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# LEE COUNTY

# TEXAS FOSSIL WOOD.

by

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Jacksonville, Illinois,

April 15th. 1881.

Some days ago I received from my friend Dr, Snyder of Virginia Illinios, a small block of Fossil wood of the size and form indicated in figure I of the drawings accompanying this paper, with the request that I should examine it and ascertain whether it was Coniferous or Deciduous.

The piece is a firm stone of a light yellowish gray color, and extreemly hard; so hard indeed that I found it exceeding difficult and laborious work to grind sections of it. The grain of the wood was sufficiently apparent to the naked eye to show clearly its direction. An examination of the end of the wood with a two-inch glass, revealed clearly the ends of ducts occuring in regular rows, which proved at once that the wood was not a Conifera. Between these rows of ducts there were bands appearing solid- in the rough piece- the character of which I could not make out; neither could I make out any annual layers. In order to make these out a small block was broken out and ground on three sides to represent

three sections. The cross circumferential and radial sections marked No. I, 2 & 3 in figure I. Upon examining this with powers of one and two hundred diameters, the cellular structure came clearly into view.

It was now seen that bands seen in figuer 2 were medullary rays, shown more highly magnified in figure 3. These are seen cut across in the radial section in figure 5, and crossing the principal fibers in figure 4. The cells of the two sets of fibers are entirely different, both in size and structure, as may be seen by a comparison of figures 2 and 5, both of which are taken with the same power. The cells of the principle grain are one third to one half larger than those of the cross grain, and exhibit a thick cell wall and cell contents, while the latter seem to be solid. There seem to be no lapping of cells upon each other as in ordinary deciduous wood; no stretching out into proper woody fiber, -but each cell has a square end abutting against the square end of its next neighbor.

The most thorough search failed to reveal any trace of annual layers. These appearances were at variance with any wood I had seen, and left me much in the dark as to what the wood might be. I therefore made transparent sections of the stone in the three principle directions above named, and it is from these that the drawings were made by aid of the camera Lucidia. These fully confirmed what I saw in the opaque sections, and also gave me good views of the markings of the duct walls; and they to my surprise were the Scalariform markings (fig. 6) supposed to be peculiar to the Endogens, especialy the Palms and Ferns.

Here we have a wood with no annual rings or layers and ducts with scalariform markings, both of which belong to whe Endogens, also the endogenous cell forms. Again the wood has the medullary rays which is a characteristic of the deciduous exogens and these are very remarkable for the intracacy with which they are interwoven with the principle grain.

In this dilemma I wrote to Dr. Snyder asking other specimens from the same locality, and received them. One of these to the naked eye appeared to be the same as the first piece, and showed annual rings clearly, but upon grinding a spot on the end of the wood I found it to be a conifera. The next piece was a dark, hard stone and proved to be identical in structure with the first, but seemed to be a different petrifaction. The last piece was a very light colored stone and much softer than the others. This showed annual rings on its weathered end, and I think I can still see with the naked eye traces of the ring in the ground specimen, but examination with the microscope shows no change of either the cell form or course of medullary rays at these points so that I am puzzled to know that the appearance of the rings is founded, -unless it be upon the former solidity of the cell walls. This piece is like the first one examined, but not identical with it. They differ from each other much as the cherry differs from the oak.

They are different members of a common family.

The only mention of such a fossil as this that I have been able to find is in Carpenter's work on "The Microscope"(1856). He gives a cut of a circumferential section of a fossil which is evidently identical with this; he says, but little about it and gives it no name.

With the light I have at present I regard the the wood as a continuous growing Exogen, growing in a climate in which its growth is not checked by a winter- therefore practically a torrid zone. The family may have contained many variaties, some of which may have shed their leaves at stated times as our deciduous trees, as indicated in the specimen showing traces of annual layers or rings.

The cellular structure of these Fossils is beautifully preserved. The cavities of the ducts are for the most part filled with a substance clear as glass, so that under the microscope they appear to be empty.

