

Memorial to Carl Owen Dunbar

1891-1979

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Carl Owen Dunbar died suddenly at the age of 88 on April 7, 1979, while at the home of his son, just across the street from his own home in Dunedin, Florida. He is survived by his son, Carl Owen Dunbar, Jr.; his daughter, Mrs. Lora Louise Johnson of Atlanta, Georgia; six grandchildren, and three great-grandchildren. His wife, Lora Beamer Dunbar, whom he married at Lawrence, Kansas, in September of 1914, predeceased him in December 1978.

Carl was born January 1, 1891, to David and Emma Thomas Dunbar on their wheat ranch near Hallowell, Cherokee County, Kansas. The Dunbars were pioneer wheat farmers in Kansas Territory and among the first in that area to use powered farm machinery. From his early youth, Carl commonly ran the machines

and, as he matured, served as foreman of the hired crews. Graduating from Cherokee County High School in 1909, he entered the University of Kansas the following September. Early in his undergraduate days a visiting uncle asked whether he would study any geology. "What's geology? I never heard of it," replied Carl. The uncle confessed that he didn't know much about it himself, but he had a friend who was a geologist, and he thought it was great. According to Carl, "Three days later, I was enrolled in a geology course, and the instructor was W. H. Twenhofel."

Recruitment through the inspiration and encouragement of one interested individual is a familiar pattern in our profession. For Carl Dunbar, the perceptive mentor in the right place at the right time was Twenhofel, who had joined the Kansas faculty as an assistant professor in 1910, fresh from graduate study at Yale under Charles Schuchert and still at work on his dissertation. "If it were not for Twenhofel, I would be a Kansas rancher instead of a geologist," Carl once said, hastening to add, "there is nothing wrong with being a rancher—it would still be a second choice, but to be a geologist in this generation has been something special." By the end of this third year at Kansas, Carl's interest in geology was apparent and Twenhofel knew he had an exceptional student. Foreign languages and other sciences also attracted Carl, and although geology won out, he always claimed that on graduation "I took a week to decide whether to go into entomology or geology, and for several years in the field I used to carry a cyanide bottle in my collecting bag in case I might find interesting insects."

Carl remained at Kansas for a postgraduate year of study with Twenhofel. Beginning in May of 1913, mention of Dunbar began to appear frequently in Twenhofel's correspondence with Charles Schuchert. In a formal letter of recommendation, March 3, 1914, Twenhofel reveals that he has urged Dunbar to apply to Yale to study with Schuchert, pointing out that he will need financial assistance but that it would be money well spent. After substantial praise of Dunbar's abilities, Twenhofel closed, "I want to assure you that he will come better prepared to take your work than any man you have ever had and that he will work hard if not harder than any man you have ever had, not even excepting the one on whom you have been accustomed to bestow praise in this respect."

So Dunbar went to Yale to study with Schuchert, to the unending satisfaction of both. Characteristically, Twenhofel's strong endorsement only served to humble Dunbar, who wrote Schuchert on August 15, 1914, before going to Yale, "Professor Twenhofel has been wonderfully kind to me and I certainly prize his good opinion, but I am afraid you will be expecting too much of me for I cannot hope to measure up even near his standard."

In June 1917, after three years of graduate work, Dunbar received his doctorate. His dissertation was entitled "The Paleontology and Stratigraphy of the Devonian of Western Tennessee." At this time, Schuchert was much interested in carrying on his own work in Newfoundland, which he had last visited with Twenhofel in 1910. He had no difficulty persuading Dunbar to stay at Yale an additional year with the title of Dana Research Fellow to prepare the Tennessee work for publication and to study the Newfoundland collections and literature prior to spending the field session of 1918 there with Schuchert. So began Dunbar's collaboration with Schuchert and others on Newfoundland geology. By the summer of 1918, Dunbar had secured an Instructorship in Geology at the University of Minnesota for the following academic year. He held this post until June of 1920, but continued his Newfoundland work, spending summer of 1919 in New Haven working with Schuchert on the collections they had made the previous summer.

