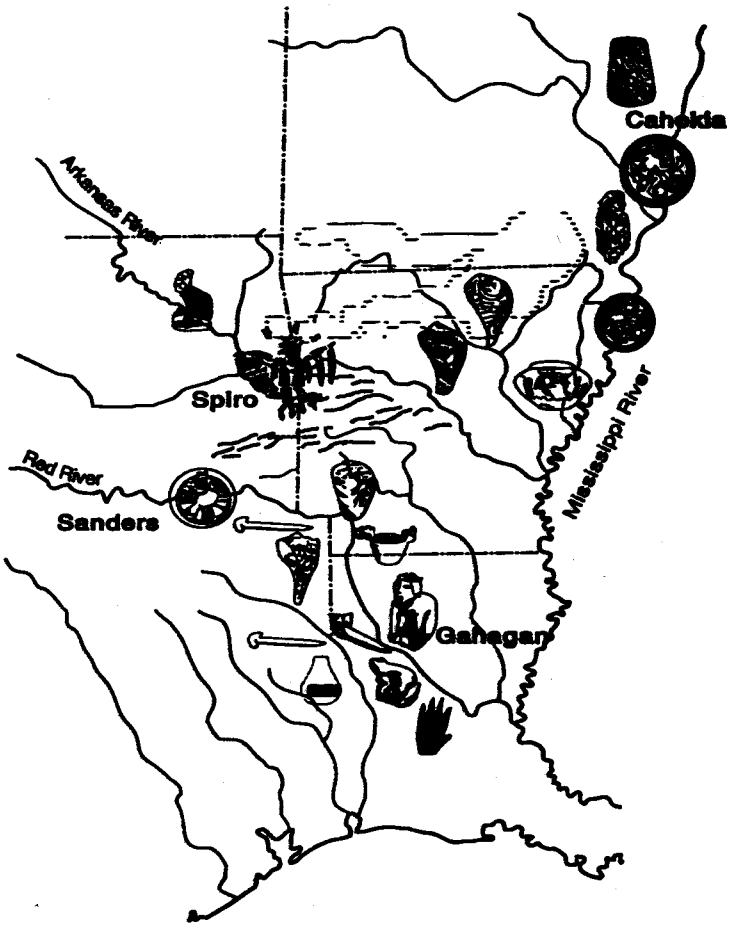
CADDOAN

ARCHEOLOGY

NEWSLETTER



Volume 6, Number 1 April, 1995

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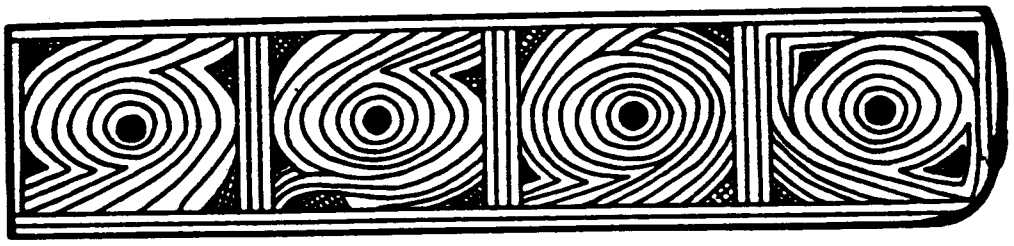

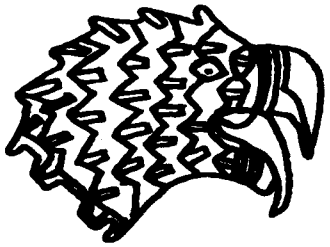

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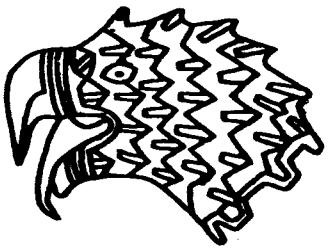

Well, the last few months have certainly been interesting. . . . partially, interesting as in the proverbial Chinese curse!

The Caddo Conference in Austin was one of the best ever, with great facilities, great social events, and good attendance. Our thanks are certainly extended to Darrell Creel and the TARL staff who were responsible. It was also great to see so many of the Caddos present. Too bad the dances Saturday evening couldn't have lasted longer.

This year marked the 25th anniversary of the passage of legislation establishing the Oklahoma Archeological Survey. In commemoration, an open house was held at the Survey's relatively new home on OU's south campus. Several exhibits had been set up by staff archeologists, and a buffet of "goodies" was present for the enjoyment of guests. A number of people attended, including many from out of town. We're sorry that more people were not able to celebrate with us.

