

The Amateur Fossil-Hunters

Paleontology's Unsung Heroes

by Eugene S. Richardson, Jr.

Sometimes, when professional paleontologists gather in safe little knots at a geological convention, they assure each other that they are the ones who have been entirely responsible for the progress of paleontology. But this oversimplifies. There are two kinds of paleontologists; those who make a living at it, and those who make a hobby of it. Both kinds, let me add, pursue paleontology because they enjoy it.

Many an amateur, over the past century and more of American science, has given great assistance to the study of prehistoric life. They have discovered rare specimens; they have prepared and catalogued and preserved; they have loaned or donated their specimens for study. In show business, such valuable auxiliaries are called "angels." I am on the side of the angels. Let me tell you about a few of them.

There is no catalog or monograph on these generally unsung people. No one can say who are the Grand Champion Amateur Collectors. One who must merit some such title is:

Ralph Dupuy Lacoe 1826-1901

The family name was originally Lecoq, from the north of France. When Ralph's father came to settle in the anthracite country of northeastern Pennsylvania, and to set himself up as a carpenter there, the name somehow changed its form. He married the daughter of another French family, Dupuy, who, fleeing an insurrection of slaves on the West Indian island of Hispaniola, had settled on forested land

nearby. Ralph, the youngest Lacoe son, attended a country school and learned carpentry from his father. For Ralph's later intellectual interests his biographer gives credit to his mother rather than to his schoolteacher—justly, I'm sure.

While making his way up in the world as a carpenter, young Lacoe cut timber on his grandfather Dupuy's land and filled orders for railroad ties as the country developed. He invested the income from the railroad ties in coal lands in the developing Lackawanna anthracite field. He knew how to recognize which tracts would have coal under them. Soon, he branched out into other enterprises: trading in real estate, manufacturing, banking. But by the time he was 41, just after the Civil War, his health broke from overwork and he took a vacation to Florida.

While recuperating, Lacoe collected shells on the Florida shore, and for the first time he became interested in natural history as a hobby. His health never returned, and he gradually lost his hearing, which rather cut him off from normal relations with other people. But he lived another 35 years, attributing his long life to his happy outdoor pursuit of fossils. For on his return to Pittston, where there were no seashells to pick up, he began to collect local fossils, principally the plants associated with the coal.

Soon, he was not only collecting but also studying what he had, and in time he built up one of the four or five finest paleontological libraries in the country. In order to use this library best, he learned French and German. Studying his fossil plants and their geologic occurrence, Lacoe corresponded with J.P. Lesley, the state geologist, and with Leo Lesquereux, the great paleobotanist, of Columbus, Ohio, who became his close friend. From the home town area, his collecting trips expanded. Before long, he was adding Mississippian and Devonian plants as well as Pennsylvanian, and was going as far afield as the southern and midwestern states. Always he met local collectors, and with increasing frequency he bought specimens from them, or even hired them to collect for him after he went back home. His travels widened. He went to Europe, where he traded some of his Pennsylvanian plants for local fossils—and again bought specimens. He went to the

Rocky Mountain states and expanded his collecting to include younger fossil plants—Permian, Mesozoic, and Tertiary. Occasional animal fossils were associated with the fossil plants, and soon Lacoe was particularly interested in acquiring fossil insects and myriapods (an invertebrate group that includes centipedes and millipedes), and somewhat later, crustaceans, fishes, and molluscs as well.

Many years later, Professor Charles Schuchert wrote:

Until recently, but one locality in the United States yielded specimens of Paleozoic insects in numbers sufficient to warrant collectors to look for these rarest of fossils. This locality is along Mazon Creek, in Grundy County, Illinois. Mr. Daniels tells the present writer that about one insect is found to every thousand concretions, and were it not for the splendid plants and the rare invertebrates found inside the other 999 nodules no collecting at all could be done. For many years Mr. Lacoe offered a premium for every nodule containing an insect, arachnid, or myriapod, and eventually he was enabled to assemble 70 insect-bearing concretions.

