

FOSSIL DIG

SECOND OF A SERIES ABOUT FOSSIL SALVAGE— AN HISTORIC REVIEW OF EARLIER DAYS

by **Jesse E. Hyde**, Former Curator of Geology
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In 1928, the Natural Science Museum issued one of its Popular Publications entitled "Fossil Fishing in Cleveland Shale," by Jesse E. Hyde. That pamphlet, now out of print, recounted the story of the first mechanized fossil hunt in local shale and told of the earliest fossil hunters whose finds set the stage for the event.

Dr. Hyde was Curator of Geology at the Museum and a Professor of Geology at Western Reserve University. The article which follows consists of excerpts from his 1928 summary of the fossil fishing expedition. Today's team of 32 young men who are working on the I-71 salvage project are producing an incredible number of specimens. This is in scale with today's methods and the extent of the road excavation, but blowing dust, slumping covering soil, and the relentless speed of the job combine to prevent full recovery of all that should be preserved.

Today, salvage crews are at work in the very back yards of homes described by Dr. Hyde as a future threat to collecting. Throughout the length of Big Creek and its tributaries the native fish and other water animals are gone; in their place a trickle of sudsy, foul water has inhibited all but the most avid fossil hunter. Rubbish and fill tumble into the stream valleys at a hundred points.

The bone hunters of today have many advantages over their predecessors, but the sparkling water and inspiring landscape filled with wildlife is almost totally gone. The men who traveled in buggies and then tramped for miles on foot left a remarkable record for science to study. Today's salvage team will produce more of everything they found but the dedication to this work must come from within themselves and from their own recognition of the beauty and wonder contained in the bones they find. The old tires, shattered coke bottles, and trickling sewers nearby will offer little to inspire.

WILLIAM E. SCHEELE
Director, Natural Science Museum

FOR MANY YEARS, since about 1870 to be exact, there has been a small group of people in northern Ohio who have been interested in searching out and finding fossil fishes. To them we owe almost all of these remains that have been recovered. They have not been, as a rule, great scientists, but rather the butcher, the baker, the candlestick maker of the community in which they lived; men who plied trade or practiced profession, and in leisure moments sought their high adventure on the stream banks and lake shore where fossil fish might be found in the rocks.

These were men like those Scotchmen, Hugh Miller and Robert Dick, who had experienced that supreme joy of discovery; who had stood in the presence of lifeless and meaningless rock that had broken under their hands and revealed within a fossil fish, and all rock had thereby

taken on meaning which it had never had before, had become no longer lifeless but a part of life and its mystery.

Hugh Miller, the stonecutter of Cromarty, found his first fossil fish working as a quarryman in the Old Red Sandstone. Later becoming editor of his church paper, he wrote with such success of the keen pleasure of finding fossil remains, that his writings, gathered into book form and followed by other volumes, were widely read, and played their part in preparing the popular mind for the changes in intellectual viewpoint introduced by Darwin.

Robert Dick, the shy, retiring baker of Thurso, the northernmost, bleakest village in Scotland, never missed mixing a day's batch of bread, but so timed its setting that he could start at midnight, on foot, on a fossil hunt. He remained a poor humble baker, exalted by his

glimpses of creation, and the love of his native ferns, holy grass, and fossil fishes endured to the end of his modest life.

The collectors of Berea, Oberlin, Lorain, and Cleveland have been worthy successors to Miller and Dick. Engaged the greater part of the time in their daily tasks, these enthusiasts searched for fossil fishes in spare moments, enriched the museums of America and Europe by their labor, and made it possible for others to write one of the chapters of earth's history that otherwise would have remained little known. Their names are now almost forgotten in northern Ohio, but they are familiar the world over to those who know fossil fishes. Hear the roll of the better known ones:

The Reverend Herman Herzer, gentle minister, superintendent of the Berea Orphan Home, and teacher in Baldwin-Wallace College, the first discoverer of these fishes in Ohio, and his find, *Dinichthys herzeri* Newberry, bears his name.

Jay Terrell of Oberlin and Lorain, fruit gardener and hotel keeper, book agent and carpenter, as opportunity offered or occasion required, collector of fossil fishes during six days and Sunday-school superintendent on the seventh, whose finds in the rocks were accepted honestly and intelligently for what they meant in creation, without a tremor in his faith.

The Reverend William Kepler, ex-soldier, minister, secretary of his conference for 17 years, professor of natural science in Baldwin University, Berea, and for one year its acting president. His spare time, spent on the river banks, with his son as companion, yielded important finds during years of collecting. *Cladoselache kepleri* Newberry was the contribution which served to perpetuate his name in the world of fossil fishes.