Unfortunately, our celebration was tempered with sadness because of the Oklahoma City bombing. One of the agencies affected was Oklahoma's State Historic Preservation Office, which was located at the southern end of the Journal Record Building, only half a block across a parking lot from the federal building. Fortunately, all of the SHPO staff got out of the building alive, although there were injuries. Not everyone in that building was as lucky. The Oklahoma SHPO office is now located, at least temporarily, with the rest of the Historical Society in the Wiley Post Historical Building near the state capitol. Unfortunately, our country seems to be descending into anarchy, intolerance, and unbridled greed, so we should probably be prepared for more incidents of this type.

Hopefully, the next issue of this newsletter will be more timely and without a disaster intervening. It has been a very busy period during the past several months. I'll be in touch with many of you before the next issue so we can catch up with news of what is happening in Caddoan archeology and to the people involved in it.

UPCOMING MEETINGS AND EVENTS

MEETINGS AND EVENTS

Continuing into 1995 *State Museum of History, Oklahoma City: Saturday Film Series* continues at Wiley Post Historical Building (Lincoln Boulevard near the Oklahoma Capitol; Free). For scheduling information, call (405) 522-5241.

June

21-23 *Architectural-Historic Resources Survey: The Basics* (9:30 a.m. - noon, 21st); *Introduction to Section 106 Review Process* (1:30 - 5:00 p.m., 21st); *Introduction to National Register of Historic Places* (9:30 a.m. - 5:00 p.m., 22nd); *Federal Tax Incentives for Rehabilitating Historic Properties* (9:30 a.m. - noon, 23rd); *Documenting Historic Properties: The HABS/HAER Programs* (1:30 - 4:30 p.m., 23rd); free. For more information contact Oklahoma State Historic Preservation Office, telephone (405) 521-6249.

23-25 *The Last Surrender Living History*, Ft. Towson (Oklahoma) Military Park and other sites. 130th anniversary of the end of the Civil War. On 24th, Civil War battle living history reenactment at 1 1/2 miles south of Sawyer and west of Kiamichi River, 3 p.m., $3.00 per car. On 25th, commemoration of last surrender by Confederate general (Ft. Towson), $3.00 per car. For more information, call (405) 522-5235.

July

1 *Cowboy Ride-In Breakfast*, Pawnee Bill Ranch, Pawnee, Oklahoma. 7:25 a.m.; fee $3.00. For more information, call (918) 336-2491.

15 *Annual Memorial Service*, Rentiesville, Oklahoma, for those who died in July 17, 1863, Civil War battle, 9:00 a.m. to 5:00 p.m. Free. For more information, call (918) 478-2669.

August

The Russian Academy of Sciences, International Symposium on Alternative Pathways to the Early State. Vladivostok, Russia. Symposium objectives include analyses of transition from pre-state politics to early state; differences between various forms of proto-states; and why some transformations to state have occurred whereas others have not. Application deadline December 31, 1994. Contact: Dr. Nikolay N. Kradin, Institute of History, Archaeology, and Ethnology, Far Eastern Division, Russian Academy of Sciences, 89 Pushkinskaya St., Vladivostok, 690600, Russia.

September-October

9/30, 10/1-2

Arkansas Archeological Society Annual Meeting, DeGray Lodge, DeGray State Park. For more information, contact Program Chair Don Ross, 210 Unity Road, Arkadelphia AR 71923; telephone (501) 246-9174.

November

Southeastern Archeological Conference Annual Meeting, Hilton Hotel, Knoxville TN. Abstract deadline August 1. Dr. Jefferson Chapman (Local Arrangements), Dr. Gerald Schroedl (Program Chair). For more information, contact SEAC Conference, Department of Anthropology, University of Tennessee, Knoxville TN 37996-0720; telephone (615) 974-4408; FAX (614) 974-2686.

1996

January

2-7 *Society for Historical Archaeology*, Conference on Historical and Underwater Archaeology, Omni Netherland Plaza, Cincinnati OH. Themes: Bridging Distance: Recent Approaches

to Denigration, Migration, and Ethnic Identity; and Forging Partnerships in OUtreach and Education. For more information, contact Marcy Gray (Conference Chair), Gray and Pape, Inc., 1318 Main St., Cincinnati OH 45210; telephone (513) 665-6707, Email 76554.3313X-compuserve.com; or Kim McBride, Program Coordinator, Department of Anthropology, 211 Lafferty Hall, University of Kentucky, Lexington KY 40506-0024, telephone (606) 257-1944, Email KAMCBR004pUKCC.UKY.EDU.

