

# The Ohio Diamond Mine – Paleontological Treasure Trove

Viewed from across the murky waters of Yellow Creek, the world-famous Ohio Diamond coal mine near the ghost town of Linton, Jefferson County, looks much like any other of the hundreds of abandoned mines and associated gob piles that pockmark the surface of southeastern Ohio. It is unique among Ohio's myriad coal mines, however, in having supplied paleontologists with rare and remarkable fossil vertebrate remains for nearly 125 years.

Linton dates to 1803, when it was known simply as "Mouth of Yellow Creek." It became Linton Post Office in 1855, at about the same time that several Connecticut entrepreneurs began operation of the nearby coal mine. They were among the first to tap the rich mineral wealth of Yellow Creek valley, following completion of the Cleveland and Pittsburgh Railroad in 1852, and there were visions of a town named "Pumpelly" (after the prominent New Haven family) on the Ohio River near the site of present-day Empire; but the Ohio Diamond Company's holdings were sold at sheriff's sale in 1857, and Samuel Nessly, the original owner, repurchased the mine site. After his death the mine was sold to Eli Tappan and was later operated by the Pennsylvania and Ohio Coal Co.

In 1856 Cleveland geologist John Strong Newberry averred that the valley of Yellow Creek here "exhibits a greater concentration of coal than exists perhaps anywhere else west of the Alleghenies." The major coal seam of the region, the Upper Freeport or No. 7, reached its greatest thickness (nine feet) in the Diamond mine, and it was here that miners discovered the amazing 275-million-year-old remains of a wide variety of fossilized amphibians and fish entirely new to science.

Newberry was the first scientist on the scene and immediately realized the significance of the fossils, which occurred in a bottom six-inch layer of slate-like "cannel" coal. This thin layer

apparently represents deposits formed in an ancient fresh-water swamp or lagoon prior to formation of the main mass of Upper Freeport coal. Judging from the abundance of fossil specimens recovered over the years, this lagoon must have been infested with small paleoniscoid ("ganoid") fish and xenacanthid "fresh-water" sharks, as well as numerous salamander-like and serpentine amphibians, rarer aquatic animals such as lungfish, and even a few primitive reptiles.

Newberry was quick to announce the discovery at the 1856 meeting of the American Association for the Advancement of Science and soon after described several of the fossil fish, including "*Coelecanthus elegans*," a remote ancestor of today's "living fossil" coelecanths, though currently placed in the genus *Rhabdoderma*. As State Geologist some twenty years later, in

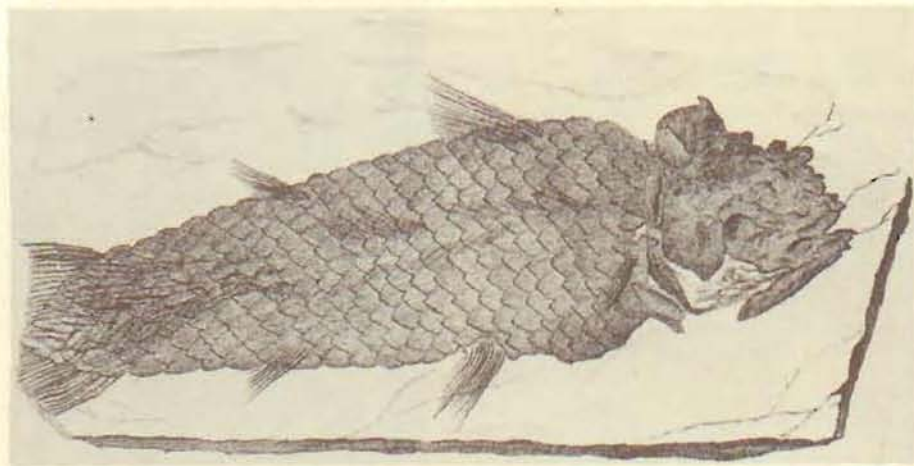
the 1870s, Newberry was able to include more detailed descriptions and illustrations of these rare specimens in reports of the Ohio Geological Survey, despite opposition of members of the legislature. (Newberry quotes one opponent as saying "I don't care a row of pins for your clams and salamanders, but want something practical.") Newberry's now-classic volumes included studies of the amphibian fossils by no less an authority than world-renowned paleontologist Edward Drinker Cope. Famed Philadelphia anatomist Jeffries Wyman had already described the first amphibian from the Linton deposit in 1857, a very frog-like individual that in fact is probably on the direct evolutionary line of our living frogs. Originally described as *Raniceps lyelli*, the specific name honoring British geologist Sir Charles Lyell, it was later given the generic name *Pelion*, which in turn has given



A *Ptyonius* specimen collected from the Ohio Diamond mine dump.



The Cleveland Museum of Natural History reopened the old Ohio Diamond Mine in 1920 to recollect the famous Linton vertebrate fauna.



*Rhabdoderma elegans*, a coelecanthid fish originally described from Linton by John Strong Newberry.



way to the less classical *Amphibamus*.

So it goes. Scientific names for the fifty or so species represented in the Linton cannel coal have changed frequently — almost as frequently as scientists' reconstruction and interpretations of the creatures. For a long while, one unique individual blessed with the name *Eosauravus copei* (now *Tuditanus*) was considered to be the oldest known reptile in the world. More recently it has lost this distinction by being placed back in the amphibians. Debate continued for nearly 100 years as to whether the serpentine aistopod amphibians

from Linton had legs or not. It is now generally agreed that such genera as *Ptyonius* did not have legs, although their ancestors may have. Estimates of the number of distinct species have dwindled considerably as specimens were compared and more closely studied, but the Linton fauna remains the most important vertebrate fossil locality of this time period in the United States, if not the world. Some twenty amphibian genera, as well as nine genera of fish and two reptilian genera, are represented in the deposits.

As the thick Freeport coal seam was gradually mined out, less and less fossil material came to light. The Diamond mine was finally abandoned in the 1880s, and collecting has since been restricted mainly to the fragments of cannel coal left on the mine dump. In 1920, under the direction of Dr. Jesse E. Hyde, the Cleveland Museum of Natural History reopened the Diamond mine and obtained considerable additional material, although this has never been

thoroughly studied. The mine entrance collapsed following the museum's excavations, effectively closing off the remnants of the fossil deposit. Fortunately for paleontologists, much of the cannel coal containing the Linton fossils was discarded by the miners, and the Diamond Mine's spoil pile still yields important specimens to the patient searcher. As late as the 1950s, two new species of fossil millipedes were discovered here by Princeton geology professor Donald Baird, today the leading authority on the Linton locality.

Ironically, few examples of Ohio's most famous fossil fauna remain in the state. Although some specimens exist in the Ohio State University collection at Orton Hall, Newberry's collection is now at the American Museum of Natural History and the bulk of the remaining material is dispersed among various museums throughout the United States and Europe.

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Illustrations of the serpentine aistopod amphibian *Ptyonius* originally described by Edward Drinker Cope from Linton.



*Amphibamus lyelli*, the first amphibian described from Linton and one of the oldest known frog-like fossils.