

## **Construction of the Caddo Grass Thatched House in Former Times vs Modern Times**

*A Comparison of the construction methods employed in former times versus those employed in modern times.*

**“Former times”** as used herein is defined as the period starting at European contact up to the time when Caddo people ceded their lands in Louisiana.

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- I. **Organization**—Family focus (no. of families = no. of poles) vs. knowledgeable family groups or special interest group volunteers.

### Former Times

- In former times when a beehive Caddo grass thatched house was to have been built, the owner would notify the *Caddi*, or chief or head of the particular Caddo group. The *Tammias*, or captains of the various sub-groups or clans, would be notified of the decision and would organize the house construction preparations by carrying a stick to each of the separate Caddo households that had been chosen to help build the house.
- The number of families chosen would be equal to the number of poles needed for the primary upright poles for the house which could have been determined by marking the diameter of the house and then marking the poles by a distance between them, e.g. 30 inches apart.
- Each house receiving a stick would be responsible for selecting, cutting, and stripping a pole to be employed as one of the upright ribs or main outer vertical support members of the house.
- Another member of the chosen household would be ordered to collect saplings or small branches that would be used as the horizontal members that would be attached to the main ribs and would be the support for attaching the grass to the house.
- Women in the household would be directed to collect the grass that would be needed to thatch the section of the house between their pole and the next pole that would be installed.
- Materials would be hand carried to the site.
- Tools employed would be jawbone scythes, celt axes, flint axes and choppers, and flint scrapers.
- The House would be constructed on one day with a feast and various ceremonies after construction.

### Modern Times

- In Modern times a family or a special historical interest or other group that had decided to have a grass thatched house built would develop a plan for its construction and would decide on a particular site.
- Overall supervision and direction would be under one person, usually an elder who knew the complete process and who had stature, or a person who knew the Caddo house construction process.
- The supervisor would set out a time period to collect materials, determine where materials would be stored, and notify the family members as to their role in the construction.
- The supervisor would locate upright poles, grass, and saplings and make a schedule for collecting the materials.
- The family and friends would on scheduled days with modern tools of axes, chainsaws, hatchets move to the materials sites and harvest the materials.
- Transporting the items would be with modern vehicles and trailers

**II. Harvesting thatch**— Sufficient for house pole sector per family using primitive tool vs group harvesting with modern gas powered tools

**Former Times**

- In former times the harvesting of grass would have been the chore of the women of each of the households that were selected for gathering materials for the house.
- Each household it is believed would have by experience have known how much grass to collect in bundles that would cover the household's section between its pole and the next pole from ground level to the peak of the house.
- Cutting the grass may have been by sickles made of the jaw of a deer or elk, or, by hacking with a stone axe, or perhaps by breaking off stalks of grass by hand that may have been protected by buckskin.
- Bundles of grass would like have been tied with cordage of braided bark or by strips of buckskin or of rawhide or of twisted fibres.

**Modern Times**

- In modern times the amount of thatching that is needed is estimated as a first start in the process.
- One formula is to estimate the bundles of grass needed by using a hemisphere that has a diameter as that of the house diameter and estimating the number of bundles that is one ft in diameter and that is the desired thickness of thatching on the house and that covers a vertical and horizontal area.
- A group of volunteers and hired persons would gather at a site that had significant growths of grass
- Grass would be cut with the use of a hedge trimmer to sever the grass at ground level. Bundles of grass would be shocked and tied with cordage such as sisal, cotton twine, or other cordage.
- A method that works well is for a person to gather a clump of grass in his arms and then after the grass is clipped at ground level it is tied with cordage and carried to a transport vehicle or trailer.
- The grass bundles would be stored in a suitable place for storage that would be protected from the weather.

### III. Harvesting poles—One pole per family vs group harvesting in single outing

#### Former times

- The *Tammias*, or captains of the various sub-groups or clans, would be notified of the decision to build a house and would organize the house construction preparations by carrying a stick to each of the separate Caddo households that had been chosen to help build the house.
- Each house receiving a stick would be responsible for selecting, cutting, and stripping a pole to be employed as one of the main outer vertical support members of the house.

