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Student and Professor

James Allen Hopson was born to Frank R. and Henrietta Learnard Hopson in 1935 in New Haven, Connecticut. He attended New Haven Public schools and, when Yale University offered scholarships to local students, Jim applied and was accepted, graduating in 1957 with a degree in Geology.

While an undergraduate student, Jim requested a bursary assignment at the Peabody Museum of Natural History. This work excited his interest in paleontology, an interest nourished by Joe Gregory, Curator of Vertebrate Paleontology in the museum at that time. Gregory offered Jim a student assistantship to work with the collections and later introduced him to field work.

Jim helped to organize the Peabody's vertebrate paleontology collections and, while doing so, discovered a piece of family history that linked him personally to the field of vertebrate paleontology. While paging through a biography of O. C. Marsh during his coffee break, he was heard to exclaim, "Hey—that's my great-grandfather!" It turned out that William F. Hopson, one of the best known American book-plate designers and engravers of his era, had been an engraver and illustrator for O. C. Marsh. William Hopson's magnificent woodcuts are included in Marsh's monographs, *Odontornithes: A Monograph of Extinct Birds of North America* and *The Gigantic Mammals of the Order Dinocerata*.

Although he majored in geology, Jim was always interested in opportunities to expand his understanding of biology. As a consequence, after he graduated from Yale in 1957, he opted to pursue graduate studies at the University of Chicago because of its interdisciplinary program in Paleozoology. Chaired by Jim's mentor, Everett C. Olson, the program freed students from the rigid requirements of a single department and facilitated their broad exploration of the biology of living organisms as they endeavored to interpret the physiology, ecology, or functional morphology of extinct forms. The program is still productive today (although now

Figure 15.1. Jim Hopson (left), Kenneth Kermack (center), and George Gaylord Simpson (right) listening to a scientific presentation at the “Early Mammals” symposium in London, 1970.



known as the Committee on Evolutionary Biology) and has trained and employed an impressive array of paleobiologists.

In 1963, before completing the requirements for his Ph.D. degree, Jim accepted an NSF-funded appointment as Curatorial Assistant/Associate at Yale’s Peabody Museum, a position assigned to cataloguing and upgrading the vertebrate paleontology collections. Always curious about the oddities he found in the collections, Jim published his first paper on pseudo-toothed birds (Hopson, 1964). While he was putting great effort into his curatorial responsibilities, Jim allocated sufficient time to complete his Ph.D. thesis and simultaneously completed several papers that set the course of his future research.

His study of the braincase of *Bienotherium* addressed the complexity of problems underlying the evolutionary emergence of mammals (Hopson, 1964). His analysis of tooth replacement in mammal-like reptiles revealed how growth patterns and details of dental anatomy can open insights into the biology of extinct organisms (Hopson, 1964, 1971). At Yale, Jim encountered many colleagues with whom he would share both a professional interest and friendship for the rest of his life—Fuzz Crompton, Farish Jenkins, John Ostrom, Dale Russell, and Keith Thomson, among many others.

In 1967, Jim again left the Peabody Museum to take up an appointment as Assistant Professor in the Department of Anatomy at the University of Chicago (currently the Department of Organismal Biology and Anatomy). Ronald Singer, who then chaired the Department, wished to broaden its scope by introducing an evolutionary perspective to anatomy,

a foresight that promoted an intellectually vibrant venture. Len Radinsky and Leigh Van Valen were also hired at that time. Future appointments would broaden this scope even more, and the Department continues today as one of the strongest centers of organismic and evolutionary biology in the country.

The University of Chicago turned out to be a harmonious, productive home for Jim. The close working relationships between members of the Department of Anatomy, the Department of Geophysical Sciences, and the Field Museum provided a stimulating environment for students, postdoctoral fellows, faculty, and visitors. Collegial and personal relationships emerged as Jim shared ideas, information, occasional (and frequent) arguments, and always-spirited discussions with Edgar Allin, Andy Biewener, John Bolt, John Flynn, Dave Jablonski, Mike LaBarbara, Eric Lombard, Charles Oxnard, Len Radinsky, Dave Raup, Tom Schopf, Jack Sepkoski, Paul Sereno, Olivier Rieppel, Dave Wake, and, more recently, Mike Coates and Neil Shubin. Jim Clark, Desui Miao, Guillermo Rougier, Juri van den Heever, and John Wible worked closely with Jim in Chicago as postdoctoral fellows. He also developed a close working and publishing relationship with José Bonaparte (Argentina) and James Kitching and



Figure 15.2. Jim Hopson (center) talking with Zofia Kielan-Jaworowska (left) and George Gaylord Simpson (right), at the “Early Mammals” symposium in London, 1970.

