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Erwin H. Barbour
Nebraska Geological Survey

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PLANT TISSUE IN THE CARBONIFEROUS SHALES OF NEBRASKA

BY

ERWIN H. BARBOUR

GEOLOGICAL COLLECTIONS OF HON. CHARLES H. MORRILL
PLANT TISSUE IN THE CARBONIFEROUS SHALES OF NEBRASKA

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While exploring the newly discovered Eurypterid beds, just one mile south of Peru, Nebraska, November 8, 1912, the writer found unusual amounts of actual plant tissue of Carboniferous age. It seems incredible that it should have been preserved through such a lapse of

Fig. 1.—Photomicrograph of Carboniferous Plant Tissue, Peru, Nebraska. Magnified 110 diameters.

time. Only the most resistant tissue could have endured. When freshly cleaved, the Eurypterid shales reveal innumerable bits and patches of it, mostly bright red in color.

1 Nebr. Geol. Survey, vol. 4, pt. 12, No. 34, Eurypterid Beds of Nebraska with Notice of a New Species, Erwin H. Barbour.
It has surprising substance, pliability, and strength, and can easily be collected by stripping from the shale and dropping into phials of water or alcohol. On drying, this tissue curls like thin shavings, but straightens out immediately upon immersion in water. It lends itself readily to laboratory methods, and can be dehydrated, stained, cleared of coal particles, imbedded, and sliced for examination.

Our collections comprise about one hundred permanent mounts, the specimens varying from fragments to pieces 10 millimeters wide by 75 long. Under transmitted light, most of them are of a bright transparent yellow color, ranging to orange, red, brown, and blackish, according to the amount of iron and ulmate. All mounts show cell structure well, some admirably. Accordingly, critical study is possible and photomicrographs for half tone reproductions are readily obtainable. It is apparently a resistant cuticular layer of certain leaves, of which two or three distinct kinds have already been noted. The cells are subparallel to parallel in arrangement, and are interspersed by numerous stomatous openings. There are still greater numbers of small circular openings, probably representing cell hairs broken off at their bases.

As far as examined, the bulk of the material, especially the larger pieces, seems referable to Cordaites. The occurrence of such tissue has had occasional mention in Europe and America, but that found in Nebraska seems unique in amount and excellence of preservation. As many as fifteen to twenty pieces to the square foot have been noted.

This problem has been assigned to Mr. A. C. Whitford, a fellow in the Department of Geology, the University of Nebraska, for careful study, preparatory to publication. This material is a part of the geological collections of Hon. Charles H. Morrill.

The University of Nebraska.

Lincoln, December 21, 1912.

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