

1983

## Iowa's Self-trained Paleontologists

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### Recommended Citation

Anderson, Wayne I. and Furnish, William M. (1983) "Iowa's Self-trained Paleontologists," *Proceedings of the Iowa Academy of Science*, 90(1), 1-12.

Available at: <https://scholarworks.uni.edu/pias/vol90/iss1/3>

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## Iowa's Self-trained Paleontologists

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Charles Wachsmuth (1829-1896), merchant, Frank Springer (1848-1927), attorney, and Burnice Beane (1879-1966), farmer, all made significant contributions in their studies of Iowa crinoids, although none of the three completed formal courses in geology or paleontology. Herbert Belanski was a young man, just starting to make major contributions to Iowa geology and paleontology, when he died in 1919. Belanski possessed only a high school degree, but he was recognized as an expert on Devonian paleontology. His collections from the Lime Creek and Shell Rock formations are noteworthy. At the time of his death, Belanski served as a curator in the Geology Department at the University of Iowa. A later curator at Iowa, Carlyle Campbell, was an enthusiastic amateur, self-taught as far as paleontology was concerned. Prominent among current workers is Harrell Strimple. Recently retired as research associate and curator at the University of Iowa, Strimple is author of some 300 papers on crinoids and contributor to the authoritative *Treatise on Invertebrate Paleontology*. Although Strimple never completed formal college course work in geology or paleontology, he has achieved international recognition for his research and publications on fossil echinoderms. Strimple developed an interest in geology and paleontology as a youth. This interest was stimulated by contacts with L. R. Laudon in 1935. From 1933 to 1959, Strimple was employed as an accountant and pursued paleontological work on a part-time basis, publishing his first paper in 1938. Since 1959, he has devoted full-time to paleontological work. The contributions of other self-trained workers to Iowa geology are reviewed, including the work of Calvin Levorson, Arthur Gerk, and Amel Priest.

INDEX DESCRIPTORS: Paleontology, Iowa geology, stratigraphy, crinoids, echinoderms, history of geology.

"The man who cannot enjoy his leisure is ignorant, though his degrees exhaust the alphabet, and the man who does enjoy his leisure is to some extent educated, though he has never seen the inside of a school." (Leopold, Aldo, 1949, p. 181, *A man's leisure time*, in *A Sand County Almanac, With Essays on Conservation from Round River*, Oxford University Press, Inc. 295 p.)

Aldo Leopold, writing in *Round River*, described the curious activities of an old merchant in his hometown of Burlington, Iowa. The merchant, a gentle man of German background, spent his leisure time roaming over the limestone ledges and rocky ravines in and around Burlington, hammering on rocks and collecting large quantities of fossils of defunct sea creatures. Townspeople in Burlington regarded the old merchant as a little weird, but harmless. One day, to the surprise of all, a group of distinguished scientists descended on Burlington to confer with the fossil-collecting merchant. Some of the visitors were from foreign countries, and they included some of the world's leading paleontologists.

Why would such distinguished company come to visit a harmless old Burlington merchant? To his fellow townsmen the old merchant may have been just a man with a strange hobby, but to the visiting scientists he was Charles Wachsmuth, the world's leading authority on fossil crinoids.

Other Iowans have followed in Wachsmuth's footsteps to become self-trained paleontologists, although few have achieved the worldwide recognition that Wachsmuth did. This article reviews the highlights of the careers of some of the state's better known self-trained paleontologists, individuals who progressed from merely collecting to contributing to the paleontological literature.

### CHARLES WACHSMUTH

Charles Wachsmuth (1829-1896) was born in Hanover, Germany, the only son of Christian Wachsmuth, a lawyer and member of the Frankfurt Parliament (Figure 1). Young Wachsmuth immigrated to the United States in 1852. He settled in Burlington, Iowa, where he married and established a grocery business in 1855.

Wachsmuth had always experienced poor health; he barely recovered from a severe attack of pneumonia in the early 1850's. Wachsmuth continued to experience poor health in Burlington, and his consulting physician advised him to spend as much time out-of-

doors as possible. Wachsmuth followed his doctor's advice and took long walks in and around Burlington. He devoted his leisure time to collecting fossils, with a special emphasis on crinoids. This new life style agreed with Wachsmuth and brought a wonderful improvement in his health (Keyes, 1896).



Fig. 1. Charles Wachsmuth (1829-1896), Burlington merchant, became a world authority on fossil crinoids. Wachsmuth was encouraged and influenced by Harvard's Louis Agassiz, but he was essentially self-trained as far as paleontology was concerned. (Photo from *Annals of Iowa*, 1896.)

By 1865, Wachsmuth's business prospered to such an extent that he was able to devote all of his time to collecting and studying crinoids. In a short time, Wachsmuth amassed a large and diverse collection of crinoids and acquired an impressive personal library to assist with his studies.

Harvard's Louis Agassiz, while on one of his lecture tours, visited Wachsmuth in Burlington, was greatly impressed, and encouraged Wachsmuth to continue with fossil collecting and paleontological studies. Later, Agassiz purchased Wachsmuth's material for Harvard's Museum of Comparative Zoology and arranged for Wachsmuth to spend time at Harvard.

Wachsmuth's stay at Harvard was short, but it broadened his horizons considerably. After Agassiz's death, Wachsmuth returned to Burlington, where he made the acquaintance of Frank Springer. Springer, a young lawyer, shared Wachsmuth's interest in crinoids. The two became close friends and formed a paleontological partnership that was to last a lifetime. Their ambitious goal was to examine all of the major crinoid collections of the world and to completely revise existing classification schemes.

Highlights of Wachsmuth's career can be reviewed in Keyes (1896). Keyes, never one to stint on praise, described Wachsmuth and Springer's (1895), *Crinoidea Camerata of North America* as follows:

"Few persons living in the great Mississippi valley are aware that one of the most important scientific works ever produced in this country has recently been completed in their very midst. Still fewer Iowans there are who will not be greatly surprised when informed that the material which served as the foundation for this truly great work was obtained largely within the boundaries of their own state. Yet no contribution to the natural history of the state, of the United States, or of the western hemisphere has surpassed it in importance. Few old world undertakings of similar nature rival it. It stands as one of the masterpieces of American science."

#### FRANK SPRINGER

Frank Springer (1848-1927) qualified as a "Renaissance Man" (Figure 2). Remembered in legal circles as the attorney who clarified the title to the Maxwell Land Grant in New Mexico, Springer also achieved recognition for his work in paleontology. In addition, he was notable as editor, educator, patron of the arts and music, founder of the Museum of New Mexico, and flutist. The town of Springer in northeast New Mexico was named in his honor.

Springer was born in Wapello, Iowa, and studied law at the University of Iowa, graduating in 1867 at the age of 19. He acquired an interest in the natural sciences as a youth and was a pupil of Dr. Gustavus Hinrichs of the University of Iowa. Young Springer was also influenced by Louis Agassiz's lectures and field trips during one of the famed Harvard naturalist's visits to Iowa City. Springer had little opportunity to study geology formally because courses in that field were not yet available at the University of Iowa.