Bruce Rubidge (South Africa). Both Herb Barghusen (University of Illinois at Chicago) and Armand de Ricqlès (Université de Paris) worked with Jim as visiting professors in Chicago.

Teacher and Mentor

Jim taught an undergraduate course in Chordate Biology every year that he was in residence at Chicago: first with Dave Wake, then with Eric Lombard, and, since 1990, on his own. He was an enthusiastic teacher in the classroom, but small groups of students and one-on-one reading courses were his preference. A popular lecturer, he was awarded the Quantrell Award for Excellence in Undergraduate Teaching in 1996. Starting in 1969, Jim taught in the graduate Vertebrate Paleobiology course at the University of Chicago. For most of those years, he was responsible for teaching the section of the course covering nonmammalian vertebrates, with Len Radinsky and Leigh Van Valen teaching the mammals section of the course. Jim also taught numerous smaller graduate seminar courses.

Graduate students always assumed an important role in Jim's life in Chicago. He appears as junior author on some of their papers (notably those of Jim Clark, Tim Gaudin, and Chris Sidor), but as a rule he encouraged them to publish solely under their own names. Indeed, the diversity of research topics pursued by his students and postdocs exceeded even his own considerable diversity of interests, serving as one of the hallmarks of Jim's career as a mentor. Jim did not limit his students' inquiry to any one particular taxonomic group or to any particular research

Figure 15.3. Jim Hopson (rear) and his University of Chicago students in a classroom at the Field Museum of Natural History. Clockwise from lower left: Sharon Swartz, James Clark, Scott Schaefer, two unidentified students, and John Clay Bruner. Note the photograph in the background, showing Hopson's advisor Everett Olson teaching his students in the same classroom.



methodology but encouraged his students to ask interesting questions and seek answers to those questions in a rigorous fashion.

The diversity of topics included in this volume and the quality of the contributions stand as a testament to his skills as a mentor. The majority of chapters (by Blob, Carrano, Munter & Clark, Gaudin & Wible, O'Keefe, Parrish, Rougier & Wible, Sidor & Rubidge) were authored or coauthored by former students or postdocs. In addition, a number of former students and postdocs who were unable to participate in this volume have gone on to productive careers in museum curation and research (James Mead, National Museum of Natural History, Smithsonian Institution; Desui Miao, Museum of Natural History, University of Kansas), university research (Arthur Busbey, Texas Christian University; Juri van den Heever, University of Stellenbosch), teaching and research at biomedical institutions (Gaylord Throckmorton, University of Texas Medical Center; Steven Zehren, University of Alabama–Birmingham Medical Center; Robert Fisk, West Virginia College of Osteopathic Medicine), and undergraduate

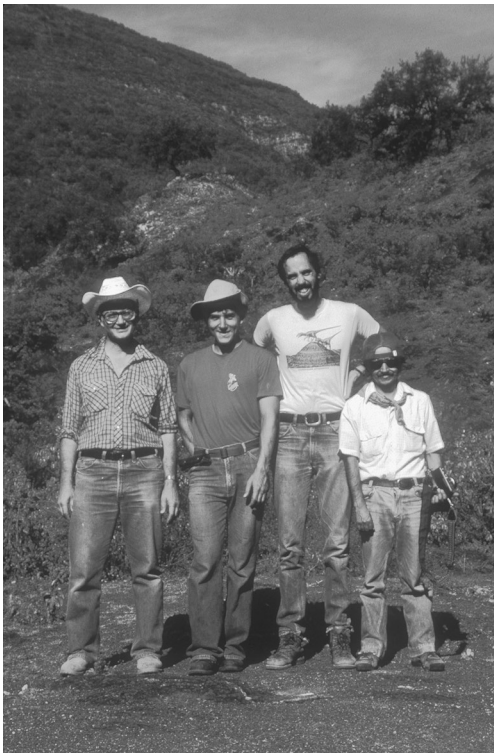


Figure 15.4. Fieldwork in Mexico during the early 1980s, with (from left to right) Jim Hopson, Paul Sereno, James Clark, and Rene Hernández.

teaching (William Stevens, Georgetown College; Laura Panko, Northwestern University).