During Dunbar's years as a Yale graduate student and postdoctoral fellow, Charles Schuchert, in his last decade before retirement, was an extremely busy man. In addition to his research and teaching, he was concurrently chairman of the Geology Department, head of the Peabody Museum, on the governing board of Yale's Sheffield Scientific School and, from 1914 to 1916, Acting Dean of the Graduate School. It is little wonder that he came to rely on Carl Dunbar's already obvious attributes of dependability, hard work, professionalism, and obvious devotion to help carry out the work of the invertebrate paleontology laboratory. The strong bond that grew between the protege and his "Chief," which was the only familiarity Carl ever used in addressing Schuchert, was founded on mutual respect. By the time his retirement was close enough to consider a replacement, there was little question who would be favored, and in 1920 Carl returned to Yale as Assistant Professor in Historical Geology and Assistant Curator of Invertebrate Paleontology in the Peabody Museum of Natural History.

In the summer of 1920, Dunbar was back in Newfoundland for Schuchert with a small party. This summer essentially completed the field work on which Schuchert and Dunbar subsequently based their study on the stratigraphy of western Newfoundland, which was published in 1934 as the first memoir of the Geological Society of America. Throughout the formative 1920s, Carl spent every summer in the field but did not commit himself to the study of fusulines until the middle of the decade. He spent the summer of 1921 making a major collection of fossil insects from the famous Elmo, Kansas, Permian locality discovered by Sellards in 1902. Schuchert, by this time well aware of Dunbar's exceptional skill at collecting, had instigated the trip and secured funds for it from the National Academy of Science in response to the enthusiasm of R. J. Tillyard, distinguished Australian paleontologist who, on a visit to Yale, had seen a small collection given Schuchert by Sellards. Dunbar spent the following summer of 1922 studying and collecting the classic New York State Paleozoic sequence. This trip formed the basis for Carl's renowned annual field trip for Yale graduate students which he ran, with few breaks, every spring for more than 30 years.

During the spring of 1923, G. E. Condra, then State Geologist of Nebraska, wrote to Schuchert inquiring whether he had any graduate students who wished to work with a field party on the Pennsylvanian of Nebraska. Schuchert replied that all the students capable of doing the work Condra wanted were engaged in other pursuits, "but my associate Doctor Carl Owen Dunbar knows nearly all the (Pennsylvanian) species at sight." Dunbar was free for the month of August, and he joined Condra in Nebraska. Late in

August, Dunbar wrote to Schuchert, mentioning fusulines and their abundance several times and noting, "they would form the basis for a fine dissertation if I do not take up their study myself."

The decision to choose the latter course was influenced significantly by Schuchert's encouragement—as Dunbar never failed to acknowledge. That Schuchert gave very serious consideration to the matter is evidenced in his letter to Joseph Cushman in December 1923, inquiring about the usefulness of Formaminifera in stratigraphic correlation. Cushman's reply stressed the great need for carefully trained workers in the field. In biographical data submitted to the National Academy of Sciences on the occasion of his election, Dunbar wrote that his fusuline studies were "first suggested to me by Professor Charles Schuchert, who quoted a statement by J. W. Beede that some day it would be possible to recognize and correlate zones less than 100 feet thick on the basis of fusulines." Schuchert was also aware of the potential of the Nebraska work and its importance to the career of his young associate. In September of 1923, in reply to a letter from Condra that praised Dunbar's work and requested his return the following summer, Schuchert stated his willingness to have Dunbar return and added, "and I think that you two ought to arrange that he get out a first class book on the paleontology of the Pennsylvanian and Permian formations of Nebraska." Schuchert added in closing, "Keep up your interest in the Pennsylvanian and Permian beds and in Dr. Dunbar, and I am sure in the end you will be highly rewarded."

Concentrating primarily on the fusulines, Dunbar continued his field work in Nebraska during the field seasons of 1924 and 1925, and for parts of the following three summers as well, although he also traveled widely in the midcontinent during these latter years acquainting himself with the upper Paleozoic sequences and collecting their faunas. Condra enthusiastically took up Schuchert's suggestion for publication of the Nebraska work, and in December 1927, the monograph on the fusulinids of the Pennsylvanian of Nebraska was published with Dunbar as senior author. In this, his initial publication on fusulines, Dunbar contributed one of the most fundamental works in his field, establishing himself as the outstanding North American specialist in fusuline Foraminifera. Nearly 40 years later, another fusuline expert, and frequent collaborator with Carl, John W. Skinner, commented on the Nebraska monograph, calling it "the first definitive study of American fusulinids. There can be no doubt that this work was instrumental in causing other paleontologists to take up the study of these Foraminifera." (*Journal of Paleontology*, v. 40, no. 4, p. 991, 1966)