May

20-24 *International Symposium on Archaeometry*. University of Illinois. For additional information, contact: S. Wisseman, ATAM Program, University of Illinois, 116 Observatory, 901 S. Mathews, Urbana IL 61801. Telephone: (217)-333-6629; fax: (217) 244-0466; e-mail: wisarc@ux1.cso.uiuc.edu.

EXHIBITS

Current *Oklahoma State Museum of History*. Native American Gallery features a long term exhibit which gives an overview of Oklahoma prehistory, focusing on the Spiro site. New, larger exhibit on Spiro in planning, but opening may be several years away. Contact: State Museum of History, 2100 Lincoln Blvd, Oklahoma City, OK 73105. Telephone: (405) 521-2491.

Through August 1 *Gold of Mycenae*, Dallas Museum of Art. This exhibit presents ancient jewelry, including gold rosettes, ornaments, bead necklaces, and rings, as well as engraved sealstones, from a Mycenaean tomb in southern Greece. Dated to ca. 1500 B.C., the jewelry is on loan from the Society for the Preservation of the Greek Heritage.

Through September 18 *Imperial Tombs of China*, Memphis Cook Convention Center, Memphis TN. The exhibit features more than 250 objects dated about 500 B.C. to A.D. 1900, from the tombs of China's most famous emperors and rulers. Highlights include a Han Dynasty burial suit made of 2000 pieces of jade sewn together with more than two pounds of gold thread, and four terracotta warriors discovered in the tomb of China's first emperor Qin Shihuangdi.

THE CADDOAN CERAMICS WORKING GROUP

Timothy K. Perttula and Kathryn Reese-Taylor

We organized a symposium on "Current and Future Directions in the Study of Caddo Ceramics" at the 1995 Caddo Conference in Austin, Texas. We had a two-fold purpose in putting the symposium together. First, by providing the opportunity to discuss current and relevant research issues, methods, and theoretical views concerning the study of Caddo ceramics, we hoped to bring renewed attention on the importance of Caddo ceramics study as a pathway to a broader understanding of Caddo lifeways. Second, the symposium aimed to strengthen the communication between Caddoan archeologists working in different states and institutions, as well as to encourage the sharing of information,

data bases, and analytical strategies regarding the study of Caddo ceramics.

During the symposium we proposed the formal organization of a Caddoan Ceramics Working Group. We plan on organizing a two-day meeting of the Ceramics Working Group later in 1995, possibly in September at Caddo Lake, to build the framework for more useful and powerful studies of Caddo ceramics, studies that should hold great promise for increasing the body of knowledge about prehistoric and historic Caddo lifeways. We solicit the interest of Caddoan archeologists in the Ceramics Working Group, and your participation in this upcoming meeting.

If you are interested in becoming part of the Caddoan Ceramics Working Group, and/or participating in the fall 1995 meeting of the working group, please contact:

Timothy K. Perttula
Texas Historical Commission
P.O. Box 12276
Austin TX 78711-2276

Telephone: (512) 463-5866
FAX: (512) 463-8927

The Oklahoma Anthropological Society, Inc.

announces the publication of

The Calf Creek Horizon in Oklahoma

These publications, Volumes 40 and 42 of the Oklahoma Anthropological Society Bulletin series, report the known components of this Middle Holocene (Altithermal) hunter-gatherer culture in Oklahoma. They synthesize the presently available data on the Calf Creek culture for the entire Oklahoma-Arkansas-Texas region. The two bulletins total 590 pages, report 54 sites, and illustrate hundreds of artifacts. The authors address Calf Creek lithic procurement, lithic reduction sequences, projectile point breakage and resharpening, caching behavior, bison hunting, campsite remains, mortuary behavior, and radiocarbon dating. The set is available for $33.00 postpaid from Pete Thurmond at:

The Oklahoma Anthropological Society, Inc.
Rural Route 1, Box 62-B
Cheyenne OK 73628-9729

ARCHAEOLOGICAL INVESTIGATIONS AT THE MARSHALL POWDERMILL AND ARSENAL (41HS17), CONFEDERATE STATES OF AMERICA 1864-1865, HARRISON COUNTY, TEXAS

Thomas E. Speir and David H. Jurney

The Northeast Texas Archeological Society (NETAS), in conjunction with the East Texas, Dallas, and Tarrant County Archeological Societies has completed a year-long project at the Marshall Powder Mill, 41HS17, Harrison County, Texas. The Marshall Powder Mill manufactured gunpowder, small arms and cannon, and refurbished weaponry. It is one of several arsenals that served the Trans-Mississippi Department of the Confederate States of America, and was among the last in operation from 1864 to 1865. None have been thoroughly investigated archaeologically, thereby ignoring a major aspect of the Confederacy's war effort and an important industrial enterprise.

