

1912

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Recommended Citation

Tilton, John L. (1912) "The First Reported Petrified American Lepidostrobus is from Warren County, Iowa," *Proceedings of the Iowa Academy of Science*, 19(1), 163-165.

Available at: <https://scholarworks.uni.edu/pias/vol19/iss1/27>

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THE FIRST REPORTED PETRIFIED AMERICAN LEPIDOSTROBUS IS
FROM WARREN COUNTY, IOWA.

BY JOHN L. TILTON.

One day in the summer of 1904 a broken *Lepidostrobus* petrified nicely by iron pyrites was sent to me by Mr. Samuel Spear, then residing four miles south of Indianola. Each year the specimen was exhibited to the class in Geology when Carboniferous plants were illustrated and the explanation given that it was a remarkably rare and choice specimen of a cone, the like of which I had never seen in any museum; but the real value of the specimen was not fully appreciated till I handed the specimen to Professor Stuart Weller at The University of Chicago in December, 1910. I had taken it with me that day, intending to carry it over to Professor Coulter for further information with reference to it. On seeing it, Professor Weller exclaimed that it was the very kind of a specimen that Professor Coulter had been seeking for years, no petrified *Lepidostrobus* having ever been reported in the United States. On Professor Coulter's request to section the specimen and describe it he was given full permission to do whatever was necessary to secure from it all the information possible. As the result of that work upon it we now have the splendid description and illustrations published by Professor Coulter and Dr. Land in the *Botanical Gazette*, Vol. 51, June, 1911.

The polished remainder of the specimen and two of the mounted sections are now the property of Simpson College. Other sections are in the possession of Professors Coulter and Weller of The University of Chicago. The polished remainder of the *Lepidostrobus* and the two mounted sections named, together with lantern slides loaned us by Professor Coulter, are here for exhibition.

For a time it was impossible to determine the location from which the specimen came, Mr. Spear himself having died. Later the location of the mine from which he was accustomed to haul his coal was ascertained, and the man found who remembered selling him coal at about the time the specimen was found. A search of the dump brought to light four or five more fragments of *Lepidostrobus*, two of which were very promising in appearance; also several fragments of twigs that were considered worth saving. As The University of Chicago, through Professor Coulter, was defraying the expense connected with working over the dump in search for these specimens, all of them were of course sent there. A recent letter states that as yet nothing has been found in addition to what was ascertained from the first specimen, but that the work of sectioning is not yet completed.

The mine from which the specimens came was a small drift formerly worked in the Ne. qr. of Sec. 33, Tp. 75 N., R. 22 W., on a farm now owned by Mr.

Lambert Heinen. Mr. Andy Heinen, who worked in the mine when it was running, states that the twigs, etc., were found in the cap rock, which in this location was strong enough to permit mining by the long wall method. Very little of the refuse material was brought out of the mine, the miners throwing it behind them into the place from which the coal had been removed (into the "gob.") The coal here has been mined out, the timbers rotted and the roof caved in, so that we may expect no more specimens from this immediate location. Half a mile west there is no cap rock above the seam, and the shale there found has yielded no fossils. Many twigs and limbs are reported to have been removed from mines formerly worked across the road to the north of the first named location, but no traces of such fragments are now to be seen.

The importance of locating these pockets where conditions favorable to the petrification of coal measure plants have existed is so great that the results of search made in other places will now be stated in hopes that this information will stimulate search on the part of others, that by combined effort the knowledge of the upland coal flora may be greatly enhanced.

In January, 1911, Mr. William M. Richardson of Indianola presented me a fine specimen of a coal measure nut or seed that came from a mine in the Nw. qr. of Sec. 26, Tp. 77N., R. 25 W. As work was then in progress on the *Lepidostrobus* this specimen was immediately sent to Chicago to be sectioned. Unfortunately the inside contained only structureless clay, though the outside was of smooth iron pyrites, preserving even faint ridges and hollows on the surface of the specimen. A cast of this specimen is here for exhibition. Because of the inaccessibility of this mine from my home I have not recently been able to search there, though I hope to do so in a very short time.

This same style of petrification by iron pyrites is found four miles east of Somerset, somewhere in the group worked by Epps, Jones, Benham and Welch. Recent search has brought nothing to light; but there is in the collection at Simpson College the dorsal spine of a shark nicely petrified in iron pyrites, which specimen was found in this locality. In the collection of the Iowa Geological Survey at Des Moines is another spine from Somerset. The former of these two specimens is here for exhibition. Evidently there is a pocket in this locality that may yet furnish other instructive fossils.

While looking through the collection of fossils in the Historical Building at Des Moines last November I discovered two nut-like un-named fossils in the collection, each somewhat different from the first nut mentioned, but similarly petrified. In the collection of Gasteropods may be found shells of those animals also similarly petrified, all labeled as if coming from a group of mines. It was not till about a month ago that I found opportunity to search for the source of these specimens. Inquiry concerning the histories of the mines determined the Glenwood mine out north of the fair ground as the probable source. Here again a search of the dump brought nothing to light, though workmen said shells had been found, but that they crumbled on exposure to the weather. Fortunately a miner was found who showed me at his home shells similar to those seen at the Historical Building and similarly petrified. At this place also such fossils are said to be found in the shale immediately above the coal. It is evident there is here a fourth pocket where other excellent fossils of instructive material may yet be found. Ordinarily the miners do not work above the coal except when

running an entry. When this latter work is in progress is the time for special search for these rare fossils.

Four locations have thus been ascertained where the conditions are favorable for the preservation of fossils in an excellent manner. Undoubtedly search with this point in view will bring to light many other places in the Des Moines formation. I think it probable that many specimens are overlooked or thrown aside in the mines which if saved could add much to our knowledge of the upland Carboniferous flora.