Carl Dunbar's productive research on fusulines continued until 1969, ten years after his retirement from Yale. It included the first major monograph on North American Permian fusulinids, with J. W. Skinner (1937); the Pennsylvanian fusulinids of Illinois, with Lloyd G. Henbest (1942); and numerous shorter contributions on fusuline taxonomy, biostratigraphy, evolution, morphology, and paleobiogeography. Carl was motivated to unravel the complexities of fusuline evolution by his desire to use them for a more precise zonal biostratigraphy of Pennsylvanian and Permian rocks. His stratigraphic expertise matched that of his paleontological work and led to outstanding contributions to late Paleozoic stratigraphy. Particularly noteworthy were his works on Permian stratigraphy and biostratigraphy which contributed to the world-wide subdivision and zonation of this system based on fusulines. Other significant contributions to the knowledge of the late Paleozoic were his monographs on the brachiopods, the first with Condra on those of the Pennsylvanian of Nebraska (1932) and his later splendid work on the Permian brachiopods of East Greenland (1955), entrusted to his study by the great student of Greenland geology, Lauge Koch.

To all of his research Carl Dunbar brought, along with his great knowledge and insight, a nice balance between innovation and caution. He consistently refused to be

rushed to print before he was ready. This trait surfaced early in his career when Schuchert, in the spring of 1918, and again in 1920, urged that they prepare the work on western Newfoundland for publication. On both occasions, Dunbar persuaded him to await further field study because they lacked the evidence to support a number of their more controversial interpretations. Carl could reach a great peak of enthusiasm over an innovative idea or hypothesis, but it never clouded his critical facility. In being as strict in evaluating his own work as he was that of others, he produced research of lasting value on which subsequent studies could build.

As significant as was Carl's research, it was through his teaching that he left his greatest legacy to the profession. In the decades between 1920 and 1960, Carl probably trained more of the leaders in American paleontology than any other man. Taking over all formal teaching duties in stratigraphy and paleontology when Schuchert retired from teaching in 1923, he carried the full load at both the undergraduate and graduate levels until 1946, when a junior faculty member was added to handle the undergraduate course work. His record of continuous teaching for 39 years without a break would be looked at askance today; he never took a sabbatical—he didn't believe in them. Two of his graduate courses, each of a year's duration, were particularly outstanding. His "Invertebrate Paleontology" course was popular with biology graduate students as well as paleontologists. The substantial content of basic zoology and the broad overview of invertebrate phyla and their relationships gave the biologists a perspective not readily found in their own department and made the prospective paleontologists aware that they were dealing with remains of once-living animals, not stone objects. The course on the "Stratigraphy of North America" began with the Cambrian and aimed at the close of the Tertiary, but it rarely reached this goal. More commonly, spring recess would find the course emerging from the Devonian with less than a month and a half to cover Carl's favorite part of the Paleozoic, let alone the Mesozoic and Cenozoic, but complete coverage was never essential to the success of the course. Almost subconsciously it inculcated stratigraphic procedures and principles through repeated but varied case histories as the sequence was ascended, and no opportunity to drive home a principle or to question a practice was lost.

Carl's courses were entertaining as well as highly instructive; he spoke well, at times almost lyrically, and his lectures were laced with anecdotes, historical notes, and character sketches. He took pains to illustrate them well, preferring actual specimens and accomplished blackboard art to handouts, keeping his students busy with ear, eye, and hand as he moved steadily through his well-organized lectures. A large part of his success as a teacher rested on the great effort he made to keep his lectures up to date. He was continually revising his notes, inserting new material, and probing more deeply into the subject matter. His enthusiasm, generated by this constant intellectual renewal, was contagious. He also took great delight in gathering new illustrative material for his classes, commonly at the last minute. The hour before a Dunbar lecture at Peabody Museum often was spent in frantic search among the vast invertebrate paleontology collections by Dunbar, his preparator Percy Morris, and any other available staff for that one specimen he knew would best illustrate a point.