Dr. William Clark, physician of austere and strongly domineering personality, perhaps the best known of all, because of his collections in the British Museum and the American Museum of Natural History. Many species bear his name, *clarkii*. No companion ever collected with him but for him, for whosoever withheld what he had found became a rival. For years he maintained a cancer sanitarium in the southeast edge of Berea, the site now destroyed by quarry operations. In this great house he assembled patients in certain rooms and fossil fishes in others, and there are those who insist that as the collection of fishes increased, the number of patients decreased for lack of space, until his first big collection was sent to London. Then he began again, with the house full of patients, to assemble the second great collection which later went to New York. The sanitarium became known as an interesting place to visit because of these collections, and parties even traveled to see it by horse-drawn vehicles from Cleveland to Berea, 14 miles distant, a day's journey then. The burly doctor always received these parties cordially and conducted them personally through his collections, explaining the while. Visitors

were always cautioned never to touch the specimens—many of them are very fragile and they lay on open shelves—and there are traditions of august individuals summarily dismissed from audience after a second infraction of the rule.

C. C. Fyler, the deaf whetstone maker of Berea, discoverer of *Cladoselache fylleri* Newberry.

Dr. D. T. Gould, druggist of Berea, inoculated with the urge for fish collecting, found it necessary first to restrain his enthusiasm, and finally to abandon the art, for running a small-town drugstore was then an exacting business. But he did not stop until after he had discovered *Stenognathus gouldii* Newberry.

A. A. Wright, professor of geology and natural history in Oberlin College, Ohio, and his successor, Professor E. B. Branson, were the only ones of the brotherhood of collectors to publish any of the results of their finds.

All of these men made splendid contributions to science through the mere act of recovering the fossils from the shales of riverbank and lake shore. The scientific description and interpretations were mostly by a wholly different group of men.

It is curiously logical that John Strong Newberry, a northern Ohio boy, graduated from Western Reserve College at Hudson and later from the Medical School in Cleveland, some of whose descendants still live in Cleveland, should have become the first and best known describer of these fishes, though he was then removed from Cleveland to Columbia University in New York. Herzer took his first discovery to Newberry who recognized its significance, and for 25 years a large part of the finds passed through his hands in New York City. After Newberry the work of description was carried on by Bashford Dean and Louis Hussakof in New York, by Edward Claypole of Buchtel College, Akron, by W. L. Bryant of Providence, R. I., Sir Arthur Smith Woodward of the British Museum and Prof. Otto Jaekel of Griefswald, Germany. Dean was a student under Newberry, and Hussakof under Dean, and their material all reposes in the American Museum of Natural History in New York. The present writer was a student under Dean.

In surveying the history of our knowledge of these Ohio fishes, it is interesting to note that it has developed at the hands of these two guilds: the guild of collectors, the members of which drew their stimulus or enmity one from another, and the guild of scientists which gave most of the professional treatment to the material. Indeed, one suspects that Wright and Branson, named with the collectors, are of the professional caste, whose interest is, at bottom, scientific, and who do not feel so strongly the periodic desire to go out to the stream banks and "collect," an urge which, in the true collector, is as real as the rise of sap in March.

It is almost useless for a man, untrained in the ways of the black shale, to search its banks hoping to find much. The late Professor H. P. Cushing, Cleveland-born,

professor of geology in Western Reserve University from 1892 to 1921 and a local fossil collector of considerable keenness and assiduity, told the writer that he had never found the remains of a single fossil fish. The writer, although resident thirteen years, and devoting three of these to active work in the shales, has made only two finds worth carrying away.

The brotherhood of collectors of the fossil fishes of the Ohio black shale will forever be a restricted one, because few possess the love of nature, the desire to collect, the ability to find, and the patience to extract and to reassemble the bones broken in fragments.

The Cleveland shale is the topmost member of a mass of black, carbonaceous shales, the Ohio shale, from 300 to 1000 feet thick in Ohio, and extending entirely across the state. Fish remains are found from bottom to top and from the Lake to the Ohio River, but knowledge of them is based almost entirely on material procured from the topmost member and from within forty miles west of Cleveland. No other portion of the state presents outcrops of the shales as good and as numerous as those of northern Ohio, and, consequently, no other portion of the state has ever developed amateur collectors for these remains.

One is readily apt to conclude that the fishes in these rocks in some way originated in Lake Erie, and record

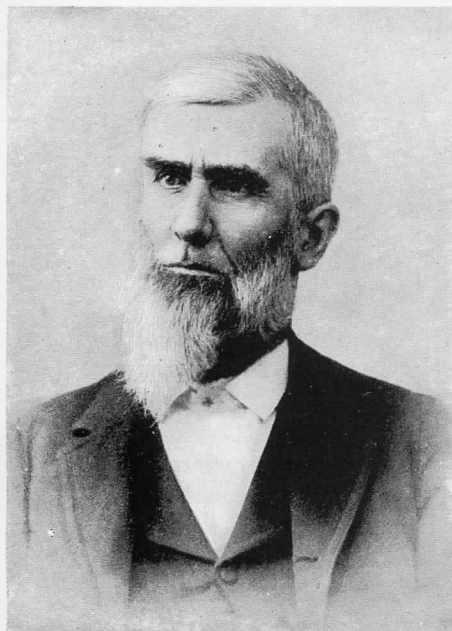
some early stage in the history of the Lake. This is not true. The shales in which they are found are very old, and are part of the rocks of the Devonian Period of earth's history. As already noted, they extend far beyond the region of the Lake. Furthermore, in southeastern Ohio they lie buried beneath all the rocks which carry the coal seams, and must be older than they. Also, the fishes are wholly strange to any of our lake fishes, with nothing in common.