Crown of a crinoid, Taxocrinus colletti, collected near Crawfordsville (Montgomery County), Indiana.



Eugene S. Richardson, Jr., is curator of fossil invertebrates.

In the plant-bearing shales of the anthracite and bituminous regions, Mr. Lacoe occasionally secured a single insect wing, and when the finds became sufficient to warrant digging for them he would specially detail a collector to examine the shales of a given locality. Rarely did such work yield more than a few insect wings each day, but after long perseverance about 625 specimens were collected.

Lacoe's collection was his chief interest, but it generated another interest, science. With his extensive library and his correspondence, he had already become as knowledgeable in his chosen field as any professional. Now he perceived the value of this collection to the broader community. Professor Rollin Chamberlin has written:

Realizing the very great handicap to the progress of paleontology due to the enormous labor and expense of discovering, exhuming, and intelligently preparing the fundamental materials from which the paleontologist must work out his results, he chose for his first service to science the task of securing this material and properly placing it in the hands of paleontologists.

He sent specimens to specialists for study—plants to Lesquereux, millipedes and insects to Samuel H. Scudder at Harvard, amphibians and reptiles to Edward Drinker Cope in Philadelphia, molluscs and brachiopods to James Hall of Albany, crustaceans to Alpheus Packard at Harvard. These eminent scholars studied Lacoe's specimens, described new species, and returned the specimens. Before his death, his collection included 575 types—specimens described or illustrated in the published literature of paleontology. Not infrequently, Lacoe provided a subsidy for the work, and paid for handsome illustrations.

Although he gave a large number of specimens to the State of Pennsylvania, forming the most important part of the study collection of the state geological survey, his collection continued to grow. By 1891, it filled the entire upper floor of his National Bank building in Pittston, a first-rate scientific resource, though little known to his neighbors. But the Pittston Bank building was not fireproof, and this worried Lacoe. Here was his collection,

perched above a lot of inflammable dollar bills. He decided to transfer his records and his specimens to the United States National Museum, in Washington.

In 1895, Lacoe sent 315 boxes of labeled and catalogued plant and fish fossils to Washington, followed four years later by his fossil insects, myriapods, and crustaceans. A few months later, still making plans to collect more fossils, he died. His collection remains one of the acknowledged treasures of the United States National Museum.

Lacoe became a collector because at the time his interest was sparked he lived within ready reach of collectible fossils; he became an important collector because of his intellectual qualities and his financial resources—and, if you will, because of a sense of mission.

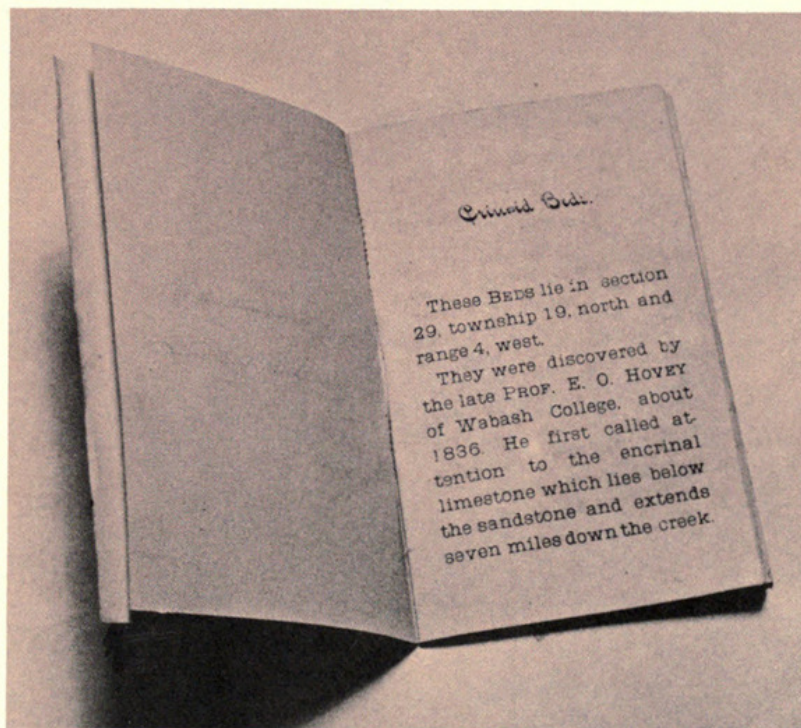
Other areas have inspired collectors by the ready availability and elegant preservation of the local fossils. In the United States, such areas are too numerous to list. A few examples must serve.