The headquarters of the Iowa Geological Survey were established in Iowa City in 1866, the year before Springer graduated from college. Charles White, state geologist, and Orestes St. John, assistant state geologist, gave Springer access to the Survey's collections and library materials. Springer studied geology and paleontology on his own and was left in charge of the Survey office during the summer when White and St. John were in the field.

Although Springer worked professionally as an attorney, he spent much of his leisure time practicing paleontology and achieved international recognition for his work with fossil crinoids. He really worked at two professions; law by day and paleontology by night and on weekends.

Springer was practicing law in Burlington, Iowa when he first met Charles Wachsmuth. The two collected and studied together and eventually collaborated on several publications.



Fig. 2. Frank Springer (1848-1927) achieved great success as an attorney in New Mexico, where a town is named in his honor. He returned to Burlington, Iowa at frequent intervals and collaborated with Charles Wachsmuth on paleontological research. (Photo from *Annals of Iowa*, 1896.)

Springer moved to New Mexico in 1873, but he revisited Burlington at frequent intervals and continued to maintain a close paleontological partnership with Wachsmuth. Springer, a man of some affluence, made extensive purchases of crinoids in this country and abroad. He also traded specimens, hired collectors, and spared no expense in acquiring one of the world's largest collections of fossil crinoids.

After 1910, Springer spent most of his time at the U.S. National Museum, conducting research on crinoids. His magnificent crinoid collection and library were donated to that museum.

Springer was awarded honorary doctorates from George Washington University, Washington, D.C., and from the University of Bonn, Germany. Further details of the accomplishments of this remarkable individual can be found in Keyes (1896) and Keyes (1919).

#### CHARLES HERBERT BELANSKI

Charles Herbert Belanski (1897-1929) possessed only a high school education, but he was recognized as an authority on Devonian fossils (Figure 3). Unfortunately, he died at an early age. Otherwise, his contributions would undoubtedly have been even greater.

Belanski grew up in north-central Iowa, where his family operated a grist mill on the Shell Rock River at Rock Grove. Fossiliferous Devonian strata of the Lime Creek, Shell Rock, and Cedar Valley formations outcrop in the area, and young Belanski developed an early interest in geology and paleontology. Belanski was encouraged by his high school teacher and by State Geologist Samuel Calvin, who paid a visit to the Belanski's mill.

### Herbert Belanski Remembered by S. U. I. Associates as Student of Unusual Genius

Kay and Thomas Praise  
Former Nora Springs  
Geology Genius

"A truly great young man—  
dead is what he accomplished and  
great is what lay ahead of him if  
he could have lived."  
It was Doctor George F. Kay,  
head of the Mineralogy college at  
the University of Iowa, talking and  
he was to whom he referred was  
Charles Herbert Belanski, curator  
of the university's geological  
museum.

Mason City and Nora Springs  
and a tremendous interest in the  
area for these two towns had seen  
the flower of the young man's pale-  
ontology—and then died on his  
death on April 30 of this year. The  
work of Kay and Thomas suffered  
during the World War.

A World Authority  
Dean Kay in his description of  
young Belanski was something like  
offered to him as follows:



Fig. 3. Charles Herbert Belanski (1897-1929) was remembered as a student of unusual genius, as this newspaper headline proclaims. Belanski, a high school graduate, was recognized as an authority on Devonian fossils. Unfortunately, Belanski died at an early age, just as his promising paleontological career was beginning. (Photo and heading from Mason City *Globe Gazette*, 1929.)

Professor A. O. Thomas probably had the greatest influence on Belanski, however. Thomas, a paleontologist at the University of Iowa, was engaged in studies of the Devonian rocks and fossils in the area around Nora Springs, Rockford, and Mason City in 1914. He chose young Belanski, just out of high school, to be his driver and the two established a close friendship. Both had a strong interest in Devonian fossils. Belanski amassed huge collections of fossils from the Lime Creek and Shell Rock formations, and Thomas provided books and references to assist Belanski with the study of these fossils.

Belanski's promising career as a student of paleontology was interrupted by World War I. He enlisted in 1918 and saw action with a field artillery unit. Time spent on the gas-swept battle fields of France weakened Belanski's health and contributed to the respiratory problems that led to his early death in 1929.

After returning from the war, Belanski married Alberta Phipps of Mason City. He established a home and, for the time being, put aside his plans to enter the University of Iowa to study paleontology. For several years, Belanski followed one calling and then another, but he never completely gave up on paleontology. Even when he toiled at manual labor in the cement mills at Mason City, Belanski devoted nights and weekends to collecting and classifying fossils.

A. O. Thomas stopped to see Belanski from time to time and continued to encourage him to come to the University of Iowa to study paleontology. Finally in 1927, Belanski was able to enter the University. Professor Thomas and Dean George F. Kay arranged for both Belanski's admission as a special graduate student and for his employment as curator in the museum in Old Science Hall.

While at the University of Iowa, Belanski performed curatorial duties, took graduate courses, and continued his research on Devonian fossils. Exposure during a collecting trip in a cold rain led to pneumonia, and Belanski died a few days later, April 30, 1929. He was 32 years of age.

At the time of his death, Belanski was about half way through transcribing his field notes into a well-organized type script on Devonian collecting localities, with detailed descriptions of stratigraphic sections and their fossil content. His five published papers had recently been completed, and several other studies were in progress. Belanski's personal collection was carefully prepared and

arranged in cases fashioned from packing crates.

Herbert's father worked for many years for the University of Iowa as a custodian at the Women's Gymnasium, next door to the Old Science Building. On occasion, he visited his son's collection at the geology repository. The senior Belanski also participated in collecting trips with the Geology Department and was recognized as an excellent collector. He had often collected with Herbert. The two recovered hundreds of fish specimens from the State Quarry Formation at the state-operated quarry near North Liberty (now a state preserve).

Belanski provided nearly 6,000 specimens for C. L. Fenton's (1931) study of the Genus *Spirifer*, and he deposited a huge collection of Devonian fossils at the University of Iowa. When Belanski enlisted in 1918, he donated some 700,000 fossil specimens to the University for safe keeping. After the war, he added a great deal of additional Devonian material to the collection. Belanski was inducted into Sigma Xi, honorary scientific fraternity, posthumously in 1930 in recognition of his superior research achievements.

Professor A. O. Thomas paid tribute to Belanski and reflected on the loss of such a promising young paleontologist with the following words: "Herbert Belanski gained the profound respect of teachers, pupils, and fellow students. His work inspired those about him to greater efforts. His going is an irreparable loss to Iowa and to science. He died all too soon. — He had the will to work and the understanding to become one of the great geologists of all times if he had been permitted to live out a reasonably long life." (quoted from the Mason City *Globe Gazette*, 1929).