#### Modern Times

- In modern times harvesting poles would involve a leader who is experienced in selecting poles to deploy into a grove of trees having plentiful long slender poles.
- Selection of the upright rib poles requires an experienced eye to look for proper diameter, length, taper, free of limbs or knots or deformations.
- Once a pole is selected for a person using a chain saw or modern axe would cut the pole at ground level, trim it, and haul it to a trailer for transporting to the house site.
- The number of poles would depend on the spacing for the particular diameter house plus another 25 to 50% to account for poles that break while bending or those that have an improper arc when being bent and tied during construction.
- After poles have been hauled to the house site, the poles are debarked and trimmed to length.

### IV. Selecting and Preparing the House Site

#### Former Times

- In former times, a well drained site would be chosen.
- If the house to be built were to be part of a Caddo village, the status of the owner within the social hierarchy of the governing structure of the village would likely influence the location of the site and its relation and distance to other houses in the village.
- The location for the post holes would be marked for the poles and then would be dug prior to the designated day for construction.

#### Modern Times

- In modern times a well drained area would be chosen for the house location.
- The post holes would be marked for the poles and then would be dug.
- A common spacing of poles is 30 inches.
- Holes for the upright poles are commonly dug by posthole diggers, hand-held augurs, or augurs driven by a tractor..

## V. Pole Diameter Size—Former posthole size analysis vs Modern Size Poles.

### Former times

- Investigations at the Caddo Mounds Site (George C. Davis site) by archaeologists revealed some 100 posthole patterns and approximately 35 that appeared to have been those that could have been the footprint of a round grass thatched house structure. See Figure 1.



Figure 1. Post Holes Discovered at Caddo Mounds. Carolyn Spock, 1977.

- Diameter of Poles at the base of the pole in Former Times appears to be larger by an inch or two than in Modern times. In Figure 2, a pole diameter of approximately 6.5 inches at the base is shown for a 25 ft diameter house on the linear regression line what was fitted to some 30 points compared to a diameter for modern times of around 5.0 inches.

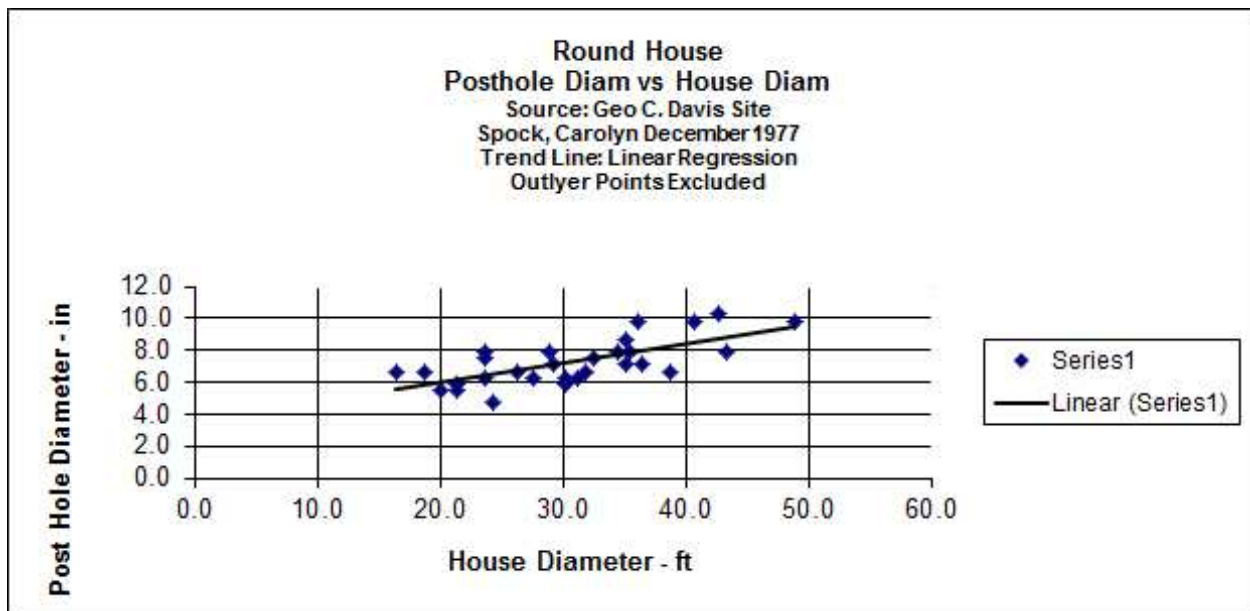


Figure 2. Pole Hole Diameter vs house Diameter. Carolyn Spock, 1977.