The Crawfordsville Collectors

The pleasant town of Crawfordsville, Indiana, is built upon a dark blue-gray mudstone of Mississippian age, firm enough to stand as cliffs or steep banks where Sugar Creek, Indian Creek, and their tributaries have cut deep valleys.

Occasional beds of limestone, some of them several feet thick, are composed almost entirely of the stem plates of crinoids, (a class of marine invertebrates commonly called sea lilies), and in the mudstone itself are found countless specimens of the intact crowns of crinoids. Crawfordsville may be a county seat (Montgomery County) and an educational, industrial, and business center, but to paleontologists it is known for crinoid crowns. They were being collected as early as 1836—by Edmund O. Hovey, one of the two instructors at newly established Wabash College. Hovey counts as a professional; let us ignore him. But it is of record that in 1842 his 9-year-old son, Horace, surely not a professional, responded to an advertisement of a New York collector by shipping east a bushel of crinoid stem plates, for which he was paid \$5. I know of no other instance of anyone expressing a desire for a bushel of crinoid stems. Other early collectors of Crawfordsville crinoids included Orlando Corey, a locksmith; Daniel Bassett, a minister; and a host of little boys and young teenagers. One of the boys, Charles Beachler, printed by hand a small book on the Crawfordsville crinoids when he was 15 years old. Complete with misprints, this little book powerfully evokes the picture of an earnest lad diligently setting type in the shop of a friendly job printer. Young

Opening pages of History of the Crinoid Beds of Crawfordsville, Indiana, 1836-1886, written by Charles Beachler at the age of fifteen and published by him in 1886. He handset the type and printed the entire booklet himself.