The last professional archaeological investigations of the Marshall Powder Mill were conducted in the southern third of the site by the Texas Highway Department in the 1970s, when the Loop 390 bypass was constructed on the northern outskirts of Marshall (Weir 1973: Luke 1978:137). Three building foundations and an artifical pond were investigated, none of which were actually the mill itself. Since then, the site has suffered extensive relic collecting, which increased significantly with the use of metal detectors.

Members of the Northeast Texas Archeological Society persuaded some of the landowners to restrict such looting and to allow a detailed reevaluation of the site. Building foundations, earthworks, roads, and an artificial channel race remain essentially undisturbed within the Loop 390 corridor and the privately-owned portions of the site, although the eastern third was destroyed by a modern lumber mill. Although the site is listed on the National Register of Historic Places, there is no concerted plan for preservation of this important military-industrial complex.

The 1994 project was directed by David H. Jurney, Principal Investigator, and Thomas E. Speir, Project Director. It consisted of three field schools, a Southern Methodist University graduate seminar in high resolution remote sensing and surveying taught by James M. Adovasio; field excavation, analysis,

and conservation techniques taught by Brenda Whorton to the 7th grade of the Dallas Episcopal School; and the NETAS-East Texas Field School taught by David Jurney, Thomas Speir, Velicia Hubbard, and Mike Turner, which focused on vegetation control and removal, remote sensing for building foundations in the northern portion of the site, high resolution mapping, and limited excavations focused on a building interpreted to be a foundry. Approximately 150 participants and guests visited the complex. Ancillary tasks included examination of the Marshall Powder Mill collections at the Texas Archeological Research Laboratory (TARL) in Austin, and inventory of private collections in northeast Texas; visiting the National Archives in Washington; compilation of an archival file in Harrison County; and interviews of descendants of Civil War participants. In addition, a Civil War reenactment of a camp scene was performed by the late Larry Fant. Future tasks include analysis and conservation of artifacts to be curated at TARL, preparation of a final report, and recommendations for the systematic recordation of Civil War sites in northeast Texas.

Despite diligent research in the 1970s and extensive modern searches, few additional archival sources were located. This significant site has little historical documentation as to the number and types of buildings, their locations, and the activities that were conducted there. The single map in the National Archives, for instance, was captured by Federal troops in 1864, and only indicates a few of the buildings and none of the earthworks. Apparently, the Confederates were concerned with security, and the commander, Major George D. Alexander, destroyed or removed all records prior to Federal occupation of the site in 1865. Therefore, the archaeological remains speak the clearest about the Marshall Arsenal's buildings and their functions, and may be the only sure means of reconstructing the layout and design of the arsenal, as well as ancillary fortifications, buildings, and structures within and around Marshall.

REFERENCES

Luke, C.J.
1978 The Marshall Powder Mill Site: The 1973-74 Excavation. State Department of Highways and Public Transportation, Publications in Archaeology, Highway Design Division, Report 11. Austin.

Weir, F.A.
1973 The Marshall Powder Mill, a Preliminary Report. Texas Highway Department Publications in Archaeology, Division of Highway Design, Report 3. Austin.

A PROBABLE SPIROAN ENTREPOT IN THE RED RIVER VALLEY IN NORTHEAST TEXAS[1]

FRANK SCHAMBACH,
ARKANSAS ARCHEOLOGICAL SURVEY

MISSISSIPPIAN PRESTIGE GOODS IN EAST TEXAS?