## VI. Pole treatment for preservation— Preservation in Former times vs Modern Preservatives

### Former Times

Methods in former times for the preservation of poles in either the buried portion of the pole or of the upper exposed section is not known. Scanning the writings of the explorers at European contact and in historic times has not revealed any discussions on preservation techniques.

### Modern Times

Applying special preservation or rotting retardant chemicals to the portion of the pole to be buried is one method for attempting preservation. Another method is to apply a roof tarring material to the pole.

## VII. Bending Main Structural Poles

### Former Times

- Descriptions of the construction of the Caddo grass thatched beehive shaped poles were set out by several European contact time explorers as follows:  
At the appointed day to build the house, one person of each of the families that had been chosen to harvest a pole would carry the pole to the site and would place it upright in a hole that had been previously dug. After the pole was tamped in along with all of the other poles that made up the upright main structural poles, two men would climb the center pole which had plentiful hand grips of severed limbs and which had been previously tamped in place and. As two poles were pulled in from opposite directions they were lashed together. This routine would be repeated until all of the poles were bent at the top and tied together in one combined lashing.

### Modern Times

- In modern times, poles that were harvested in a group setting would be tamped into holes previously dug. Several methods are employed to bend and tie the poles at the top of the house:
- A center pole that had been erected would be mounted by two persons and each would reach out with a stick with a loop on the end and snare a pole on opposite sides of the house and would pull the top of the pole inward to the center pole with the two poles tied together. Continuing the same process for the remainder of the poles would the entire set of poles would thus be lashed together. To assure that each pole is bent with a resultant arc that is consistent from pole to pole, two persons on the ground would employ a length of rope that was looped around the mid-section of the pole and would pull inward until the observed bend was correct and then the pole would be tied to opposite side pole that had been bent to the top. After several sets of two poles were tied, a hoop would be fitted and tied to the underside of the apex of poles and would be used as a base for the remainder of the poles to be bent and tied.
- Instead of a center pole scaffolding would be used to support the persons bending and tying the poles at the top and in the center of the house. The same process as described when using the center pole would be used for snagging and bending the poles with assistance from persons on the ground aiding in bending the pole for a correct bent arc.
- In cases of a smaller house, such as an 18 ft in diameter size, only one person may do the bending and tying at the top on a center pole. This is accomplished by the pulling in one pole, fastening it temporarily at the center pole, then pulling in a second pole and then tying the two together.



## VIII. **Cordage—Bark or other vs Modern Cords**

### **Former Times**

Strips of bark were likely the cordage used by Caddos to tie together the various components of the house. Some inner bark, or cambium, of some trees has smooth and lengthy sections that can be peeled in strips that of 1/16 to 1/8<sup>th</sup> width pieces and have sufficient flexibility to be braided although unbraided bark may have been employed. Such strips of bark were said to have had great strength and have no immediate stretch when strongly tied nor stretch over time to minimize loosening of ties. Other cordage that may have been employed could have been grass stems twisted or braided.

### **Modern Times**

Cords used to lash the various components of the grass house in modern times include sisal, jute, or cotton. Manmade fibers tend to stretch too much to be of sound use. Sisal has various diameters and stretches very little under load and thus makes for a very good cord for use on the grass house where bent poles are tied, where saplings are attached to the house or for attaching grass.

## IX. **Center Pole vs Scaffolding**

### **Former Times**

To serve as a climbing pole that would be placed in the center of the house floor plan by two persons appointed to bend the poles, a pole would be selected that would have a number of branches that would serve as hand and foot holds for climbing and would be of sufficient size for sturdiness and safety. Handholds would be carved into the pole for climbing. A cross-member would be lashed at the top on which the pole benders would stand. After the poles had been bent and tied to form the basic structure of the house, the pole would be cut down and removed from the house structure.

### **Modern Times**

- Caddo grass house builders in modern times still employ a center pole to be used by the persons who bend and tie the poles at the top. Cedar poles of about 8 inches in diameter serve very well for this function because that tree type of tree will have branches off the main trunk every 10 to 12 inches apart that can be trimmed at a length that form hand holds and foot grips for climbing. A cross-beam of about 3 feet in length is added to the top that allows the pole benders a standing platform for support. This method works well for smaller houses in the range of 15 to 18 feet in diameter.