Researcher and Colleague

Jim Hopson's contributions to our understanding of the systematics, structure, distribution, and biology of mammal-like reptiles (nonmammalian synapsids) and their early Mesozoic mammalian descendents represent an unmatched record of scientific achievement. As a graduate student with Everett ("Shorty" or "Ole") Olson in the late 1950s, Jim was introduced to synapsid evolution and in particular to Olson's view that mammalian characters had evolved independently in various groups of mammal-like reptiles. This hypothesis was to remain a dominant theme in Jim's future research as he explored the morphological evolution of synapsids with a level of detail never before undertaken.

In numerous analyses of the phylogeny of nonmammalian synapsids, from the classic paper coauthored by Herb Barghusen in 1986 (Hopson & Barghusen, 1986) to his recent paper with James Kitching (Hopson & Kitching, 2001), Jim amassed overwhelming evidence that supported Olson's views on the pervasiveness of parallel appearance of mammalian features in synapsid evolution. However, Jim did not support the conclusion of Olson and many of his contemporaries that the various groups of Mesozoic mammals had a polyphyletic origin. Rather, in several papers (Hopson & Crompton, 1969; Hopson, 1970) Jim argued strongly that the known groups of Mesozoic mammals had a common ancestor defined by unique mammalian features such as a tricuspid dentition with a large central cusp and a diphyodont pattern of tooth replacement. The monophyly of Mammalia (or of Mammaliaformes, as many would now label the group including the common ancestor of *Morganucodon* and extant mammals) has been widely accepted since the publication of these landmark works. Without Jim's careful and extensive analyses, our appreciation of the relationships of synapsids and early mammals and the selective forces governing the acquisition of mammalian characters would have remained on far less secure grounds.

Never content to rely on the published literature, Jim traveled widely throughout his career to study classic museum collections firsthand. He likewise participated in studies of abundant, newly discovered material of mammal-like reptiles and early mammals that were made during the last half-century. Since 1971, his active research program has involved him in projects in South Africa, Europe (including Russia), Mexico, Argentina, and Australia, and his studies have spanned the breadth of synapsid anatomy, systematics, and evolution.

In one of his very early papers in 1966, Jim was the first to offer a functional explanation for the evolutionary transition of the mammalian middle ear. Ever since the homologies of the mammalian middle ear bones were recognized in the mid-19th century, paleontologists and comparative anatomists had been intrigued by the problem of how, why, and when the postdentary bones shifted from the lower jaw to the skull to form part of the middle ear. Jim suggested that in advanced “cynodonts” and early mammals, the reflected lamina of the angular supported a tympanic membrane that had migrated forward from a “reptilian” postquadrate position. He convincingly demonstrated how the quadrate and articular, while still forming the jaw joint, could conduct sound via the stapes to the inner ear.

However, Edgar Allin, a close colleague of Jim, proposed an alternative hypothesis. He agreed with Jim that the reflected lamina of advanced cynodonts and early mammals supported a tympanic membrane but claimed that it was not the homologue of the postquadrate membrane of typical reptiles. To resolve these two competing hypotheses, Jim and Edgar jointly explored details of the cranial anatomy of fossil and extant synapsids. Their collaborative paper on the evolution of the auditory system in Synapsida (Allin & Hopson, 1992) provides a magnificent account of the structure and evolution of the middle and internal ear from the Permian pelycosaurs to modern mammals.