### BURNICE H. BEANE

Burnice H. "Burnie" Beane (1879-1966), son of a Quaker minister and farmer, contributed to Iowa geology with his remarkable collection of crinoids and starfish from the quarries at Le Grand, Iowa. Specimens collected by Beane (Figure 4) are found in museums in this country and abroad.

Beane had no formal training in paleontology or geology, but he became knowledgeable about fossil echinoderms. He came to know specimens from Le Grand and Gilmore City localities to species level.

Beane completed his secondary education at Le Grand High School and Friends Academy at Le Grand. He attended William Penn College at Oskaloosa for a while, but, in time, returned to the family farm and farming. Years later, Beane received an honorary Doctor of Science degree from William Penn College. He took great pride in this honor and liked to be referred to as "Dr. Beane."

Young Beane grew up on a farm adjacent to a quarry near Le Grand. In those days, paleontologists were beating a path to the Le Grand quarry to search for fossil crinoids (Gwynne, 1961).

"Those scientists were the idols of my boyhood," Beane said. "I pestered them with endless questions, and they answered me with inexhaustible patience. I soon became a fossil collector and spent most of my spare time at the quarry." (From Boyt, 1962, p. 4.)

The major discoveries of Le Grand crinoids consisted of "nests". The nests were actually pocket-like depressions on the shallow sea floor into which uprooted crinoids had been washed and buried by limy mud. The first major nest was discovered in the Le Grand quarry in 1874 and was nearly depleted by 1890, just as young Beane was being introduced to paleontology and crinoids (Boyt, 1962).

Crinoid collecting at Le Grand was very sparse from the late 1890's to 1931 but that did not dampen Beane's enthusiasm. Always on the lookout for a new nest, Beane turned over tons of loose rock and made periodic inspections of the quarry face by use of an extension ladder. He checked periodically with quarry workers to see if any crinoids were turning up. Finally in the summer of 1931, blasting uncovered another nest.

The initial view of the 1931 discovery consisted of a line of crinoidal debris in the middle of an eight to ten inch thick bed exposed on the

quarry face. Beane recognized the debris as part of a nest and realized that the next quarry shot would produce collectable blocks of crinoids. He arranged for Lowell Laudon to come to help with the recovery. Ben Baumgardner, quarry superintendent, upon learning of the new discovery, decided he would like to save a few of the choicest crinoid slabs for himself.

The next day, following blasting operations, Beane and Laudon arrived at the quarry to find that Mr. Baumgardner had marked nearly half of the new rubble with paint, identifying the slabs he wished to keep. Surprisingly, and to the relief of Beane and Laudon, none of the marked slabs were crinoid bearing. Baumgardner was seated on a choice, but unmarked, crinoid-bearing slab as he explained the situation to Beane and Laudon.

Located approximately 100 feet from the 1874 discovery, the second nest turned out to be about 15 feet across, somewhat smaller than the first deposit. However, the state of preservation of the newly-found crinoids was remarkable, even better than the first nest.

While investigating the remains of the new nest, Beane made an even greater discovery — a slab loaded with rare and exquisite starfish! Upon seeing the starfish, Professor A. O. Thomas of the University of Iowa declared, "Why they're worth more than the whole stone quarry." (Boyd, 1962).

Beane worked diligently to save the large fossil-bearing slabs from the quarry's rock crusher. Lewis Hammond and Corwin O'Neal, local collectors from Le Grand and lifelong friends of Beane, gave him helpful encouragement (Boyt, 1962).



Fig. 4. B. H. "Burnie" Beane (1879-1966) collected and prepared slabs of crinoids and starfish from the quarry at Le Grand, Iowa, that are truly remarkable. A farmer by vocation, Beane spent countless hours collecting and preparing crinoids. Specimens collected and prepared by Beane are found in museums in this country and abroad. (Photo from *Des Moines Register and Tribune*, 1961.)

Beane transported a large number of choice slabs to his backyard workshop. There Beane and Laudon divided the slabs, piece for piece. Because of his experience, Beane was able to consistently select what turned out to be the better specimens. The quality of the slabs became more apparent after they were split to reveal their contents. A split was achieved by driving a row of shingle nails into the softer crinoid layer.

Through the years Beane removed the rock matrix from around the crinoids and starfish so that the fossils would stand out with relief on the slabs. The work was slow and painstaking and took infinite patience and an ability to guess the arrangement of the fossils within the stone. Beane's tools included dental tools, a small hammer, a toothbrush, and a needle held in a pin vise. He worked, off and on, over a period of 26 years on the preparation of his great starfish slab (Harnack, 1957).

The starfish slab, bearing 183 specimens, was called the greatest find of fossil starfish in all of paleontology by Yale's Charles Schuchert. It can be seen today at the State Historical Museum in Des Moines. Slabs of Le Grand crinoids that Beane collected are on display there also.

G. A. Cooper of the National Museum of Natural History, Washington, D.C. made at least two trips to Le Grand specifically to buy the large starfish slab, but Beane politely but firmly refused.

Jack W. Musgrove of the Iowa State Department of History and Archives, who maintained a close relationship with Beane, persuaded the state legislature to appropriate \$10,000 for purchase of the starfish slab and some select crinoid slabs. These choice slabs had been stored in Beane's garage in Le Grand over the years as he worked on their preparation. Additional preparation was done by Richard Boyt at the State Historical Museum by use of an AIRBRASIVE tool by which powdered dolomite is used to clean the matrix from around the fossils.

Slabs prepared by Beane are now on display at a number of institutions, including the University of Nebraska, University of Wisconsin, Augustana College (Rock Island), and Beloit College. Museums as far away as London, Paris, Capetown, and Tokyo also have Le Grand crinoids collected and prepared by Beane. Beane helped secure the fine slab of Le Grand crinoids now on display at Iowa State University.

Dr. Erwin H. Barbour, Director of the Nebraska State Museum in Morrill Hall at the University of Nebraska is credited as being instrumental in convincing Beane to make his specimens available to museums where scientists could study them and where the general public could gain a better understanding of the Earth's past (Boyt, 1962). It was difficult for Beane to part with his beloved slabs but, in time, he started to sell them to museums, colleges and universities. He soon learned the dollar value of his fine specimens and even reclaimed some crinoid slabs that he had deposited at the Geology Department at the University of Iowa.

William Furnish, Head of the Geology Department at the University of Iowa, was busy preparing for a class one morning in the late 1950's when he was surprised by the unexpected visit of Dr. Beane and Beane's son. "We've come to get my crinoids," Beane announced. The specimens were relinquished without argument, but not without disappointment. One slab on display in a sealed case in the Museum of Natural History, Macbride Hall could not be recovered immediately, and Beane graciously donated it on the spot.

Robert H. Solem, a Beloit industrialist and trustee of Beloit College, Beloit, Wisconsin, purchased the bulk of Beane's collection, consisting of 200 slabs weighing over five tons. The collection was donated to Beloit College.

An agreement with Solem was arranged years before Beane's death, whereby Beane could keep and enjoy his collection until his death. Then, the collection was to go to Beloit College where it would be reposited in Chamberlin Hall. The case full of nice specimens stored at

Iowa City for some 20 years was considered part of Beane's collection and thus was committed with the agreement.