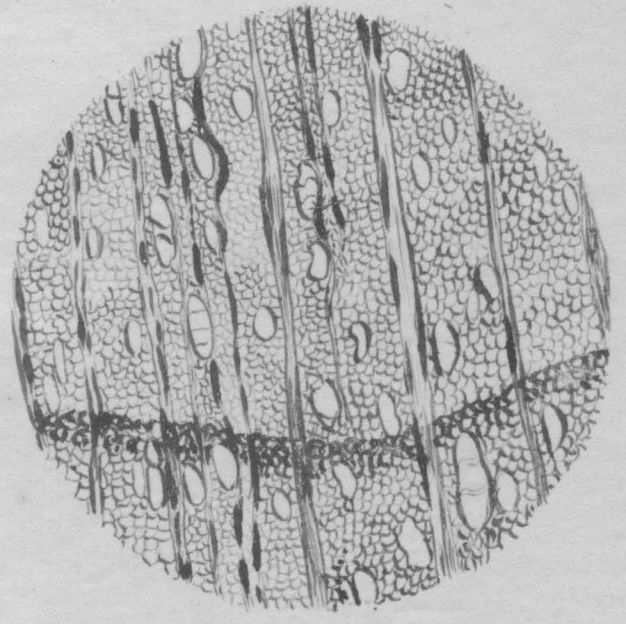
In some of them however, the material is opaque and

white, and in most of them when cut lengthwise irregular globules appear as shown in figures 4 and 5. Where these appear they obscure the markings of the walls of the ducts. These however appear where the cavities are perfectly filled, as clearly and perfectly as they do in preparations from the growing plant, and are just as perfectly made out. The cell forms appear as beautifully as in stained specimens of fresh plants. The flat spiral bands which usually appear with the Scalariform markings of the ducts of palms and ferns are not made out in this fossil, nor would we expect to see them, for they cannot well be made out it fresh specimens unless they are slightly uncoiled, which of course cannot happen here.

The spiral ducts peculiar to the deciduous trees have not been found in these specimens. Until something more is known of it, it may as well be called the Lee County Texas Fossil Wood.

