carbonates of the Dinant Basin.

The contributions of Lecompte were multiple; first, his seminal systematic works on the Tabulata and Stromatoporida that culminated in the monographs of the Royal Museum of Natural History. These brought the study of tabulate corals and stromatoporoids into the twentieth century. Following publication

of these monographs and sections of the (Piveteau) *Traité* and (Moore) *Treatise*, his attention focused more on unraveling facies relationships and stratigraphy of the Ardennes Devonian, begun on bicycle during World War II. He here developed and refined methods for correlation based on paleobathymetry of Devonian strata as reflected by their coral and stromatoporoid faunas and shapes of sponges and of coral colonies. He developed correlations between outcrops within the Dinant Basin and extended them to the Namur Basin to the north based on cycles of bathymetric change reflected in the development of reefal and peri-reefal carbonates.

His legacy was primarily that of publishing fundamental research that provides a sound systematic framework for Devonian stromatoporoids and tabulate corals, as well as basic concepts for paleoecological interpretation of Devonian strata and their coral and sponge faunas. His recognition of shallowing upward cycles on a faunal basis and correlation on the basis of them was an early precursor of present day techniques of event stratigraphy and sequence stratigraphy. Marius Lecompte was a totally dedicated scientist, with an indefatigable mind. He attained international recognition and renown as a student of tabulate corals and stromatoporoid sponges as well as reefal and peri-reefal carbonate rocks of Devonian age in Belgium.

5. Masao Minato (M. K. and Y. E.)

Masao Minato (Fig. 4) was born in Akita Prefecture, Japan in 1915. His family soon moved to Sapporo, Hokkaido, where he received his education, graduating from university in 1939. After wartime travel to China, Korea and Sumatra in a geological capacity, he was appointed Professor at Sapporo in 1950. In 1945, Minato married Chiyoko Asahina, and fathered three children. Masao Minato was widely known in Japanese geological circles. He was also a founding member of the International Association for the Study of Fossil Cnidaria and Porifera. He was president of the Geological Society of Japan (1972-1974), and founded *Pacific Geology* (1968).



Figure 4. Masao Minato, in his prime, 1960s.

Minato's research field was truly broad. He published no less than 360 scientific papers and books, primarily on geologic history. His paleontological studies dealt with corals, brachiopods, and echinoids, but the central theme of his research was the Paleozoic history of northern Japan. During 40 years of service at Hokkaido University, he trained no fewer than 160 undergraduates, 31 Masters, and 45 doctoral students. He directed research in paleomagnetism, micropaleontology, isotope geology, and engineering geology as well as paleontology. Professor Minato retired from Hokkaido University in 1979, as Emeritus Professor. In 1984, Minato was inspecting damage of his home's roof caused by heavy snow, which suddenly slipped from the roof and killed him at the age of 68.

One major research result was a monograph on Japanese Permian corals published in 1955, with 202 pages and 43 plates. Minato here established many new species, two new genera, *Taisyakuphyllum* and *Pseudodorlodotia*, a new family Geyerophyllidae and such descriptive terms as "septal grating" and "pseudoherringbone dissepiments." He treated all of the Japanese Carboniferous and Permian corals then known, and revised and classified them, and presented a scheme of coral zonation as well. Phylogeny of the Clisiophyllidae was shown in conjunction with the introduction of the Geyerophyllidae. Minato was visiting Professors in Stockholm during 1958-1959, and while there he completed ontogenetic studies of Silurian rugose corals from Gotland, notably the phaulactids (1962) based on serial peels.

Together with Kato, he published papers on the Waagenophyllidae (1965), and later on the Durhaminidae, Pseudopavonidae, and Geyerophyllidae from 1965 to 1975. Each of these were prepared following the same scheme; each family was chosen as unit, all known forms were treated, and their morphology, ontogeny, geological and palaeogeography were dealt with, and phylogenies were established. Observation of fine skeletal features, ontogenetical changes in axial structures, and the nature of vertical tabular arrangement were particularly stressed in these papers. After retirement, Minato continued research on Strunian corals.

Minato had a keen interest in languages. In the late 1930's he learned Ainu. Later he learned Chinese, German, Malay, and English. After World War II, American troops were based in Sapporo on the university campus, and he served as liaison officer between them and the university. Students remember his saying, "We should never forget that we owe much to society for what we are. We are fortunate to do things we enjoy doing, so we have to concentrate and work hard on what we do, because we are professionals." As a teacher, he was demanding and inspired by example. He was talkative and witty. He believed in democracy in theory, but admired a powerful leader in action. He was kind and thoughtful in general, but was short tempered at times. His personality was thus full of contradiction, in other words very human, but was so impressive that he is remembered by many, and in this way Minato still lives.

6. Maria Rózkowska (J. F.)

Maria Rózkowska (Fig. 5) was born Maria Dembińska, in 1899 in the village of Gorzewo, Poland. At that time, she was a German citizen of Polish nationality. Girls at that time only received a very basic education unless wealthy. However, Maria received a Prussia government fellowship and thus attended higher level schools, completing gymnasium well educated in professional subjects and fluent in German, English, and French just as the University of Poznań was founded by the newly formed Polish Government in 1919. Maria Dembińska attended the university and received her MSc degree in 1923. The same year she married Kazimierz Rózkowski and combined study and maternity; as a mother of a small child she defended her PhD thesis in 1926, and she bore two more children in 1928 and 1931.