Beane was generous with his time and always willing to help those visiting Le Grand. The financial returns he received for his crinoids were small, considering the many hours he spent in collecting and preparing specimens.

Some 40 new species of crinoids were recovered from the Le Grand quarry and 11 of these were discovered by Beane. *Rhodocrinites beanei* from the Hampton Formation at Le Grand was named in Beane's honor (Strimple, 1965).

Beane collaborated with Lowell Laudon on a research paper summarizing the Le Grand crinoid fauna (Laudon and Beane, 1937). Beane also joined with Harrell Strimple on a short paper dealing with reproduction of lost arms on a Le Grand crinoid (Strimple and Beane, 1966) and published a paper on color variation in Le Grand crinoids (Beane, 1941).

Dr. Beane had a long and productive life. He died in 1966 at the age of 87 and was buried with a Le Grand crinoid in his hand.

#### CARLYLE B. (CARL) CAMPBELL

Carlyle B. (Carl) Campbell (1896-1979), son of Reverend L. M. and Flora H. Campbell, was born in 1896 in Greencastle, Indiana (Figure 5). His father was a Methodist missionary evangelist, 1871-1912, in the then pioneer country of Nebraska and South Dakota.

Carl spent his boyhood years, 1899-1915, at Knoxville, Iowa, where he and his younger brother lived with their mother. Forced to drop out of school for health reasons after finishing fifth grade, Carl was instructed by the family physician to spend time outdoors. That was exactly what young Campbell wanted. Although his formal education ended, his health improved.

Even though his formal education ended with the fifth grade, Carl kept on learning throughout his life, and he acquired much knowledge on his own. His working career saw time spent as a lineman, telephone company owner, farmer, electrician, therapist, and museum curator.

In 1915, at the age of 19, Carl left home to take the position of wire chief for the Farmer's Mutual Telephone Company of Sully, Iowa. Carl's earnings helped support his father, who suffered a stroke in 1912, and his mother and younger brother.

As a youngster, Campbell much admired the inventor Thomas A. Edison, and he developed an early interest in electricity, radio, telephones, and telegraphs. During World War I, Campbell served with the 109th Field Signal Battalion as a telegraph and telephone operator and maintenance man, spending time along the United States-Mexican border and in France. After the war, he returned to telephone and powerline work in Iowa and Nebraska.

During the summer of 1926, Campbell's interest in earth history was sparked by an investigation of some mysterious mounds in Chalkrock Ridge, located between the Missouri River and Ponca Creek in northeast Nebraska. Campbell was new to the area, having just purchased the Ponca Valley Telephone Company of Verdell, Nebraska. One day, when his line work was caught up, Campbell made a careful inspection of one of the mounds, which was as he suspected, a burial mound. The remains of an adult and a child, plus two additional skulls, were revealed in one burial site. In 1930, while resetting a telephone pole north of Lynch, Nebraska, Campbell made his second archaeological discovery — the buried remains of an ancient Indian village.

In May of 1934, Campbell made the surprising paleontological discovery that launched his career as an amateur paleontologist. At the time, Carl was engaged in farming near Monowi, Nebraska. It was a time of drought and the winds had blown much of the thin soil from his parched fields. While plowing, Campbell turned up the local bedrock, Cretaceous shale. He spotted fossil vertebrae in the shale



Fig. 5. Carlyle B. "Carl" Campbell (1896-1979) contributed to paleontology with his collections of cephalopods and his recovery of conodonts. Campbell's working career saw time spent as a lineman, telephone company owner, farmer, electrician, therapist, and museum curator. (Photo courtesy of Sheila Enemark, Carl Campbell's daughter.)

and, by September, had recovered a nearly complete mosasaur skeleton. The skeleton, some 20 feet (6.1 meters) in length, was laid out on sheets and blankets from the Campbell household and carried to the grainery where it was reconstructed.

The head and paddle of the mosasaur were displayed at a school in Lynch, Nebraska the following winter as a fund raiser for a local group. Although advertised very little, the exhibition was a big draw. Children paid 10 cents, and adults 15 cents, for the opportunity to see a genuine sea monster. The one night show took in over 70 dollars, and people were turned away at two o'clock in the morning when the exhibition was terminated.

The mosasaur received a great deal of publicity in local and regional newspapers. Campbell sent descriptions of the mosasaur to several universities and museums in order to learn more about his discovery.

Campbell accepted an invitation to report on the mosasaur at the 1937 annual meeting of the Iowa Academy of Science, and with some hesitation, a nervous Campbell stepped forward to give his presentation to the assembled group of learned Iowa scientists. He had

brought, for display, the reconstructed head of the creature and one of its front appendages. The presentation was well received, but afterwards one spectator asked Campbell where he had studied paleontology. Campbell responded that he was merely a dirt farmer from Nebraska, with no formal training in paleontology whatsoever, and that he came only to present information on a subject for which he did not have all the answers.

Some doubt was cast on the authenticity or accuracy of the reconstructed skull when the group learned that Campbell had no formal background in paleontology. Campbell left the meeting disappointed and crestfallen. In time, the skeleton was donated to the Geology Department of Augustana College at Rock Island, Illinois, where it can be seen on display in Walburg Hall of Science (Figure 6).

Campbell moved back to Knoxville, Iowa, in 1936 and was employed as an electrician for the Veteran's Hospital. He had recently acquired a large collection of geology and paleontology references as part of the John Wright Museum Collection and was ready to devote much of his leisure time to fossil collecting.

During the summer and fall of 1937, Campbell discovered a variety of Pennsylvanian plant fossils in the Knoxville area. He provided specimens to Augustana College, Rock Island, Illinois, and Upsala College, East Orange, New Jersey. The material consisted of various fern leaves, *Sigillaria*, *Lepidodendron*, *Annularia*, *Calamites*, and cordaitan trunks.

Campbell continued to collect fossil plant remains from the Knoxville area for the rest of his life. Notable discoveries included a rich deposit of *Lepidostrobus* ("cones" of the scale tree *Lepidodendron*) and plant-bearing concretions, similar to those from the famous Mazon Creek locality in Illinois. A. K. Miller of the University of Iowa published a description of these fossil-bearing concretions in the *Journal of Geology* (Miller and Condit, 1951).

In 1938, Campbell's interest in fossils led him to pen a poem, a portion of which is reproduced below:

A fossil never lies, if we could see with perfect eyes.

The curious facts the stones possess are not a fancy, not a guess;  
For millions of little creatures, have left a record in stones.

Of the romance of God in creation, they wrote with their shells and bones.

(from Campbell 1966, p. 38)

**Campbell and conodonts.** — While collecting in Marion County near Knoxville in the early 1940's, Campbell spotted a curious white speck, set in a matrix of dark shale. Examination under a magnifying lens revealed that the white speck was tooth-like in appearance. In time, Campbell collected several dozen such specimens and sought to identify them with the use of his library collection. Failing to find these tooth-like fossils illustrated in his reference books, Campbell sent specimens to Dr. Fritiof M. Fryxell at Augustana College. Fryxell correctly identified the tiny tooth-like fossils as conodonts and indicated that little was known about them.