Beech wood

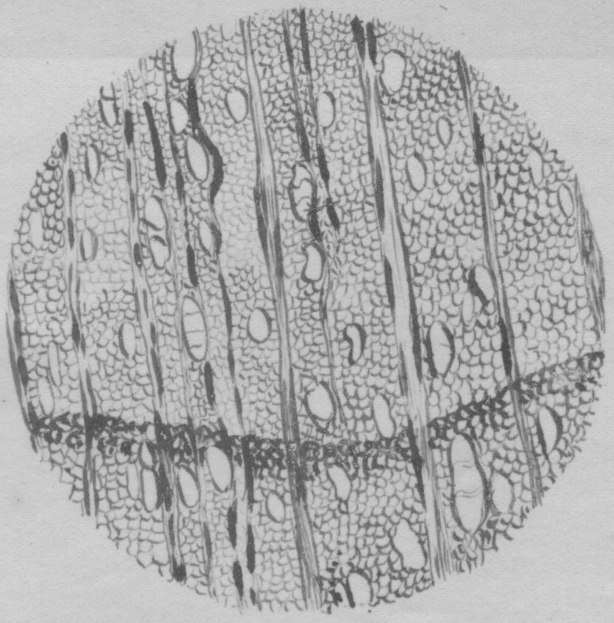
No 2




a a Annual layer

Buck Wood

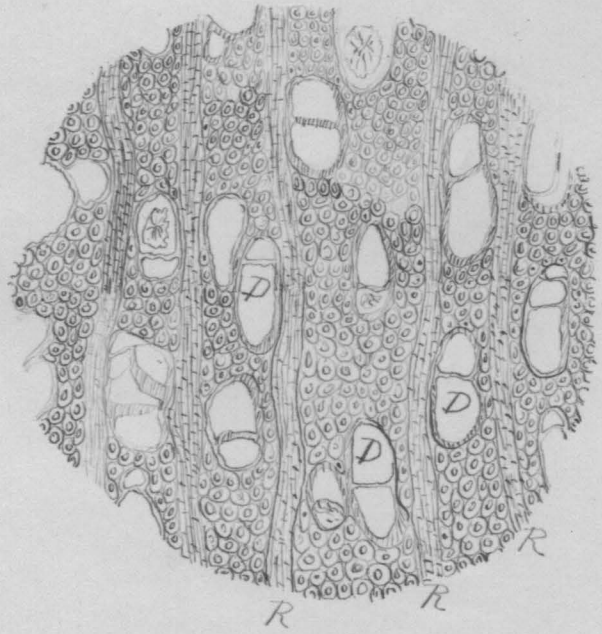
No 1




a a Animal layer

Lee County Texas Fossil wood

Fig. 2

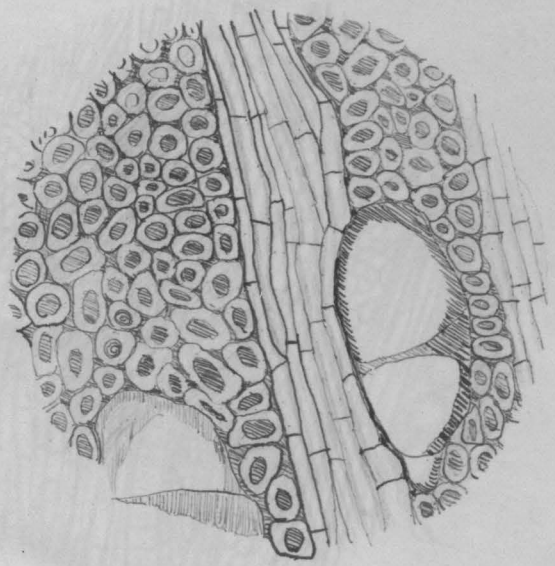



Cross Section 100× Reduced to 50×

D.D.D. Large Ducts
R R R Medulary Rays

Lee County Texas Fossil wood

Fig 3

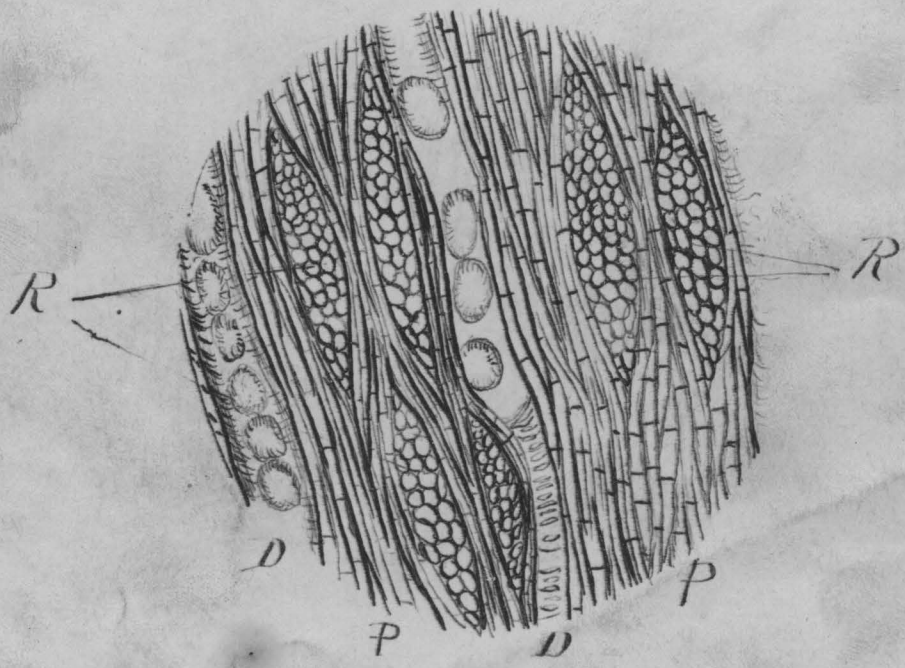


Cross Section

400 x Reduced to 200 x

Lee County Texas Fossil Wood

Fig 5



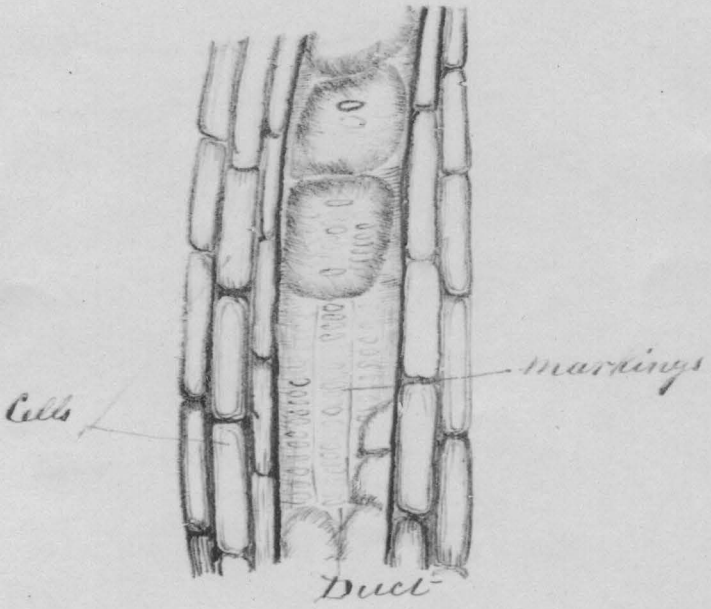

100 x Reduced to 50 x

Radial Section

DD Larg Ducts
PP Principal Fibers
RR Medulary Rays