The Sanders site:

In 1931 (Krieger 1946:171-216), twenty-one graves at an obscure site on the edge of the Eastern Woodlands yielded an astonishing concentration of Mississippian prestige goods:

4 conch shell cups
21 shell gorgets
5,500 shell beads
ca. 200 Olivella beads
26 freshwater pearl beads
2 copper-stained siltstone earspools
2 polished sandstone elbow pipes
1 negative-painted bottle
2 Mississippi Valley-style "bean pots"

In 1933 (Orr 1946:229), larger concentrations of similar goods were found at Spiro. But Sanders was 150 mountainous miles from Spiro (Figure 1) and the domestic assemblages at both sites were unknown, so Sanders was not considered a Spiroan site. In 1946, Krieger (1946:201-203) made it the type site of a Sanders "focus" which he conceptualized (Figure 2) as "a frontier [Caddo] culture facing the open Plains" (Newell and Krieger 1949:218).

Acknowledging that a culture based on mortuary data from one site might "seem quite ethereal," he wrote:

> "The pottery types, burial method, decorated shell gorgets, polished stone elbow pipes, copper-covered stone earspools, and great variety of shell beads, including pearls, provide sufficient contrast with other complexes in this region for one to be sure one is dealing with a unique culture." (1946:203)

In fact, the Sanders assemblage was too unique. When it came to explaining why he considered it Caddoan when it lacked every Caddoan diagnostic, particularly Caddoan pottery[2] Krieger was stumped. So he simply pronounced it Caddoan, declaring "it occupies a place in our [Caddoan] Gibson Aspect...despite its divergent features" (Newell and Krieger 1949:218-219)[3].

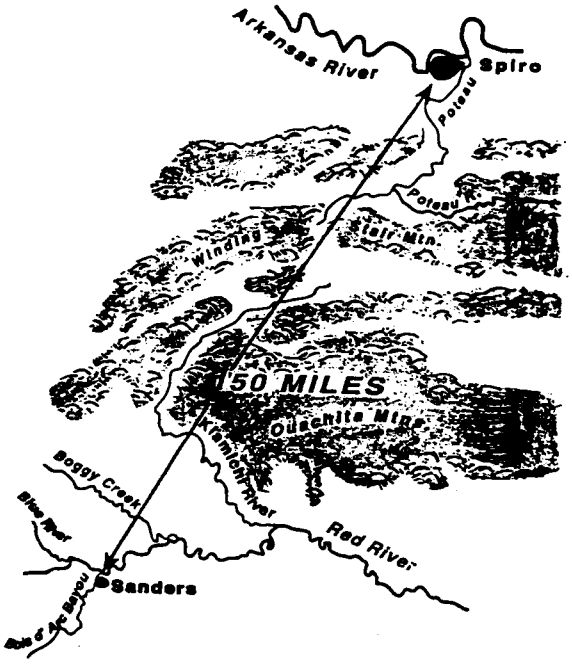

Figure 1. Locations of Sanders and Spiro Sites.

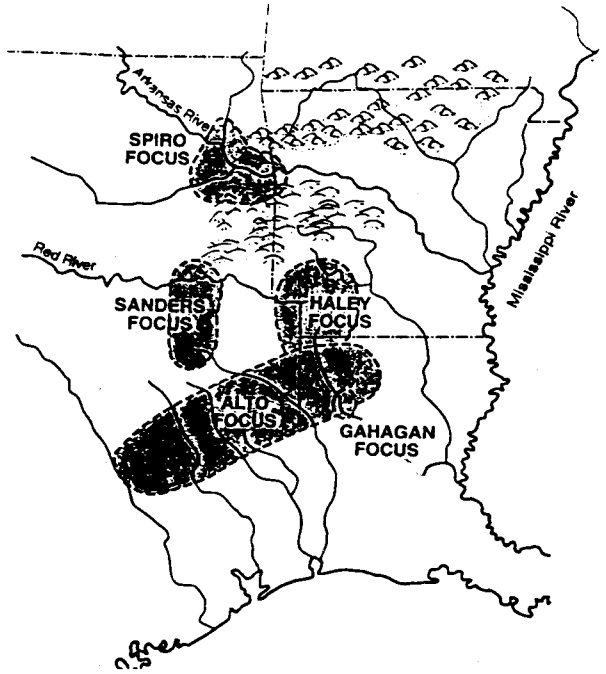

Figure 2. The Place of the Sanders Focus in the Gibson Aspect.

AN OUTPOST OF SPIROAN TRADERS?

Now there is evidence, most of it developed during the 45 years since Krieger's pronouncement, that the seemingly ethereal and locally unique Sanders assemblage[4] represents an outpost of Spiroan traders who were portaging goods to and from the Red River Valley between A.D. 1100 and 1400.