Campbell continued to collect the odd little fossils and sent them to geologists throughout the country in an attempt to find out more about their origin. He received little feedback and generally did not get his specimens back. In time, Campbell constructed a homemade microscope and camera to photograph the conodonts. He sent photographs to several university geology departments, requesting information about the conodonts.

Sometime later, Walter Younquist, then a graduate student at the University of Iowa, saw the photographs and decided to contact Campbell. Younquist, accompanied by fellow geology student Bruce Heezen, visited Knoxville and was shown Campbell's collecting locality. Younquist informed Campbell that his conodonts were apparently the first to be obtained from Iowa's Pennsylvanian rocks, but that recovery of enough specimens for a professional study would be most difficult because the specimens were in a hard shale.

Learning this, Campbell set out to develop a method to free the

conodont specimens from their rocky matrix so that they could be studied properly. The result of his efforts was the celebrated Campbell Microfossil Washer (Hussey and Campbell, 1951; Campbell, 1951). The washing machine was judged a great success, and Campbell recovered many excellent specimens. Campbell made an offer to universities and others to send him samples for washing — free of charge. Samples arrived from all over the United States and from Canada, Mexico, Egypt, Germany, France, Scotland, Australia, China, and elsewhere.

Campbell was invited to give a presentation on his microfossil washer at the Iowa Academy of Science in 1951. His presentation was well received and this time no one asked Campbell, "Where did you get your degrees?"

Younquist and Heezen (1948) published an article on conodonts from Campbell's Pennsylvanian (Desmoinesian Series) locality in Marion County. The article included a description of a new species in Campbell's honor — *Ozarkodina campbelli*.

Later, Campbell recovered conodonts from the Virgilian and Missourian series of the Pennsylvanian, the Ste. Genevieve and Burlington formations of the Mississippian, and the Ordovician Maquoketa Formation.

Transportation was difficult during the early 1940's when Campbell collected conodont samples near Knoxville. He had no car, so he collected on foot; or he was dropped off near localities by taxi or bus, to later walk home. It was not unusual for Campbell, with a gunny sack of samples slung over his shoulder, to hike home from distances of nine miles or more.

Later, Campbell ranged into eastern Iowa (Louisa County) via bus in search for conodonts. Samples collected by Campbell on this occasion provided the first conodonts from the Burlington Formation of Iowa (Younquist, Miller, and Downs, 1950). Bus trips to Winterset and vicinity, 50 miles west of Knoxville, gave Campbell the opportunity to collect conodonts from the Missourian Series — the first Missourian-age conodont fauna collected from Iowa.

Shortly after his collecting trip to the Winterset area, Campbell bought a used motor scooter. With his newly-acquired "field vehicle", Campbell really covered the territory! He motored west to Madison and Adair counties to collect from the Virgilian Series. Later, he took a week's vacation and rode the scooter to Iowa City, Anamosa, Maquoketa, and Clinton. He collected from Devonian, Silurian, and Ordovician strata on this excursion, sending samples back to Knoxville by freight express.

Upon returning to Knoxville, Campbell, as usual, washed his samples with the Campbell Microfossil Washing Machine. Unfortunately, only the Ordovician samples yielded conodonts. Following his usual practice, Campbell sent the conodonts to the Geology Department at the University of Iowa. These specimens were never described, however; neither were the conodonts he recovered earlier from rocks of the Missourian and Virgilian series. Walter Younquist, who described some of Campbell's earlier conodont discoveries, was now at the University of Idaho and A. K. Miller was swamped with other work.

**Campbell and cephalopods.** — In 1950, Campbell's collecting interests turned to cephalopods. Specimens were obtained from an abandoned coal pit in Marion County and sent to A. K. Miller at the University of Iowa. Miller, an expert on Paleozoic cephalopods, was ecstatic when he saw the specimens, for the cephalopods were new to science and unusually large.

Campbell spared no effort in his collecting, as the following quote from his autobiography attests (Campbell, 1966, p. 67).

"I tried undercutting the hard sandstone and sliding sections of it down the slope of the bank or cut. This was slow, tedious, and dangerous, for I must first cut foot holes in the almost perpendicular wall of the bank in which to stand — with 8 to 10 feet of water in the

old coal pit, from 6 to 12 feet below. When I found what appeared to be an unusually fine specimen sticking out of the bank, I would sometimes spend the whole afternoon or evening attempting to remove the overlying sandstone. Added to this, in the summer, there were swarms of sweatbees that would attack just as I was about to secure an extra fine specimen. And I was forced for my own safety to let them crawl all over me and sting me at their pleasure, while I either went on with my work or crawled up the bank to safety."

Over 400 cephalopods were obtained by Campbell from one coal mine in Marion County. Cephalopods collected by him were the subjects of paleontological papers by Furnish, Glenister, and Hansman (1962) and Hansman (1958). The cephalopods were sent originally to A. K. Miller, but he suffered a stroke and passed away before having an opportunity to work on the collections.

Later, Campbell collaborated with Richard A. Davis on a paper dealing with cephalopods from Marion County. The paper was read at the 1966 annual meeting of the Iowa Academy of Science at Central College in Pella.

After retirement from the Veterans Hospital in Knoxville, Campbell worked as curator in the Geology Department at the University of Iowa, 1960-62. He returned to Knoxville in 1962 and resumed his association with the Marion County Museum. Campbell was founder of the Marion County Historical Society and served as its president for a number of years. He also served as museum curator for the Marion County Historical Society during his retirement years. Campbell died in 1979 at the Veterans Hospital in Des Moines, Iowa.

#### HARRELL L. STRIMPLE

Harrell LeRoy Strimple, one of the most productive self-trained paleontologists of all time, was born in Yates Center, Kansas in 1912 (Figure 7). His father was a dispatcher for an oil company, and Harrell grew up in the oil-producing areas of Texas, Wyoming, and Oklahoma. At the age of 14, while exploring the hills around Casper, Wyoming, Harrell discovered numerous well-preserved fossil sea shells, shells that were similar to modern ones that he had collected from the Gulf Coast of Texas. This puzzling discovery of sea shells, more than a thousand miles from the sea, led young Strimple to enroll in a high school geology class at Casper High School. Later (1935), while working as an accountant for Phillips Petroleum Company, Strimple attended L. R. Laudon's night course in geology (Invertebrate Paleontology and Stratigraphy) at the University of Tulsa. These two courses constitute Strimple's formal training in geology.

Strimple graduated from Tulsa Central High School in 1928 and later completed a correspondence course in accounting from the International Accountants' Society. He worked as an accountant for Phillips Petroleum Company from 1933 to 1942 and from 1945 to 1959. During World War II, he enlisted and served from 1942-1945 in the United States Army Signal Corps.