Lee County Texas Fossil Wood

Fig 6



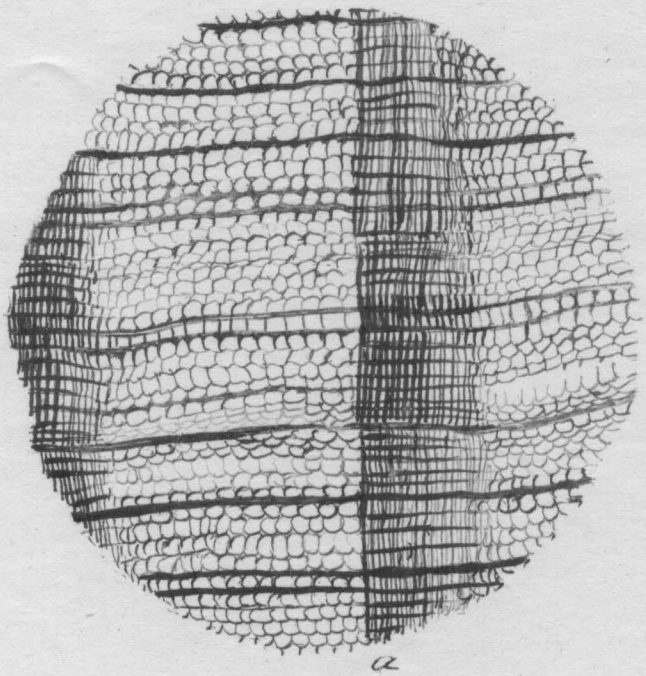

400 X

From Circumferential Section showing the peculiar markings upon the Duct walls

From Redwood Tree 320 ft high 32 ft in Diameter California

(Sequoia Gigantea)

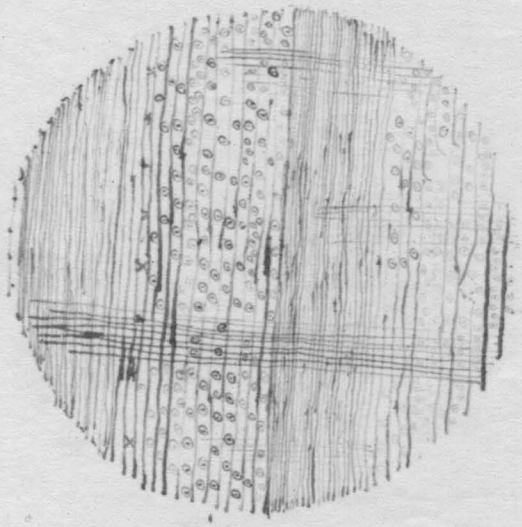
Fig 7




Cross Section 40 x

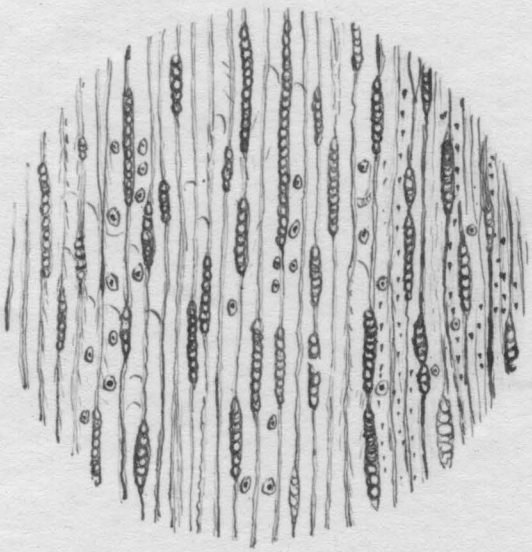
a. line of annual ring or layer

Sequoia Gigantea
(Red wood)
Fig 8



Radial Section 30 X

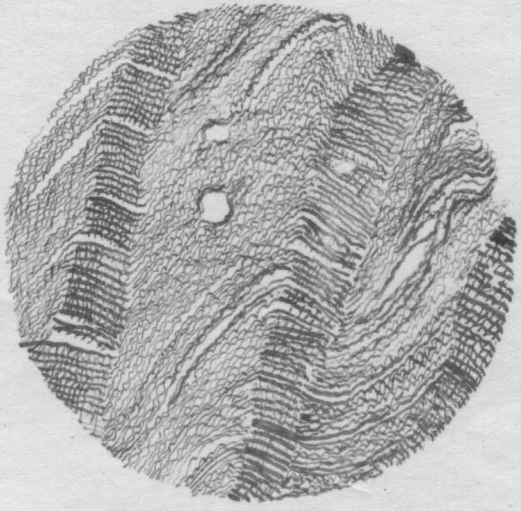
Sequoia Gigantia
(Red wood)
Fig 8½



Circumferential Section 80 X

Semi-Fossil Wood.
from 160 ft below the Surface
at Jacksonville Ills.