The "Stratigraphy of North America" gave way in the 1950s to "Principles of Stratigraphy" which he gave jointly for two years with John Rodgers. The lecturers divided the topics, one playing devil's advocate to the other's analysis; the second year, they switched topics. From the lecture notes and discussion sessions of this unique course grew the classic text, bearing the course title and published by Dunbar and Rodgers in 1957. Because he wrote in the same logically organized and entertaining fashion in which he lectured, Carl's success with textbook writing was assured. His first attempt at it came in the late 1920s when he joined L. V. Pirsson and Charles Schuchert in revisions of their

Textbook of Geology, contributing two chapters to Part I, Physical Geology, and largely rewriting Schuchert's Part II, Historical Geology. After a second revision (4th ed.) of the now well-known "Schuchert and Dunbar" in 1941, Carl completely rewrote the text under his own name in 1950, and in a second edition in 1960. In retirement Carl brought out a third edition in 1969 with Karl Waage as co-author. His busy first decade of retirement also saw the publication of his popular book, *The Earth*, published in England in 1966. Not widely known in the United States, this volume was intended for the European market and has been through Swiss, German, French, Italian, and Portuguese editions.

It is difficult to appraise the impact of Carl Dunbar's books. Viewed as an extension of his influence beyond the confines of Yale, one must certainly conclude that he was one of the truly great teachers of historical geology of his time.

During his long association with Yale, Carl Dunbar was an active member of the Department of Geology and did his stint on the usual university and departmental committees. He regarded his service to the Peabody Museum of Natural History, however, as his major commitment to the University. The museum building was his preferred base of operations, for graduate teaching as well as research. When he first arrived at Yale as a graduate student, the museum was still in its original building in the center of the campus. In 1917, the year Carl received his doctorate, the museum was razed to make room for the first quadrangle of a new campus being donated to Yale. As no new museum building was yet available, all the collections had to be packed and stored in different places about the campus. Carl's first taste of museum work, other than curatorial work on his own dissertation collection, was helping Schuchert pack and catalogue specimens and evacuate the old museum.

On rejoining Yale as a faculty member in 1920, Carl was also appointed an Assistant Curator of Invertebrate Paleontology of the still homeless Peabody Museum. By 1923, construction had begun on a new and larger museum building, and by 1925, Carl was deeply involved in helping Schuchert organize and carry out the move of the invertebrate fossil collections to their new storage. The year the new museum building was completed was also the year that the Geological Society of America held its annual Christmas meetings in New Haven, and a herculean effort was made to install the mineralogical and paleontological exhibits by Christmas 1925. Dunbar never forgot the many nights spent putting fossil invertebrates in cases and typing labels until 2 and 3 o'clock in the morning. His dissatisfaction with the exhibit led eventually to a general dissatisfaction with both the methods and results of Peabody exhibits.

On completion of the move to the new museum, Schuchert resigned as curator of invertebrate paleontology; Dunbar succeeded him and held that position until his retirement. Under his curatorship, the collection of invertebrate fossils was greatly enriched. Carl was a formidable collector; he and his students sent vast amounts of fossiliferous rock back to Peabody. The late Percy Morris, his preparator who assisted in the field, had many stories of Carl's collecting zeal, including one about a search for fusulines in the Permian Minnekahta Formation in the Black Hills. After a mile walk from their car in Wind Cave National Park, they arrived near the outcrop of Minnekahta to find it surrounded by a large herd of bison. Morris hung back but Dunbar urged him on, "They are nothing but cattle, ignore them," said the one-time Kansas rancher, and led the way on foot through the herd to the outcrop where, unmolested, they did their collecting to the accompaniment of bellowing bulls.

Carl's attachment to Peabody Museum went well beyond his curatorship, and during the 1930s he became increasingly concerned that it was not adequately performing its functions in either the University or the city of New Haven. He was encouraged by the appointment in 1938 of a new director, Albert E. Parr, who successfully petitioned the University for funds to revitalize the public exhibits. Improvements were barely underway

