
Tree Rings as Legal Evidence

H. I. FEATHERLY

Tree rings have been used in determining past weather cycles in southwestern United States and for dating prehistoric cliff dwellings in the same area. This paper concerns five lawsuits in which the outcome was determined by tree rings or in which they were supporting evidence.

TEXAS VS. OKLAHOMA BOUNDARY CASE

Tree rings as legal evidence first came into prominence in the suit, Texas vs. Oklahoma and the United States of America, over the state boundary line between Oklahoma and the state of Texas. In 1819 a treaty was made with Spain establishing the Red River as the boundary between what is now known as Oklahoma and Texas. This treaty was confirmed in 1821. In 1890 the question arose as to what part of the Red River was the boundary. In 1896, the Supreme Court of the United States, in what is called in the Greer County Case, interpreted the treaty as making the south bank of the river the boundary line.

Things passed quietly until 1918 when oil was discovered near Burk-burnette and in 1919 it was discovered in the river valley. This raised the question of the exact boundary as there was considerable oil wealth involved. In 1819 when the treaty was made, the river at the area in question flowed near the bluffs on the Texas side. Now one hundred years later, it flowed near the bluffs on the Oklahoma side. The point of contention was who owned the land between where the river was in 1819 and where it was in 1919.

Where a boundary stream changes its course gradually by cutting from one side and depositing on the other, it is said to move by accretion and the boundary line moves with the stream. If a boundary stream changes its course abruptly leaving an island (undisturbed area) between the former channel and the new one, it is said to move by evulsion and the old channel remains the boundary.

Dr. H. C. Cowles of the University of Chicago with others was employed by the State of Oklahoma and the United States of America to determine the method of movement of the Red River in this area. He found that between the 1819 and the 1919 channel that there were trees growing that were over one hundred years old and that they had not been disturbed by the river changing its channel. Hence, the river had cut across a bend leaving an island between the 1819 and the 1919 channels. The Court ruled that the 1819 channel was the legal boundary.

THE LINDBERG CASE

The Lindberg baby was kidnapped from its crib on the second floor of its home in 1932. The kidnapers used an old repaired ladder to reach the upstairs window to gain entrance to the house. Some missing rungs on the ladder had recently been replaced by nailing cleats across.

Among the suspects to the crime was one Bruno Hauphman. In Hauphman's garage, the remainder of the board from which the cleats were sawed was found. This was proven by matching annual rings and tool marks on the pieces of the board. Dr. Arthur Koehler of the Forests Products Laboratory, Madison, Wisconsin, was the wood expert in the case. His testimony at the trial is one of the best examples of expert testimony on record. Hauphman was convicted and later executed for the crime.

TREES KILLED BY GRAPEVINES

Some years ago a land owner brought suit against an oil company charging that salt water had killed quite a number of trees in a bend of Black Bear Creek in Pawnee County. By a study of tree rings and grapevines, it was proven that grapevines and not salt water were responsible for the death of the trees. This case is discussed in the Proceedings of the Oklahoma Academy of Science, Vol. XXI, pp. 61-62. 1941.

SILTING AND FOREST SUCCESSION ON DEEP FORK IN SOUTHWESTERN CREEK COUNTY, OKLAHOMA

This study is the result of lawsuits between land owners who contended that salt water was responsible for the loss of trees in Deep Fork bottom land and oil companies who had oil wells in the drainage basin. It was determined that the trees died from excessive silting and dates on the rate of silting were established by tree rings.

Details of this research may be found in the Proceedings of the Oklahoma Academy of Science, Vol. XXI, pp. 63-64, 1941.

ORCHARD TREES KILLED

In 1944 the city of Stillwater, Oklahoma, was sued by a land owner north of town who alleged that water seeping from Boomer Lake through a sandstone layer of rock had drowned the trees in his orchard which was located in a valley about a quarter of a mile southeast from the lake.

Investigation showed that many of the trees were missing, particularly those in the lower ground. Many of the trees on higher ground were dead on the northwest side of the trunk. The injury was not recent as new wood was beginning to grow over the wound. Borings taken through the new wood near the wound showed that the damage was done four years previously (1940). A check of the weather records for Stillwater showed that the fall of 1940 was very mild and that there was not even a frost until after November 11. On November 11 a severe cold front came in from the northwest and the next morning the thermometer registered +7°F. This sudden extreme drop in temperature following a mild fall was enough to kill all of the trees in the lower part of the orchard and to kill the cambium on the northwest side of the trees on the higher ground.

The Court's decision was in favor of Stillwater.

In the five cases mentioned here involving the use of tree rings as evidence, each is different but the common denominator of the evidence is tree rings.