Perhaps the best locality in all northern Ohio has been Big Creek in the southwest edge of Cleveland, the same creek which flows through Brookside Park. On Big Creek have been found all of those exquisitely preserved primitive sharks, called *Cladoselache*, which are unique the world over among fossils, and much in demand among the larger museums and universities.

The reason why this creek has been so good is that the fossils there are enclosed in concretions, flattened elliptical masses of siliceous and clayey iron and lime carbonate, two to five feet across. Nowhere else are such concretions found, and the flattened bodies of the sharks, though undoubtedly present elsewhere, cannot be detected in the Cleveland shale without these markers to reveal them.

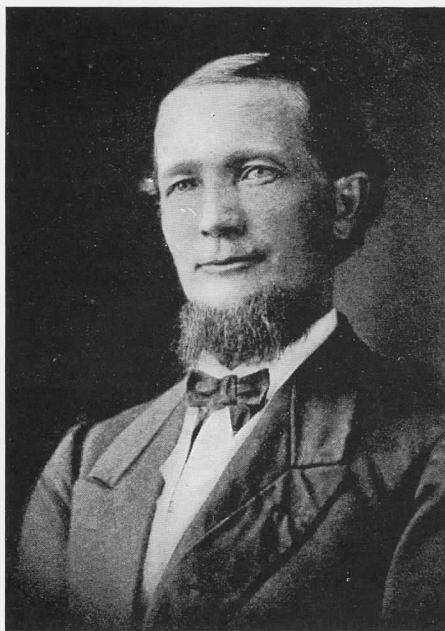
In some parts of the Big Creek system, every concretion contains an arthrodire bone or a shark. In other parts

PIONEER FOSSIL FISH COLLECTORS IN OHIO



Wm Clark

Dr. William Clark (1826-1908), discovered many fossil fishes in the vicinity of Rocky River and Big Creek. His collections may be found in the British Museum at London and in the American Museum of Natural History at New York.



H. Herzer

The Rev. Herman Herzer (1833-1912), in 1866 discovered fish bones in the large concretions which characterize the base of the black shale at Delaware, Ohio. The same year, Newberry named the specimens *Dinichthys herzeri*.



Jay Terrell

Mr. Jay Terrell (1827-1904), while operating a summer hotel on the lake near Lorain, discovered, certainly before 1870, fossil bones which Newberry described in 1875 as *Dinichthys terrelli*. For twenty-five years he continued to be a successful collector.



Peter A. Bungart and Prof. Jesse E. Hyde, Big Creek, Cleveland, 1926.

one out of four concretions is productive. The art of collecting in this creek consists in locating concretions, and by the break of the surrounding shale the experienced collector can locate a concretion that is yet beneath six inches or a foot of shale.

Big Creek is on the edge of rapidly growing Cleveland. In the year 1920 one of the lesser collectors of the past generation, Thomas Piwonka, took the writer over a part of Big Creek which had been a favorite haunt of Clark's, whom he had known intimately. We rode by trolley a mile beyond the edge of the city through fields and occasional woodlands. That mile of country has now entirely disappeared.

In May of 1923 when the Cleveland Museum of Natural History undertook the collection of these fishes, another prolific branch of Big Creek lay a good quarter-mile south of the encroaching edge. That quarter-mile has now disappeared, and houses stand on both banks of the creek.

Everywhere in the Big Creek basin, streets are being laid out, lots staked, pipes laid, and houses built, and very shortly several small stream heads will be confined strictly to allotted channels or will become closed sewers. Fish collecting on this stream will then be closed forever.

In the effort to save as much as possible from this unique locality, the Cleveland Museum in 1926 obtained the hearty cooperation of one of the land companies and through the generosity of friends who appreciated the situation, placed a power shovel on one of the branches where there was a broad shale bottom under

slight cover which had been productive in the past.

The shovel worked systematically back and forth across the place for 41 days. About every third or fourth concretion contained something worth saving. Many of them contained each a fine fish. Choice things were recovered which would otherwise have remained buried forever beneath the city, for houses now stand where the shovel plowed. Here, where Clark and Kepler wandered along low, shaly banks, each in hopeful anticipation of forestalling his rival in finding a concretion exposed by the past winter's weathering or the last spring's floods, the shovel turned out one or two or three each day. Fossil fish collecting, even as other northern Ohio industries, had passed from the stage of individual to mass production.

However, whether we rise at one in the morning, to walk many miles with Robert Dick in the dark through a wet Scotch mist or a wetter Scotch rain, to a sea-swept cliff of Old Red Sandstone that is sure to produce a fossil fish bone, or whether we get down to the shovel at eight in the morning and quit with the whistle at half-past four in the afternoon, the spirit is the same—and none will ever express it better than has Dick himself:

Hammers an' chisels an' a',
 Chisels an' fossils an' a';
 Resurrection's our trade; by raising the dead
 We've grandeur an' honor an' a'.
 It's good to be breaking a stone,
 The work now is lucky an' braw;
 It's grand to be finding a bone—
 A fish-bone the grandest of a'.