before the country was at war, and the University entered a period of austerity. Parr resigned to become Director of the American Museum of Natural History in the spring of 1942, and Dunbar was appointed Director of Peabody. As he had abetted Parr's move to renovate the exhibits, this task became a major thrust of his administration. Persuasively taking the museum's problems to the Yale administration again and again during the 17 years of his directorship, he accomplished a remarkable modernization. His first move was to see to completion the great 110-ft mural of the age of reptiles by Rudolph Zallinger, which the latter had planned under Parr's encouragement. The mural won a Pulitzer Prize for Zallinger and attracted much attention for Peabody. Dunbar made the most of this opportunity and won the support of *Life* magazine to install a sequel to the great mural, a second Zallinger mural on the Age of Mammals. With what he protested was just so much luck, Carl also secured the noted museum artist, James Perry Wilson, to paint Peabody Museum's first dioramas. Wilson's three dioramas, constituting the New England Hall, were also successful in attracting attention, and with great ingenuity Carl persuaded two big-game hunters to support construction of an Alaskan bear diorama—the first of seven forming a Hall of North American Mammals, for which he found support from one source or another. Through these and other innovative moves, Carl brought about a renaissance of the Peabody Museum exhibits that carried its fame as a public museum far beyond New Haven, Connecticut. He was the first Peabody director to put exhibit designers on the staff and to establish a continuing exhibits program—possibly a delayed reaction to his late night servitude during installation of exhibits in 1925.

While Carl's influence on the museum's public exhibits was conspicuous, it was no more significant than his contribution to the academic side of the institution. Under his administration, the position of curator was restricted to research scientists who were also members of the Yale faculty, and he took other steps to establish a close relationship between the teaching departments and the museum. His concept of the museum as an interdisciplinary laboratory for scientists concerned with collections was a perspective not common at the time.

The years of the Dunbar directorship were good years at Peabody Museum, years of accomplishment and recognition. Carl was an eminently fair director, appreciative of his staff and forthright with his curators. He was an enthusiastic leader and, indeed, looked on himself as the captain of a team; any museum task was to him a mutual responsibility and any museum success a recognition to be shared. He had the satisfaction of seeing many of his efforts for the museum bear fruit. His long and devoted administration, which ended with his retirement in 1959, was a bright time in Peabody Museum's distinguished history.

A substantial record of service to both professional and nonprofessional pursuits was another outlet for Carl's abundant energy. He was a Fellow (1920) of The Geological Society of America, also a Councilor (1940–1942), member of the Editorial Board (1935–1937), and Vice-President (1952). As a Fellow (1920) of The Paleontological Society, he served as its Treasurer (1924–1937 and 1943–1946), an Associate Editor (1930–1938), and President, 1952. He was also a member of The Society of Economic Paleontologists and Mineralogists, American Association of Petroleum Geologists, American Association for the Advancement of Science, and Connecticut Academy of Arts and Sciences. In New Haven he was a member of Kiwanis, the Graduate Club, Yale Club, and he was active in the reorganization of the New Haven School system, serving on the Mayor's Citizen's Committee on Education and Committee on Secondary Education during a reorganization period.

Perhaps his best known service to the profession was his role as Chairman of the Committee on Stratigraphy of the National Research Council from 1934 to 1953.

Appointed by Twenhofel, then Chairman of the NRC, this committee collaborated with most of the leading stratigraphers and biostratigraphers in the country to produce a series of correlation charts for the geological systems in North America; these were published in the *Bulletin* of The Geological Society of America between 1941 and 1960. In addition to the review and editorial function for most of these charts, Carl was chairman of the subcommittee on the Permian and a member of the subcommittees on the Ordovician, Mississippian, and Pennsylvanian. Most of the final drafting for many charts was done at Yale by students under Carl's supervision and not infrequently by Carl himself, who enjoyed drafting and considered it a form of relaxation. At times, he became distraught over the controversies that arose in the subcommittees. If he could get the ear of a local colleague, he would let off steam over the intransigence of certain stratigraphers that he thought were delaying progress. He seldom gave full vent to his feelings in writing, but when he did, it was in beautiful prose, controlled but devastating. Carl was convinced of the usefulness of the correlation-chart project and characteristically devoted much energy to it, yet he did not delude himself as to its long-range significance. To him the charts were a substantial outline of where the biostratigraphy of North America stood at mid-century; they were points of departure and guides to biostratigraphic problems that needed attention.