While working as an accountant, Strimple collected fossils and engaged in paleontological work after working hours, on weekends, and during vacations. He was encouraged in paleontology by L. R. Laudon, then at the University of Tulsa, and by Edwin Kirk and R. S. Bassler of the U.S. National Museum.

Strimple sent crinoid specimens to the U.S. National Museum and, in time, visited the museum where he met Bassler and Kirk. They encouraged him to publish on the crinoids that he was finding. Most of these crinoids, from the Pennsylvanian of northeastern Oklahoma, had never been described previously. On his visit to the U. S. National Museum, Strimple studied the crinoid collections, including those of Frank Springer. On the same trip, he bought a complete set of the Worthen Reports on crinoids at a used-book store in New York. Returning to Oklahoma with his newly-acquired references and with Bassler and Kirk's endorsement, Strimple was ready to embark on his first paleontological publication. The results of



Fig. 6. This skeleton of a mosasaur, collected by Carl Campbell in Nebraska in 1934, can be seen today at Augustana College, Rock Island, Illinois (Photo courtesy of Dick Johannesen, Augustana College.)

the study appeared in 1938 and contained a description of four new species of crinoids (Strimple, 1938). Now, over forty years later, Harrell Strimple's publications total nearly 300 and document over 700 new taxa of echinoderms. A major author of the *Treatise on Invertebrate Paleontology (Crinoidea)*, Strimple continues as an active



Fig. 7. Harrell L. Strimple, one of the most productive self-trained paleontologists of all time, was an accountant before launching a full-time paleontological career in 1960. Strimple served as research investigator and curator at the University of Iowa from 1962 to 1980. He is author of over 300 publications and a major author of the *Treatise on Invertebrate Paleontology (Crinoidea)*.



researcher even in his so-called retirement, having officially retired as research investigator and curator at the University of Iowa on June 30, 1980.

Strimple's collecting prowess is legendary (Figure 8). We have heard more than one frustrated crinoid collector complain on the outcrop: "Harrell Strimple must have already been here and cleaned the place out." Harrell does admit to visiting several favorite spots each year to do some serious collecting, and he cautions, "Don't expect to find many echinoderms if you follow me on the outcrop."

Shortly after Strimple arrived in Iowa City in 1962, he inquired about the likelihood of collecting crinoids from the local Devonian bedrock. William Furnish, then the Head of the Department of Geology at the University of Iowa, gave Strimple little encouragement but agreed to take him to a couple of localities. Strimple's first collecting venture turned up some 25 crinoid crowns! Harrell eventually found crinoid colonies at several of the "barren" Devonian localities.

Strimple's collecting has not been limited to echinoderms. He has found many useful fossils from other groups (cephalopods, conulariids, pelecypods, brachiopods, conodonts, fusulinids, and corals) and has turned these specimens over to the appropriate specialists for description and study.

Strimple's collecting excursions have extended from Minnesota to Texas, and from Virginia to New Mexico. Much of Strimple's travel expense and publication costs have been paid from his own pocket, an indication of his serious commitment to paleontological research.

Strimple left Phillips Petroleum Company's accounting department in 1959. After brief stints as a curator for Geological Enterprises of Ardmore, Oklahoma and as a consulting paleontologist for the Oklahoma Geological Survey, he accepted a position as curator and research investigator in the Department of Geology, University of Iowa.

Why did he give up a successful career in accounting for lower paying work in paleontology? What is so special about paleontology? Strimple says, "It lies in the thrill of discovering something new or unique. There is a special feeling that one gets when one discovers an unusual specimen, and an even better feeling results when you find something completely new to science — a specimen that no one else on the face of this Earth has ever seen before."

While at the University of Iowa, Strimple assisted scores of graduate students with paleontological research on echinoderms. He



Fig. 8. Strimple inspects a limestone outcrop in northeast Iowa in search of crinoids on a Geological Society of Iowa field trip in 1962. Recognized as a prolific and skillful collector, Strimple has discovered many taxa new to science.

also encouraged a number of self-trained Iowa paleontologists and collaborated with them on publications.

**Collaboration with amateurs** — Strimple has enjoyed great success in working with amateurs. Harrell's ability to collaborate is remarkable, and he has been able to achieve excellent rapport with a large number of amateur collectors. Although Strimple's overriding interest is in seeing that an amateur's new material gets described and properly curated, he sees that the amateur gets something in exchange for the material. Strimple will trade or buy specimens as needed, and he has arranged co-authorships with several amateurs. For example, Strimple collaborated with W. T. "Bill" Watkins, a diligent amateur paleontologist and prolific collector from Texas (Strimple and Watkins, 1961; 1969). Strimple considers his 1969 paper with Watkins, "Carboniferous crinoids of Texas with stratigraphic implications", to be one of his major works. Strimple assisted Watkins in getting collections deposited in the U.S. National Museum. When Strimple was in Europe during World War II, he met James Wright, Scotland's renowned amateur paleontologist. They collaborated in a joint publication (Wright and Strimple, 1945).

Harrell's wife, Christina, is also a fossil collector. B. H. Beane, one of Iowa's notable self-trained paleontologists, introduced Christina to crinoids when he gave her a specimen from Le Grand, Iowa. Later, Christina discovered a significant crinoid locality in the La Salle Limestone (Pennsylvanian) of Illinois. When Christina perused the literature on Pennsylvanian crinoids to evaluate what she had discovered, she kept turning up the name "Strimple". Eventually they met, and Harrell went to work on the La Salle project.

In time, they married. Harrell says, in jest, that some people believe he married Christina for her crinoids, but that, in reality, she married him to get them back.

Strimple worked some with B. H. Beane of Le Grand, although Beane was approaching retirement when Strimple came to Iowa in 1962. Strimple named a new species *Rhodocrinites beanei* in honor of Beane (Strimple and Boyt, 1965).

Amel Priest of Peru, Iowa and Strimple collected together at various times. Priest paid the expenses of these collecting trips, and it was agreed that they would split the material they collected, with Strimple keeping any specimens needed for his research. They collected widely, visiting crinoid localities in Kentucky, Tennessee, Texas, Illinois, Indiana, Oklahoma, and Kansas. Priest was a farmer by vocation and a collector by avocation. Strimple recalls that Priest was "a whale of a collector, who could move a lot of rock". Strimple described one of Priest's discoveries in an article entitled "New erisocrinid from Nebraska" (Strimple and Priest, 1969).

Strimple has published several articles with Cal Levorson of Riceville (Strimple and Levorson, 1969a, 1969b, 1971, 1974; Bell, Strimple, and Levorson, 1976; Kolata, Strimple, and Levorson, 1977a, 1977b). Levorson, postmaster at Riceville, has collected extensively from Iowa's Devonian and Ordovician strata and has discovered a considerable number of interesting echinoderms. His work is discussed in a later section.