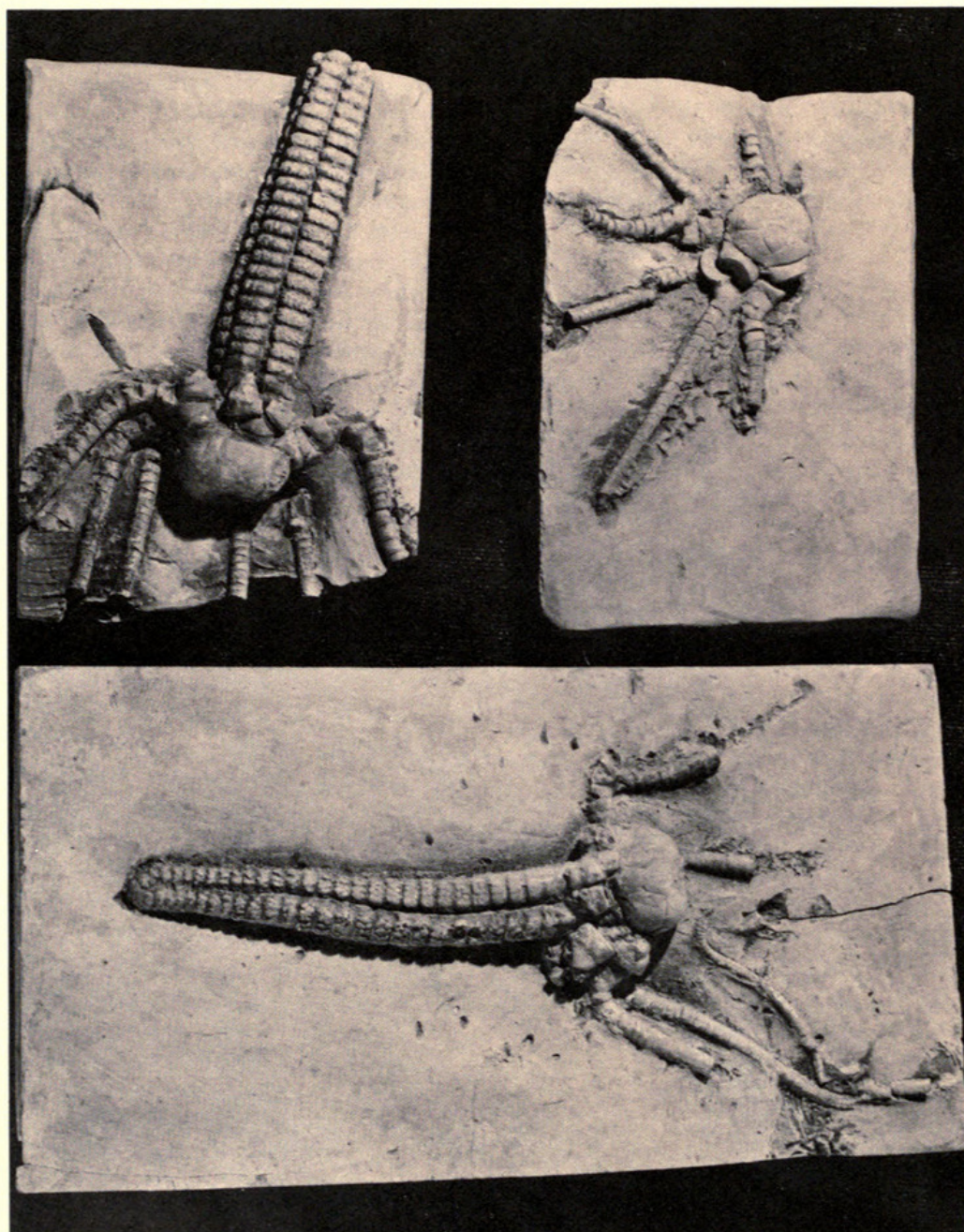
Charles sent out the whole edition, free, to paleontologists; in the Field Museum library is the copy that he sent to James Hall, with Hall's notation that he had acknowledged it. The following year, Charles turned out a second edition, somewhat enlarged and with different misprints, for which he asked ten cents. Charles Beachler was certainly an amateur at this early period. For a while he collected crinoids for Frank Springer, a collector who hired him, and for one season he was an assistant on the Geological Survey of Georgia. He would have gone on to a professional career, but he died at the age of 23.

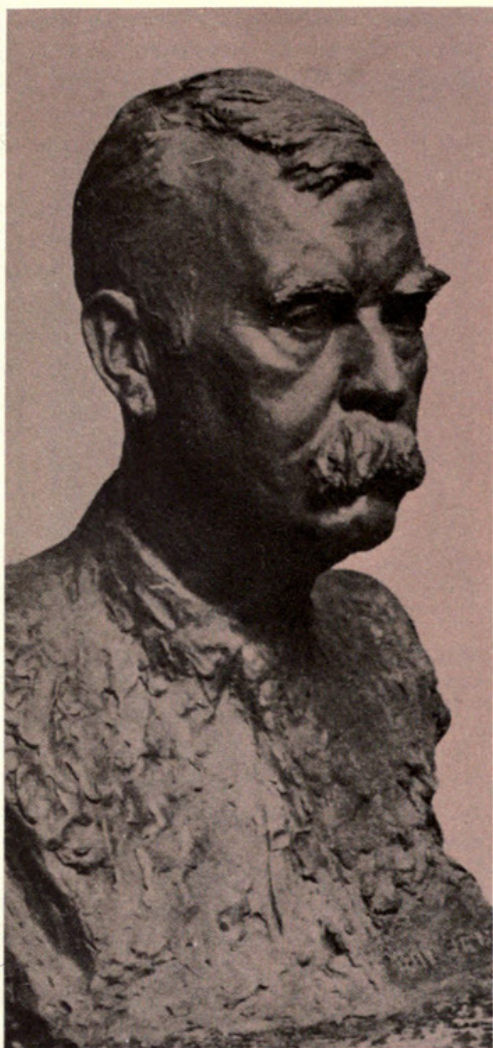
The important point that I would make about the group of amateurs in Crawfordsville is not so much that they collected, preserved, and distributed the elegant fossil crinoids from their blue-gray mudstone, important though that is, but that there was a climate of common interest in which a small boy could discover, develop, and pursue paleontology to the point where it would become his career. The three small papers published by Charles Beachler in his short life—not counting those little hand-printed books—were good papers, still referred to, and presaged a distinguished career that didn't come about.