1. The Red River Caddo were receiving Mississippian prestige goods by A.D. 1100 (Figure 3)[5].

2. Sanders is just west of the southern end of the shortest practical route between the Red River Valley and Spiro: up the Poteau from Spiro, then down the Kiamichi to the Red River (Figure 4)[6].

3. Krieger, who considered Sanders ideally situated for trade, adduced evidence that people there were trading with Caddoan groups to the east, southeast and south (Krieger 1946: 197, 203, 208).

4. The 21 shell gorgets include "Craig School specimens that must have come from the Arkansas Valley," (Brown 1983:150) the probable source of all the shell objects and pearls in the graves[7].

5. Now that the Spiro pottery had been described (Brown 1971), it is apparent that the pottery from the graves at Sanders is basically a Spiroan assemblage[8].

6. Several of the 62 pots from Sanders are imports from the Mississippi Valley (Krieger 1946:215-218)[9]. Except one bottle imported form the Haley phase Caddo 200 miles down the Red River (Krieger 1946:192, Figure 15), the rest could be imports from Spiro.

7. The 60 skeletons from Sanders are "markedly different," genetically and epidemiologically, from Caddoan populations in the Red River Valley (Burnett

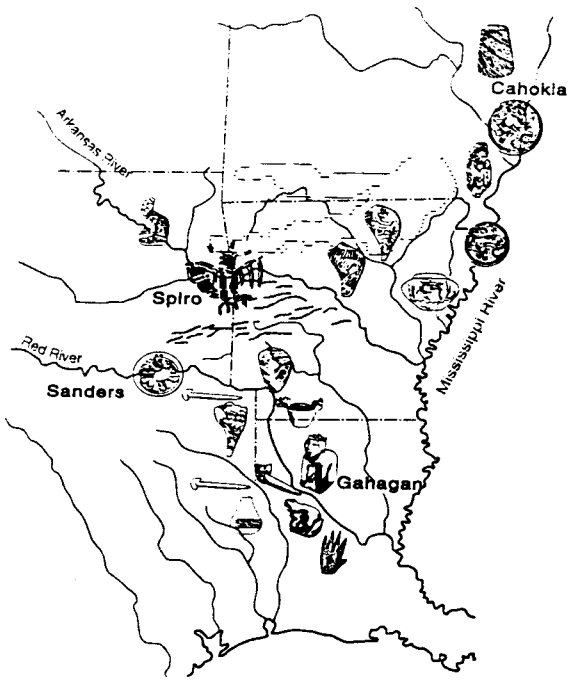

Figure 3. Mississippian Prestige Goods in the Red River Valley.

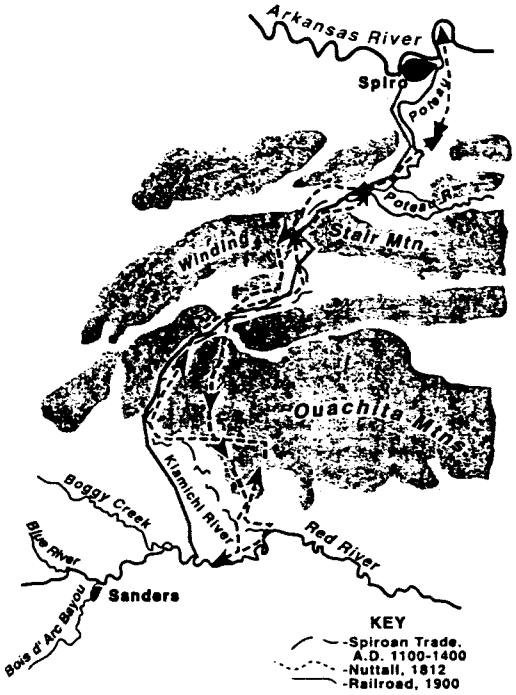

Figure 4. The Spiro Route Through Time.

1990: 393)[10].

8. Most of the adults buried at Sanders evidently grew up in the Arkansas Valley, the one place in eastern North America where the endemic syphilis some of them probably had as children was common at that time[11].

9. "Long distance walking, running, or dancing," "carrying loads on the back" and "carrying loads on the head" were unusually important activities for the Sanders people, according to a recent study of degenerative joint disease in the skeletons (Wilson 1993: 8-9)[12].

WHAT DID THE SPIROANS WANT?