- Another method that has been used for support for the pole benders is to use scaffolding that provides a platform just below the expected apex of the poles. The scaffolding can be conveniently assembled within the house at the center either before or after the main poles have been installed upright and ready for bending and tying. After wards the scaffolding can be disassembled and removed.

**X. Thatching method— Women climbing up each section of adjacent poles in former times vs horizontal row by row in modern times.**

**Former Times**

- In former times the thatching process involved workers moving vertically between pairs of poles as opposed to modern times with a team of workers moving horizontally around the circumference at different levels of the bent and tied poles at the apex of the main structure.
- For each of the families selected to build a house, women would collect the grass that would be needed to thatch the section of the house between the family's installed pole and the adjacent installed pole. The women would also have collected the saplings to serve as the base to which grass would be attached and then used to fasten the grass onto the sapling base. Others in the chosen house would prepare the cordage required for tying saplings onto the main poles and for attaching the grass.
- The first step would involve saplings being attached horizontally beginning at ground level on the upright poles at regular intervals such as 18 inches apart. As saplings were attached at levels above head high the person attaching the sapling would climb the already tied saplings to be able to reach another level up the poles. This set of attached saplings would form a base to which the grass would be fastened.
- After the saplings forming the thatching base were attached from the bottom to top of the bent and tied pole frame, ladies would begin attaching grass beginning at ground level. She would first tie one end of a second sapling onto the base sapling and with another person handing her a bundle of grass she would place the grass under the second sapling, would arrange the grass into a constant thickness, and then would direct a person inside the house inside using a wood needle to send out a section of cordage and then by another pass of the cordage around the two saplings by the person would lash grass onto the inner sapling. Several bundles and several ties might be required for the particular level being worked between the two adjacent poles. Working between the two poles of her section, the woman would climb up to the next higher horizontally tied sapling and would repeat the process. This sort of "sewing on" of grass using a wood needle and cordage is at the heart of the thatching process.

**Modern Times**

- In modern times the rows of grass are added in horizontal rows beginning at ground level rather than in former times when grass was attached in a vertical movement upward. This difference comes about because there is usually a small crew in modern times and moving horizontally can be aided by vehicles and mechanical lifts that greatly aid movement around the perimeter of the house.
- The first step in thatching involves the attaching of saplings in rows that are spaced about 18 inches apart beginning at ground level. To assure uniformity in the level of

each row of saplings a mark would be placed on the upright poles at the spacing that was used (18 inches normally).

- Beginning at the east door, saplings would be tied onto the upright bent poles at the marks with the crew moving around the perimeter. If there are sufficient crew members, more than one group of two or three each would lash the saplings on each marked row. As rows are attached, and as the row in work reaches above head level, ladders are employed to place the workers at the higher levels, or, workers can stand on a lower row of sapling that had already been secured to the frame. And so it would proceed until all rows of saplings were attached from ground level to the apex of the tied and bent poles.
- After the saplings are secured onto the main frame poles, grass thatching begins at the east door. The person doing the thatching would first tie one end of a second sapling onto the base sapling and with another person handing the thatcher a bundle of grass who would place the grass under the second sapling, would arrange the grass into a constant thickness, and then would direct a person inside the house inside using a wood needle to send out a section of cordage and then by another pass of the cordage around the two saplings by the person inside would then lash grass onto the inner sapling. This would continue for the moving along the particular row until finished at the starting point. Thatching would begin on another row at the same starting point.
- As thatching rises on the frame ladders would be employed to reach the higher rows. Vehicles like pickup trucks or flat-bed bob-tailed trucks, combined with ladders are sometimes used to provide sufficient elevation to reach the upper rows.
- A very useful modern machine is a mobile lift, or cherry-picker, that is used at the highest levels of the house, that moves horizontally along with the thatching process and that provides a safe platform for workers delivering the bundles of grass to the thatchers, and, for a worker that helps in providing saplings and in maneuvering the sapling.
- Once all of the rows of grass are attached, an outer sapling is secured to the very last and uppermost row of grass.
- After the thatching is complete, workers will level each row by using a paddle or flat board attached to a pole.