Another of Jim’s notable collaborations included Guillermo Rougier, John Wible, and José Bonaparte. Jointly and separately, they described various aspects of the skull of *Vincelestes*, the oldest known and most completely preserved mammal with nearly tribosphenic molars (e.g., Rougier et al., 1992; Hopson & Rougier, 1993). Their analyses of *Vincelestes* represent a major contribution toward an understanding of the phylogenetic history of mammals. It also provided Jim and Guillermo with the information they needed to explain the origin of the fundamentally different configuration of the lateral wall of the braincase in therian and nontherian (monotreme) mammals (Hopson & Rougier, 1993).

Jim’s research has not been restricted to synapsid evolution alone; he has also made several important contributions to archosaurian biology. His paper on the cranial crests of hadrosaurian dinosaurs (Hopson, 1975) interpreted these structures as functioning primarily in intraspecific display. This study was among the first to suggest that the evolution of various peculiar dinosaurian features could be explained as a result of sexual selection. Jim brought a reasoned and measured approach to the heated controversies that raged around speculations on dinosaurian endothermy during the 1970s. Stressing the oversimplification inherent in the view that dinosaur physiology was uniform (“one size does not fit all,” he stated), he

related dinosaurian brain sizes to hypothesized activity levels and concluded that only coelurosaurs were as active as birds and mammals. All other dinosaurs, he believed, had metabolic levels that ranged between those of living reptiles and living endotherms (e.g., Hopson, 1977, 1980).

Actively promoting the highest standards in paleontological research, Jim served as a coeditor (with Tom Schopf) of the journal *Paleobiology* for four years (1977–1980) and as sole editor for three subsequent years (1981–1983). He was also an Associate Editor of the *Journal of Vertebrate Paleontology* from 1984 to 1988. Always an active member of the Society of Vertebrate Paleontology, Jim served as its Vice-President in 1983 and its President in 1984.

Husband, Father, and Friend

Jim has been married to Susan Hopson since 1961. They have two sons, Andrew (born in 1964, now a freelance sound designer) and Peter (born in 1966, a general manager for a resort in Australia) and two grandchildren (Katie, born in 1994, and Callum, born in 1998). Jim and Sue's closeness and quiet pride in their family have always been readily apparent to colleagues and students alike.

But Jim and Sue have done more than raise their own fine family. Over the years, they have opened their Hyde Park home to countless graduate students, postdocs, and visiting scientists, collaborators and colleagues, for periods of time ranging from days to months, occasionally even years. The “Hotel Hopson,” as it is sometimes affectionately known, provided a hospitable respite for scientists at a variety of levels who, for a variety of

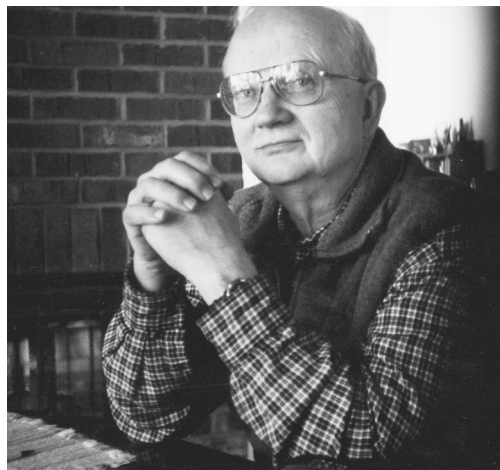


Figure 15.5. Jim Hopson in retirement at his Ludington, Michigan, home in 2002.

reasons, found their way to the Department of Anatomy at the University of Chicago.

Science is ultimately a human enterprise, one in which interpersonal relationships matter. Jim and Sue have played an exemplary role in the scientific community in this respect, in the gracious manner in which they have treated their students and colleagues, and in the comfortable, family atmosphere they have provided to nurture both science and scientists.

All those who have collaborated with Jim, or studied under his direction, roundly and freely attest to his enthusiasm, kindness, generosity, and wise counsel. In retirement, he continues to give to paleontology the wisdom of his insights, and to colleagues and former students, his faithful interest and friendship.

We hope this book will serve as an enduring appreciation of Jim Hopson and his many contributions to the field of vertebrate paleontology and its students. The emergence of this volume will surprise few in vertebrate paleontology. Nor will many overlook the fact that it has taken the efforts of many authors to approach the breadth of its eponym—such is the legacy of the great scientist and the great teacher.

It is our great pleasure to honor both.

Jim, thank you.