The Cincinnati Collectors

Even more than Crawfordsville, Cincinnati has long been a spawning ground for paleontologists, most of whom began as youngsters to collect the elegantly preserved brachiopods, bryozoans, and other Late Ordovician fossils from the limestones and shales abundantly exposed in and near the city. The names of E. O. Ulrich, Charles Schuchert, R. S. Bassler, S. A. Miller, Nathaniel Shaler, E. W. Claypole, Carl Rominger, John Nickles, John Locke, August Foerste, U. P. James, and J. S. Newberry are well known, and include some of the nation's most renowned paleontologists. At the present time, there is an organization of amateur collectors in Cincinnati, known as the "Dry Dredgers"; the members maintain a close working relation with Professor Kenneth Caster of the University of Cincinnati, and have been responsible for several significant discoveries. For many years, the Cincinnati Society of Natural History and its museum have played a similar role in the liaison of amateur and professional. Among the specimens in the Field Museum are a few hundred Ordovician fossils accompanied by labels printed "QCNH Society." These came from the personal collection of Charles L. Faber, another Cincinnati collector. Tentatively, I suppose that the cryptic initials mean "Queen City Natural History" Society, Queen City being an alternative name for Cincinnati, but I have found no record of such a society. Perhaps Faber was the only member. Samuel A. Miller, a lawyer, was one of the group I have mentioned who retained his amateur status, though he published numerous papers describing his fossils. Toward the end of his life Miller unfortunately fell prey to a disease that required alcoholic medication. In that period, other collectors found that they could trade fifths or pints for fossils, and Miller's collection was dissipated in several directions.

Three specimens of Aesiocrinus magnificus in the Field Museum collection. William Gurley traded a "petrified frog" for specimens of this crinoid.





Frank Springer. Bronze bust by C. Scarpitta, presented to the state of New Mexico by friends of Springer.

The Richmond Collectors

Richmond, Indiana, like Cincinnati, is built on highly fossiliferous Late Ordovician rocks, and many collectors have dwelt there. Among the specimens at Field Museum are several hundred of these Richmond fossils, marked in delicately inked numbers on tiny white paper rectangles pasted to the specimens. This was the collection of Mary P. Haines, wife of Joshua Haines, of Richmond, and each number corresponds to a precisely written entry in a catalog that still exists, a hundred years after it was made. Mary Haines was a Quaker housewife unknown to history, but a woman of broad interests. Packed in a small box with some of her daughter's German lessons are several letters from her friends, including one from a lady in California which enclosed a fern still sound enough

to be transferred to the Museum's herbarium. I like to think of the Haines Collection as an example of a collection made and treasured for its own sake, forming perhaps a window to a wider world for a quiet lady in a quiet community.

Frank Springer 1848-1928

In contrast to Mrs. Haines, let me refer briefly to a man who wrote 58 books and scholarly papers on fossil crinoids. Forty-seven years later, these are still fundamental references in the study of crinoids, and it is always something of a surprise to remember that their author, Frank Springer, was a lawyer. To be sure, he was a paleontologist too, though in no sense a professional.