**Collaboration with R. C. Moore.** — R. C. Moore and Strimple became interested in crinoids at about the same time; both were working on Pennsylvanian crinoids in the late 1930's. Little had been published on Pennsylvanian echinoderms of the Mid-continent region, and they kept each other informed of ongoing work. They collaborated on three short papers (Moore and Strimple, 1941; Moore and Strimple, 1942a; Moore and Strimple, 1942b).

Moore had plans to make the University of Kansas a major center for crinoid studies, but his plans never completely materialized. Moore, a captain in the reserves, was called into service during World War II, just as his crinoid studies were in full swing. Lowell Laudon, also a crinoid worker, was on the faculty of Kansas too, but he moved to the University of Wisconsin after World War II.

Strimple and Moore resumed their collaboration in the late 1960's

when Moore persuaded Strimple to assist on the *Treatise of Invertebrate Paleontology* and related projects. Strimple agreed to do four families for the *Treatise* volume on crinoids.

Moore, known as a difficult man to work with because of his domineering personality, was now advanced in age and in poor health, desperately needing help to keep things progressing on the *Treatise*. Strimple agreed to collaborate.

Several studies needed to be completed so that they could be included in the *Treatise*. Moore and Strimple worked together on these and 11 jointly-authored papers resulted (Moore and Strimple, 1969, 1970, and 1973; and Strimple and Moore, 1971a, 1971b, 1971c, 1971d, 1971e, 1973a, 1973b, and 1973c).

Both Moore and Strimple shared a love for Pennsylvanian crinoids. Strimple relates that Moore's spirits were decidedly buoyed when he was shown the exquisite Pennsylvanian crinoid material from the La Salle Limestone of Illinois. According to Strimple, Moore's interest was sparked by the La Salle material and he seemed to forget about his health and aging problems when he plunged into work on the La Salle project. Strimple rates the published results of the La Salle study (Strimple and Moore, 1971a) as one of his most noteworthy publications.

Strimple holds memberships in the Geological Society of America (Fellow), Paleontological Society, Paleontological Association, International Paleontological Association, Sigma Xi, Paleontological Research Institution, Iowa Academy of Science (Fellow), Geological Society of Iowa, and Nebraska Academy of Science. He is listed in *American Men of Science* and has received Awards of Merit from the Iowa Academy of Science and the *Dictionary of International Biography*. Strimple has served as a reviewer for the National Science Foundation, the *Journal of Paleontology*, and *Alcheringa*.

Most of Strimple's research has been taxonomic, dealing with the identification and descriptions of species, but he has also been involved with questions of phylogeny, morphology, and stratigraphic correlation. The bulk of Strimple's papers have dealt with echinoderms of the Paleozoic, mainly Mississippian and Pennsylvanian crinoids. Strimple's personal collecting has ranged throughout the Mid-continent region of the United States, through the southern Appalachians, and into the Sacramento Mountains of New Mexico. Materials contributed by others have come from around the world, so Strimple's research includes descriptions of echinoderms from far away places like Indonesia, Ellesmere Island in the Arctic, Bolivia, Spain, and North Africa.

#### CALVIN O. LEVORSON

Calvin Levorson, postmaster at Riceville, is a productive self-taught geologist. Born in Osage, Iowa, in 1928 and a graduate of Northwood High School, Levorson developed an interest in fossils as a result of his rock-collecting hobby. The presence of sea animals in land-locked Iowa puzzled Levorson so he contacted staff at the U.S. National Museum (National Museum of Natural History), the University of Iowa, and the Iowa Geological Survey for explanations. Geologists at these institutions gave Levorson encouragement and directed him to appropriate literature. In time, Levorson progressed from a mere collector to a serious student of paleontology and stratigraphy.

Although Levorson has no formal training in geology, he has authored or co-authored several papers dealing with Iowa fossils and paleontology. His collections and paleontological work have focused on the Upper Devonian Lime Creek and Shell Rock formations, the Mississippian Gilmore City Formation, and the Ordovician Galena and Maquoketa groups. He has also collected from the Devonian Cedar Valley Formation. Levorson's collections have been systematic and include entire faunas, with representatives of all major fossil groups present. He is best known, however, for his discoveries of



Fig. 9. Calvin Levorson (right), postmaster at Riceville, and Arthur Gerk (left), a Clear Lake businessman, are self-trained paleontologists. Both have made significant contributions to Iowa geology. Shown in this photo is one of the stops on a field trip they led for a joint meeting of the Iowa, Minnesota, and Wisconsin academies of science in 1975.

echinoderms. These discoveries have resulted in several papers, co-authored with Strimple (Strimple and Levorson, 1969b, 1971, and 1974). In addition, Levorson has collaborated with Strimple on a catalogue of the Belanski fossil collection (Strimple and Levorson, 1969a).

Exquisite and unusual Ordovician echinoderms collected by Levorson and his colleague, Art Gerk, are deposited at the University of Iowa.

Levorson's interests include stratigraphy as well as paleontology, and he has presented papers in the geology section of the Iowa Academy of Science on the Owen Member of the Lime Creek Formation and the Galena Group of Winneshiek County. He is senior author of papers dealing with the Galena Group and Dubuque Formation (Levorson and Gerk 1972; Levorson, Gerk, and Broadhead 1979). In addition, he and Gerk have led field trips on the Galena Group of Winneshiek County for the Geological Society of Iowa in 1972 and for a joint meeting of the Iowa, Minnesota, and Wisconsin academies of science in 1975 (Figure 9).

Levorson and Gerk's work on the Galena Group is remarkable in that neither of them had any formal background in stratigraphy. Nevertheless, they discovered stratigraphic principles as their work progressed and their final report is professional in nature. The Iowa Academy of Science recognized Levorson and Gerk's contributions in 1975 by awarding them citations for their contributions to Iowa geology.

Levorson has amassed a prodigious collection of Iowa fossils; his personal collection, housed at Riceville, totals nearly 50,000 specimens. Some 29,000 fossils collected by Levorson from the Lime Creek Formation are deposited at the National Museum of Natural History in Washington, D.C., and approximately 2,000 specimens are deposited at the University of Iowa.

#### ARTHUR V. GERK

Salesman and part owner of a home insulation business in Clear Lake, Iowa, Arthur Gerk was born in Hillsboro, North Dakota, in 1921. He graduated from Clear Lake High School and is entirely self-taught as far as geology and paleontology are concerned.

Gerk possesses an innate curiosity about natural history in general, but his specific interest in geology was kindled when he met Calvin Levorson in 1965. The two work closely together and have collaborated on publications on the Galena Group and the Dubuque Formation of northeast Iowa.

Specimens that Gerk has collected have been deposited in a number of museums. Fossils from Iowa's Ordovician Platteville, Decorah, and Maquoketa formations are at the National Museum of Natural History, Washington, D.C. Specimens of *Ischadites iowensis* are repositied at the Field Museum, Chicago and brachiopods from Iowa's Mississippian are deposited at Carnegie Institute, Pittsburgh.