Her interest in corals surfaced in 1929 as a result of her visit to the British coral specialist Stanley Smith. She completed and published a monograph, *The Miocene corals of Poland* in 1932. Then she suddenly left the university, and was away from her studies for 13 years. This included the years of World War Two, when she and her children were banished from



Figure 5. Maria Rózkowska, at approximate age 50.

their home to eastern Poland. As a teacher and a trained nurse (another accomplishment before the war), she was able to treat local people and additionally, taught children above the fourth grade of elementary school (then forbidden for Poles beyond this level) and she served as a nurse in a guerilla group under the pseudonym "Kazimierz." At the end of the war, her husband returned seriously ill from a Polish officer's internment camp, never fully recovered, and died in 1947. Maria was alone in a ruined country and widowed with three small children. Despite these circumstances, she went back to the university in 1945 and published her first paper after the war, *The Silurian rugose corals from Podolia* (1946), based on studies conducted before the war.

Maria Rózkowska was the only paleontologist and one of very few geologists in Poznań during the early postwar years, thus, a laboratory was created for her to conduct research along with her university duties. She remained director of the laboratory until her retirement in 1970. She continued scientific activity until the very end of her life. She passed away in July 1979 after long and painful illness.

Coral research always came immediately after her family, and she was determined enough to combine those two priorities, family and corals. Her international recognition blossomed when she published her first monograph devoted to Devonian rugose corals (1953). Two things are pertinent; 1) She was the only coral specialist in Poland, so had nobody to consult with, and 2) this monograph was the first paper devoted to Devonian rugose corals ever published by a Polish author (although earlier work had been published by foreign authors). She then produced well received papers on the Phillipsastraeidae (1956) and on blastogeny (1960). This documented the taxonomic and phylogenetic value of coral development, necessary for a natural taxonomy of colonial Rugosa.

Maria Rózkowska's work on Famennian corals of Poland (1969) was ground breaking. Famennian rugose corals are rare throughout the world and were very poorly known, while Heterocorallia of that age were totally unknown prior to this work. She here described more Famennian coral taxa than were known at that time in the entire world. The access to strata yielding these corals in Poland was generally difficult; in the

quarry "Kadzielnia," she collected corals while hanging on a rope 20 meters above the ground (at an advanced age).

Professor Rózkowska was a dedicated teacher and an excellent lecturer, but detested grading students. She was very busy, with both professional and family duties, but was never too busy to refuse advice to a graduate student. Her own research and writing never served as a reason to postpone help. This was sometimes restricted to a single sentence, but it would always be to the point. Her method was patiently listening rather than talking, and often depending on one to answer their question for themselves. She told students, "You will never solve all of the mysteries hidden in every fossil specimen, but you must be sure that you have dealt with all of those that you could with your present knowledge and the tools available." And she would add, "If there is nothing more you can do at that stage of your scientific development, publish your results and do not be ashamed if they are corrected later by you or somebody else."

7. Conclusions

Each of these academic paleontologists was an accomplished and eminent scientist and a successful human being as well, in addition to providing an inspiring example for students. It is also of interest to learn of the external conditions they had to deal with, in Europe primarily connected with war and occupation of their homelands.

How then to summarize the communal characteristics of these individuals? They all were tenacious in pursuing, and had a notable affection for, their chosen field of paleontology in spite of outside conditions and pressures, and all remained fruitful until the end of their lives. These were leaders who, as mature scientists freely offered valuable advice and free access for students and colleagues. They also recognized such basic research needs as having access to a good library and physical facilities, and it is of note that their research topics were chosen consciously and wisely. They were demanding and inspiring individuals, while at the same time retaining very human qualities.

Each of the above was international in the scope of their activity within restrictions of the times. Some made significant contributions to the immensely important volumes of the *Treatise on Invertebrate Paleontology*. Each of the five were prominent in national and international scientific societies, and some were better known internationally than locally. It can also be noted that each of these mentors accomplished major systematic work on corals and/or sponges, and that this is perhaps the most lasting of their contributions. So too did Chevalier and Oliver, other workers of the same generation memorialized by this society. This reinforces the idea that systematic study of fossil species is the best way for self-introduction to the literature concerning them. Thus, we collect details of morphology to arrive at a logical nomenclature for individuals.

Each of these mentors was eminent or pre-eminent, with huge accomplishments during their lives. Each succeeded through superior intelligence, hard work, tenacity, and devotion to their profession. All contributed greatly to our training and general knowledge of corals, and several of them received worldwide recognition. But we must also realize that it was not easy for any of them; they had to overcome humble beginnings, sexism, wartime devastation of their homelands, and/or national hatreds. Several fought for their freedom. Each of them was a remarkable human being and we are extremely fortunate to have had training and inspiration from them.

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