Frank Springer was born about thirty miles from Burlington, Iowa, which even then, in 1848, was known for its abundant and beautiful Mississippian crinoids. He collected them as a boy, but his education was directed toward the Law, a profession that he followed with distinction. Soon after joining the Iowa bar, he moved to New Mexico—"to grow up with the country," as he said. But he returned each summer to Burlington and its crinoids. Like Ralph Lacoe, Springer attributed his long life to the outdoor recreation and the pleasurable relaxation of collecting, an important matter since he was troubled with repeated heart attacks in his last twenty years. Again like Lacoe, Springer employed collectors to increase his collection, and among these was teenage Charles Beachler of Crawfordsville, the lad who had printed the little books. And—again like Lacoe—when the collection had become large and obviously important, Springer gave it to the United States National Museum, where it arrived in 1911, the 100,000 specimens having travelled across the country in a specially cushioned boxcar. The Springer Collection, supported by an endowment donated by Springer, is another of the chief paleontological treasures in the possession of the nation.

One would not, surely, apply the term "amateur" to one who published sixteen important papers on fossils, who became the first curator of the Illinois State Museum, the second state geologist of Illinois (both in 1893); and curator of the University of Chicago's Walker Museum (1900). But even professionals

begin as youngsters. One whose early years were devoted with unusual vigor to paleontology as a hobby was:

William Frank Eugene Gurley 1854-1943

Gurley was born in upstate New York, the son of a printer named Reed, who died a year later. When his mother remarried, William was given the name of his stepfather, a blacksmith. He was nine years old when the family moved to "the far west," first to Michigan, then to Danville, Illinois, in search of better economic conditions. In time, young Gurley became one of Danville's leading citizens.

As a youngster, he collected stamps, embossed trade marks, Indian artifacts, and other curios, which he carefully arranged in his always well-documented "cabinet." The collecting and minute study of his treasures were almost terminated when he was seven years old: a severe attack of measles left him completely blind for several months. His eyes remained weak, and he was completely blind for his last twenty-five years.

The black shale that caps the Danville coal is exposed where the Vermilion River cuts through bedrock at Danville. The young collector, with the measles safely behind him, was attracted by the gleaming golden pyritized fossils in the velvety black rock. They were so handsome that Gurley soon built up a lively system of exchange with other collectors. He accepted in exchange not only fossils from other localities, but minerals, artifacts, and other attractive items, including, from seafarers in New Bedford, barrels of shells from far exotic places. Receiving fossils in exchange for shells, Gurley then exchanged those fossils by mail with a rapidly widening list of far-flung paleontologists and even institutions. Some sort of a high spot was reached when he traded a collection with the Imperial Royal Geological Society of Austria. As usual, he sent his part of the exchange first, leaving his correspondent to reply with items of equal value. So pleased were the Austrians that at the next annual meeting this sixteen-year-old from Danville was elected a corresponding member, with a handsome engraved certificate as witness thereunto. This was no light matter; at that time the only other Americans on the roll of corres-

ponding members of the Imperial Royal Geological Society were Louis Agassiz, James Hall, Ferdinand Hayden, and Amos Worthen. In 1873 his amateur standing begins to crack; in that year he registered at Cornell, to study geology. Also in 1873, this Illinois freshman was one of the group of founders of the Swiss Paleontological Society.

So far as Paleontology is concerned, he remained an amateur even after graduation. In 1876 he joined the gold rush to Colorado, roaming the mountains with a donkey to carry his packsack. Between episodes of panning or digging for gold, he worked as a weighmaster, a road builder, a carpenter, a printer. He returned to Danville with little gold but many fossils, and there he went to work as a civil engineer, becoming city engineer of Danville. Still building up his fossil collection, he laid out railroad lines in Illinois and Indiana (and held lifetime passes on those lines), bought and sold real estate and insurance and mortgages. Shortly after Gurley returned from Colorado, his first publication appeared, a description of some brachiopod anatomy in the Proceedings of the American Philosophical Society. Having been a printer in Colorado, he was properly disgusted by a misprint in this publication, where his name as author appeared as "Ginley." For some years thereafter, his publications, written in collaboration with the Cincinnati lawyer, Samuel Miller, were privately printed so that he could keep an eye on the typesetting.