In recent years, Gerk has turned his attention to the Mississippian Gilmore City Formation exposures at Humboldt, Iowa (Gerk and Levorson, 1981). Gastropods collected by Gerk from this locality have been studied by John Harper at the University of Pittsburgh and Robert Linsley of Colgate University. I. G. Sohn of the U.S. Geological Survey is working with the ostracods that Gerk collected from this locality.

Gerk, as with Levorson, received encouragement and assistance from Harrell Strimple, Brian Glenister, and William Furnish of the University of Iowa. Gerk has been encouraged by other paleontologists as well, including Ellis Yochelson of the U.S. Geological Survey and G. Arthur Cooper of the National Museum of Natural History.

#### AMEL F. PRIEST

Amel Priest, mentioned earlier in relation to Harrell Strimple, was born in Peru, Iowa in 1907 (Figure 10). He was forced to leave school after the tenth grade to help out on the farm when the family home burned. Priest, now retired from active farming, made his living on the family farm and still lives there.

Priest first became interested in rocks and fossils as a leader of a Boy Scout troop. The scouts asked many questions about the rock specimens that they collected on outings, and Priest, while trying to help, became an avid collector.

He collected near Peru and started to exchange materials with others to enlarge his collection. Priest's interest initially centered on rocks and minerals, but later fossils caught his attention — particularly brachiopods. Through trading and exchange of specimens, he acquired specimens from all over the United States and from Europe. In time, Priest visited Gilmore City and Le Grand to collect crinoids. He visited B. H. Beane at Le Grand and obtained some crinoids from him. Through the years Priest's interests in crinoids grew, and now they are his favorite fossil group. According to Priest, "I read and study any publications dealing with crinoids that I can get hold of. If I were younger, I'd be tempted to do a study on the Burlington crinoids. The holotypes and papers describing various genera are scattered all over the country. Somebody ought to group all into one publication."

Priest has collected echinoderms, new to science, that have been described by Harrell Strimple, and a new species has been named in Priest's honor. Priest has provided brachiopods for G. A. Cooper of the U.S. National Museum (National Museum of Natural History) and traded brachiopods to Cooper for crinoid publications by Wachsmuth and Springer. Crinoids collected by Priest have been displayed at numerous rock and mineral shows, and his displays have received several national and regional awards and recognitions. He is truly the "Mr. Crinoid" of the amateur collectors, having won top honors several years in a row with his crinoid exhibits at the American Federation of Mineralogical Societies' annual shows.

A strong man, conditioned by physically-demanding farm work, Priest proved to be an excellent fossil collector. He collected extensively with Harrell Strimple, and together they nearly demolished the road cut near Anna, Illinois in their recovery of Pennsylvanian crinoids.

Specimens collected by Priest have been deposited at the National Museum of Natural History, Washington, D.C. and the State Historical Museum, Des Moines. He has written articles for *Earth Science* magazine and *Rocks and Minerals* magazine. Priest is a man with several hobbies, and in addition to his rock and fossil collections, he has large collections of barbed wire, fence posts, and shells.

#### OTHERS

A number of other Iowans have developed a keen interest in fossils and paleontology. Dick Johannesen, of Davenport, now curator at Augustana College, Rock Island, Illinois, is a knowledgeable self-trained worker. John P. Pope of Winterset, self-employed in television sales and service, also is a serious collector. His collections have focused on the Pennsylvanian of Madison County, but his most noteworthy discovery was a dinosaur skeleton, found in Canada and repositied there. Glenn Crossman, accountant at Riceville, has provided several significant specimens to the University of Iowa for study.

Muriel Menzel (1911-1980) of Finchford was a teacher and homemaker. She was a knowledgeable collector and a talented writer who

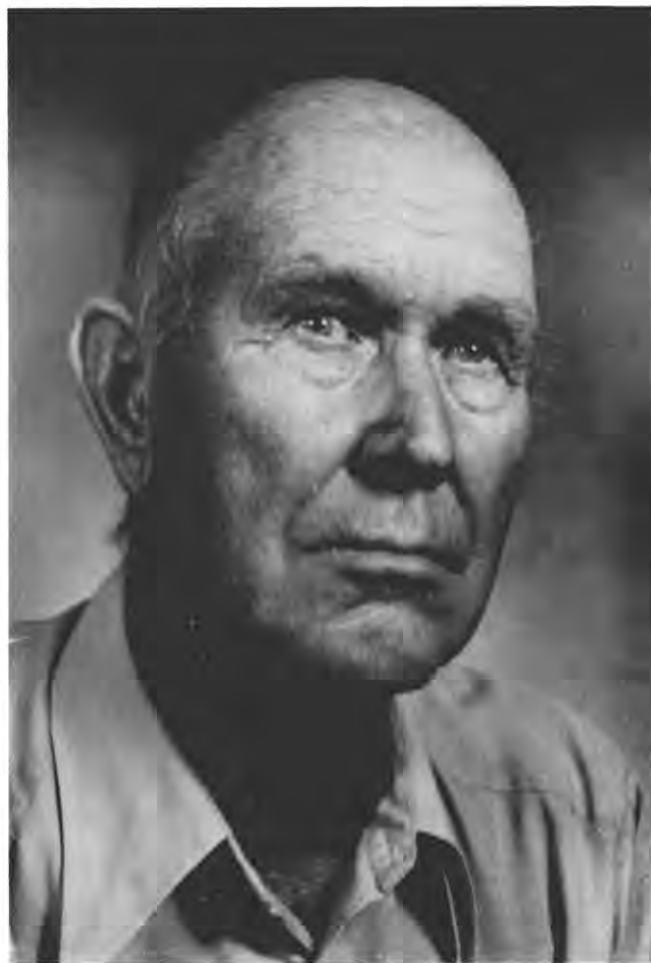


Fig. 10. Amel Priest, retired farmer from Peru, Iowa, has been a prolific collector. He has provided specimens, new to science, to Harrell Strimple for study and description. Priest's crinoid collections have received national and regional honors at rock and mineral shows.

contributed several articles on Iowa localities to *Gem and Minerals* and *Earth Science* magazines. She also published articles about Iowa geology in *The Iowan*, (Menzel and Pratt, 1963, 1965, 1967, 1968, 1969). Menzel discovered one of the most complete arthrodires (joint-necked fish) known. This significant specimen, from the Devonian Cedar Valley Formation at Raymond, Iowa, is now being described by paleontologists at the Field Museum in Chicago.

#### ACKNOWLEDGEMENTS

Brian Glenister, University of Iowa, provided suggestions as to references and other sources. Harrell Strimple provided valuable background and information. The following individuals provided biographical information: Glenn Crossman, Arthur Gerk, Calvin Levorson, Muriel Menzel, John Pope, Amel Priest, Harrell Strimple.

Mrs. Donald (Sheila) Enemark, daughter of Carl Campbell, provided a copy of her father's unpublished autobiography. Dick Johannesen provided photographs and biographical information on Carl Campbell. Jean Casey, Mason City Public Library, helped with the search for sources of information on Charles H. Belanski. Margaret Laumbach, Fred Macaron Library, Springer, New Mexico, supplied biographical information about Frank Springer.

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