Carl Dunbar received the many professional honors that came his way with delight and humility. He did not parade them nor did they ever seem to affect his usual reservedly pleasant, business-like demeanor in any way. He was elected to membership in The American Philosophical Society in 1942, The National Academy of Sciences in 1944, and The American Academy of Arts and Sciences in 1950. The Geological Society of Mexico made him an Honorary Member in 1944; The Geological Society of London, a Corresponding Fellow in 1950; and The Society of Economic Paleontologists and Mineralogists, an Honorary Life Member in 1965. In 1946, he was selected by The National Academy of Sciences as one of a twenty-man committee of civilian scientists to observe Operation Cross-roads, the atom bomb tests at Bikini atoll. His alma mater, The University of Kansas, honored him several times: in 1951 with the Erasmus Haworth Distinguished Alumni Award in Geology, in 1960 with an Alumni Distinguished Service Citation, and in 1962 with a year appointment as Visiting Professor of Geology. In his later years, medals also came his way, The Hayden Memorial Geological Medal of the Academy of Natural Sciences of Philadelphia in 1959, The Paleontological Society Medal in 1967, and the Twenhofel Medal of the Society of Economic Paleontologists and Mineralogists in 1977.

Scientist, teacher, author, administrator—and not infrequently, all four simultaneously—Carl's outstanding success in each of these pursuits was rooted in his great vigor. To a casual acquaintance, this abundant energy was masked somewhat by his ordinarily gentle, earnest manner, but beneath this composed exterior was a dynamic, strong-minded individual. A prodigious worker, Carl seemed able to turn from one task to another without breaking stride. In his last academic year before retirement, he was preparing the 1960 edition of *Historical Geology*, overseeing the construction of a new wing on Peabody Museum, and teaching the largest graduate classes he had in years, as students crowded in to hear his last masterful lectures. He thrived on this level of activity and had the unflinching stamina and enthusiasm to back it up. There were, of course, other attributes that contributed to Carl's success; conspicuous among them were his agile mind, common sense, self-discipline, and strong professional commitment.

Carl Dunbar's students and many other friends would not doubt agree that as an individual he was indeed a gentleman and a scholar. In his dealings with students, he was helpful and generous; with his colleagues, forthright and fair; and with those who worked for him, supportive and considerate. He was a friendly but not a demonstrative man,

somewhat reserved by pleasant, but once he felt at home with a new acquaintance he would open up and the warmth of his personality would be felt. At times his natural reserve would be mistaken for aloofness, which would upset him if he learned of it, for he was anything but vain and disliked pomposity and self-aggrandizement in others. Although generally good-humored, he did not hesitate to express his displeasure openly at stupidity, incompetence, or laxity among student or staff and on occasion, colleagues. He was equally ready to express appreciation and give credit for work well done. Like most of us, he had good days and bad; he was great company when was in an expansive mood. He read broadly and was always ready to converse interestingly on a variety of subjects, often spiced by his wit and sense of humor, a substantial part of which was on the earthy side. He could also lose his temper but invariably was contrite about it if he felt he had hurt any feelings.

Carl was a realist, the down-to-earth approach to life carried through from the Kansas ranch life of his youth. His pragmatic nature allowed no room for either abstraction or mysticism. Modern art repelled him, and for years he kept up running battles in correspondence with fundamentalists who sought to take issue with parts of *Historical Geology*. An uncompromisingly ethical man, he was not in any sense religious. His great inner strength took its nourishment from nature and his perception of it through time. He was not simply interested in nature, he was awed by it; through its study, he was sustained and fulfilled. A constant concern of Carl's was what he saw as man's self-destructive potential created by wanton abuse of natural resources. He expressed this many times, but nowhere more succinctly than at the close of his response to the award of the Twenhofel Medal the year before his death: "But in the last century or two the people of the industrialized nations have been living like the proverbial prodigal son, wasting our common heritage as though there were no tomorrow. It is time to return home like the repentant prodigal to simpler ways of life. Mother Nature will see to that; she can be a very imperious old lady."

Carl Dunbar was certainly one of the great historical geologists of his time. His life was full and interesting as well as complete in the sense that he lived long enough to look back on it with satisfaction and pleasure. He was fortunate in having the support of a fine family and the guidance of men like Twenhofel and Schuchert. He made the best of his opportunities without being an opportunist; on the strength of his own works and his influence on generations of students, he will be counted always among the outstanding men of his profession.

Notes and Acknowledgements

Quotations are from correspondence in the Charles Schuchert letter files, Yale University Archives, and from Dunbar's letters, notes, and biographical data currently in the Division of Invertebrate Paleontology, Yale Peabody Museum. I am greatly indebted to Jean Lawless for help in gathering and organizing information and for her helpful editing of the manuscript. Carl O. Dunbar, Jr., kindly furnished the bibliographic data in his possession.

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