Fig 9



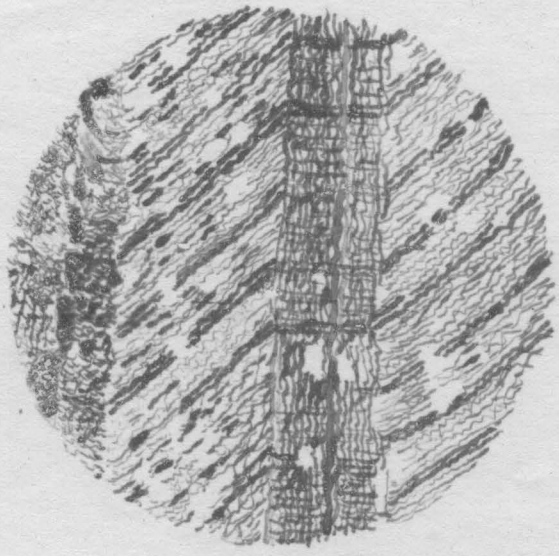
Cross Section, 60 x

The Water Soaked wood was thoroughly dried and greatly shrunken. The Section shows the peculiar contortion of the fibers that has occured,

Fossil Wood - Coniferæ

From the Fossil Forest - California.

Fig 10

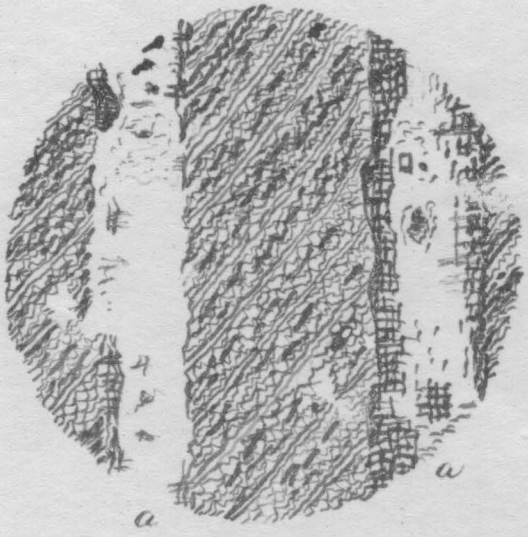


Cross Section 40 x

Same description as number 9

Fossil Forest – California

Fig 11



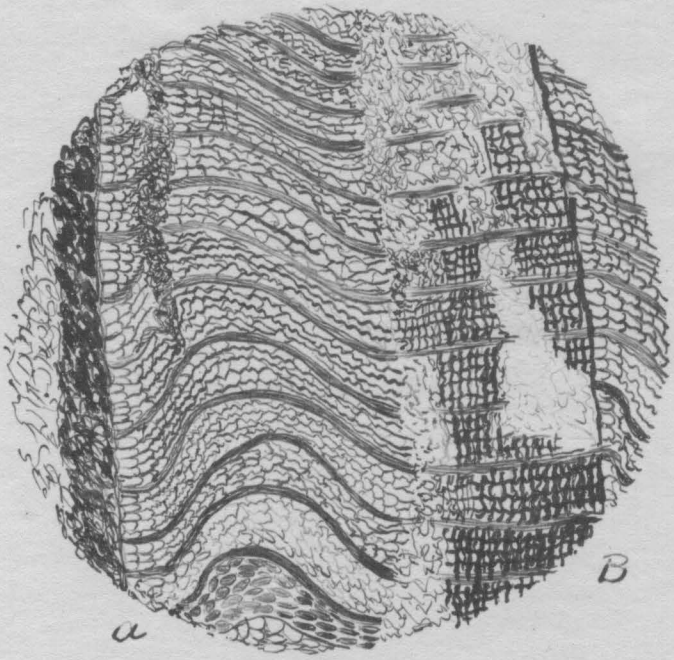

Cross Section 40 ×

a, a. Parts from which the wood [illegible] have disappeared and been replaced by White Stone

Fossil Wood – Conifera

From the Fossil forest of California

(Negative Picture)




Cross Section 40×

From a to B is one annual layer

This ... seems to have been water soaked and then thoroughly dried and shrunk and afterward petrified – many breakes occur in which the woody fiber has entirely disappeared there are also many cracks from the shrinkage of the wood – filled sometimes with white or nearly black stone