Durable, powerful long bows of the wood seventeenth century French traders in the Red River Valley called bois d'arc[13] (*Maclura pomifera*), were the main attraction[14].

1. Bois d'arc is to this day known to bowyers and archers as one of the two best[15] bow woods in the world (Peattie 1953:480; Laubin and Laubin 1980: 59; Hamm 1989:22; Hamm 1992; Atwill 1992)[16].

2. A well preserved bow from the Mounds Plantation site (Webb and McKinney 1975) in northwest Louisiana (plus other fragmentary specimens from that site and the Bowman site in southwest Arkansas[17]) shows that the Red River Caddo were making sophisticated bois d'arc long bows with recurved tips by A. D. 1050[18]. A replica of the Mounds Plantation bow drew 70 pounds (Webb and McKinney 1975: 104-108, Figs. 5 and 15; Webb 1984: 18, Slide 55). This was exactly the weight[19] of

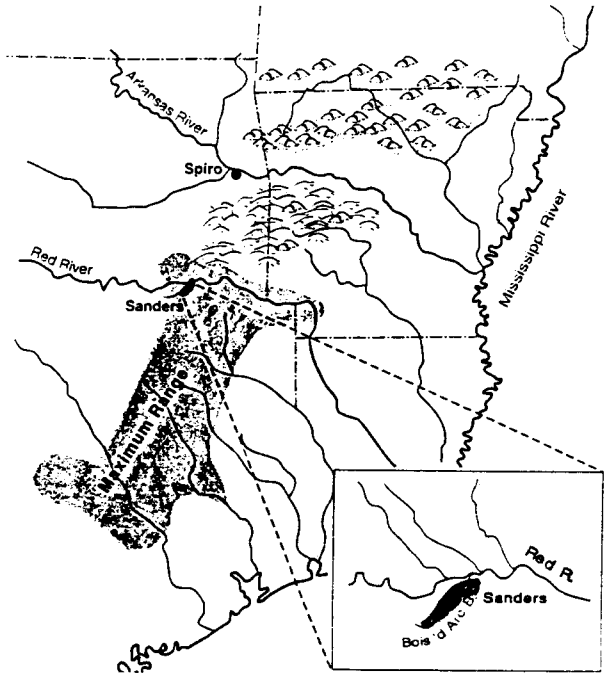

Figure 5. Range of Bois d'Arc at European Contact.

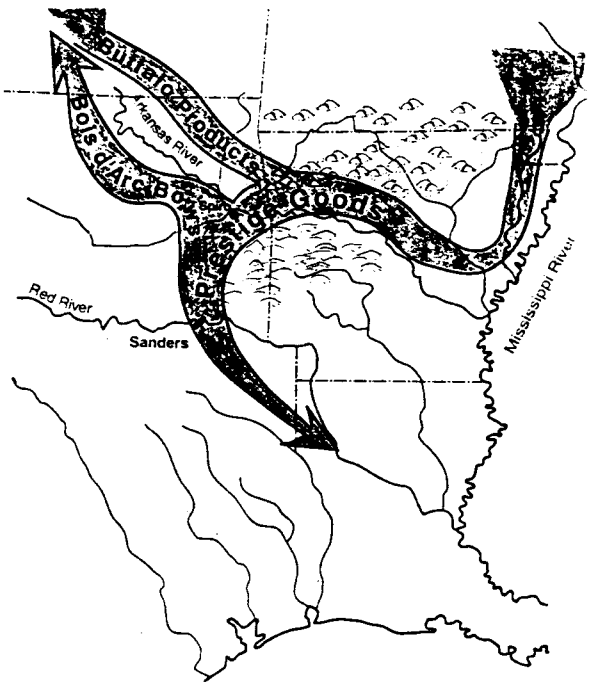

Figure 6. Spiroan Trade Network.

a Yaqui bois d'arc bow of similar dimensions studied by Saxton Pope (1962:14-15), who judged it the strongest, best shooting specimen of the dozens of aboriginal bows he tested.

3. Caddoan bois d'arc bows that could "with great ease throw the Arrow entirely through a Buffaloe" (Flores 1984: 165-170)[20] were in great demand in the eighteenth century (Swanton 1942:138)[21]. Swanton (1942:37), noting that in the nineteenth century the Tewa were using bois d'arc bows obtained in trade with the Comanche or some other tribe living east of them, speculated that the "turquoises[22] and cotton blankets" members of the De Soto expedition saw among the Hasinai had been obtained in exchange for bois d'arc bows.