Having made a fortune from his engineering and associated interests, Gurley was able to give more and more time to building up his fossil collection, and he could afford to accept the less remunerative geological offices that he later held. Let me climax his amateur period with the tale of how he managed to acquire certain elegant Pennsylvanian crinoids:

When a new road was being built in Saint Louis, the horse-drawn grading equipment cut into a gray micaceous siltstone containing some elegant intact specimens of *Aesicrinus magnificus* (the name was given to it later by Miller and Gurley—carefully printed). Gurley heard of this find, and had to have the crinoids. He approached the city engineer of Saint Louis, who had glaucoma onto the specimens. No; they were not

for sale. No; the city engineer of Danville had nothing adequate to offer in exchange. Oh, well, there was one thing—the city engineer of Saint Louis recalled a picture and description of a soapstone Indian pipe in the shape of a frog that had been illustrated in a report of the Indiana Geological Survey. If Gurley could get that pipe for him, the Saint Louis man would trade. Striking while the iron was hot, Gurley immediately posted a performance bond for \$5,000 and promised the pipe. Then he set to work to find out where it was, and laid his plans. The pipe was owned by a farmer somewhere in Indiana. One hot summer day, Gurley headed east from Danville by train with a heavy suitcase.

At a stable near the depot in a small Indiana town, he hired a horse and buggy and headed for that farm, where he tapped on the back door. "Howdy," says he; "A mighty hot day. I'm looking for Silas Brown's place." This, as he well knew, was four miles away, down the road he had come. "Dear me; I must have made the wrong turn. Mind if I water my horse?" He led the horse to water and had a nice cold glass of buttermilk in the kitchen himself. "My, those are right pretty seashells on your table. Mind if I look at them?" And conversation followed. Among the treasures of the household, it turned out, was a "petrified frog" that some Indians had hollowed out for a pipe, but the farmer and his wife really preferred their seashells. It just happened that Gurley liked seashells too, and he just happened to have some of his best ones out in the buggy. An hour later the farmer had persuaded Gurley to accept the petrified frog in exchange for the shells. The horse had had a good rest, and cheerfully pulled the buggy back to the livery stable. Back to Danville by train, on to Saint Louis by the first connection, back home the next day, and the crinoids were safe in the Gurley collection.

Years later, when Gurley was given charge of the University of Chicago fossil collection, he generously made it possible for the University to acquire his own collection. To this day, we can show you the Saint Louis crinoids and the pyritized shells from the black shale of the Vermilion River, now housed in Field Museum.

Today, more than ever, fossil col-

lecting is a popular hobby and a serious preoccupation of many people. In the Chicago area the name of fossil collectors is legion, most of them concentrating their efforts on the Coal-age fossils from the Illinois strip mines.

It is only because the amateurs devote thousands of man-hours to the job that some of the very rare fossil species have been found. And, significantly, it is only because of their generous cooperation in lending or donating specimens for study by trained paleontologists that these species can ever be made known to science.

It is a long tradition, this hobby and this symbiotic relation of amateur and professional. A collector collects—and this may go no farther than sending a keg of crinoid stems to New York. A true amateur, a lover of his subject, goes farther. He labels and catalogs his collection, like Mary Haines of Richmond. He studies it and reads all he can find on the matter, as did the young William Gurley and Charles Beachler. He may become a first-rate scholar, like Lacoe, or Springer, or Gurley. And, knowing the worth of his collection, he makes provision for its continued existence and care beyond his own time. □

William Gurley





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