4. By the nineteenth century the Osage were purveying bois d'arc (alias Osage orange) bows[23] to Plains tribes as far north as the Blackfoot (Catlin 1973:32; Peattie 1953:480; Hamm 1989:21). In 1810 the trade value of a bois d'arc bow was one horse and one blanket (Peattie 1953:480)[25].

5. Bois d'arc was on the cusp of extinction by the end of the Pleistocene. It had reached that state due to the extinction of the one or several species of Pleistocene megafauna (possibly horses, ground sloths or mammoths) that once dispersed it by consuming its fruit and spreading its large seeds (Janzen and Martin 1982:27; Delcourt and Delcourt 1991:27)[26].

6. Before Europeans replanted it over most of its former range and exported it as far as Australia, it was reduced to two known relict stands, the largest evidently entirely within the territory of the Red River Caddo (Flores 1984: 260-261 n.224; 1985: 114, n.29) the other a tiny stand in the Rio Grande Valley in Texas (Burton 1973: Figure 1; Peattie 1953:483)[27].

7. By the 18th century, the best -- if not the only -- supply of this wood that was suitable for bow making was a dense three to six mile wide stand on the flood-

plain of a stream that French traders had aptly named "Bois d'arc Bayou" by about 1730 (Flores 1984; 330 n.14).

8. The Sanders site overlooks this bayou (Krieger 1946:Fig. 9), now called Bois d'Arc Creek (Figure 5).

CONCLUSIONS

The Sanders site was an important entrepot in a complex Spiroan trade network[28] in which Caddoan bois d'arc bows were a key commodity (Figure 6).

1. There Spiroan traders exchanged Mississippian prestige goods with the hierarchically organized, basically Southeastern Red River Caddo, who could appreciate and use them[29], for bois d'arc bows that only they could provide.

2. The Spiroans portaged these bows north to the Arkansas Valley, then west to the Southern Plains where bands of hunters, who would have had little use for Mississippian prestige goods, were willing to exchange buffalo hides, meat and tallow for superior bows[30].

3. The Spiroans canoed the "buffalo products"[31] they received for the bows down the Arkansas River to the Mississippi Valley where Middle Mississippians were willing to exchange prestige goods for the hides, meat and tallow that were in increasingly short supply in their populous land.

END NOTES

[1] This paper is the text -- with endnotes and references added -- and copies of some of the graphics, of a poster presentation which I exhibited at the 36th Caddo Conference in Fayetteville, Arkansas on March 25, 1994 and at the annual meeting of the Society for American Archeology in Anaheim, California on April 21, 1994.

[2] Particularly the types Crockett Curvilinear Incised, Pennington Punctated Incised, Holly Fine Engraved, Hickory Engraved and the misnamed "Spiro Engraved," the five prime diagnostics of all early Caddo assemblages in the Red River Valley.

[3] In a footnote (Newell and Krieger 1949:218-119, n.71) he betrayed his discomfort with this indefensible pronouncement, grumbling "There is entirely too much fuss over the exact number of traits belonging to this focus or that, and whether a focus belongs to this aspect or that on the basis of trait percentages."

[4] Some archeologists will object that numerous Sanders "focus" assemblages have been reported in northeast Texas and southeast Oklahoma in the 48 years since Krieger (1946:201- 203) published his description of the Sanders "focus." That is true. Krieger himself (1946:201) named three (Yarbrough and Joslin in the upper Sabine drainage in east Texas, and Pat Boyd in Choctaw County, Oklahoma) and referred to, but did not name, 12 to 15 others supposedly represented by surface collections (1946:172). Other sites with alleged components, suspected components, or assemblages that seem to include some "Sanders Focus material" that have been identified since then by various archeologists (see Suhm, Krieger and Jelks 1954:77; Wyckoff 1971:86; Davis 1970:42 for lists) are: Limerick in Rains County, Texas (Duffield 1961); Joe Myers, 41SM87 and 41SM89 in Smith County, Texas (Johnson 1961); Manton Miller in Delta County, Texas (Johnson 1962); Clark in McLennan County, Texas (Watt, 1961, 1965); the Harling (aka Morgan) Mound in Fannin County, Texas (Davis 1982a; 1962b); Lacy in Henderson County, Texas (Story 1965); Gossett Bottoms in Kaufman County, Texas (Story 1965); Sam Kaufman in Red River County, Texas (Skinner, Harris and Anderson 1969) and, in Choctaw County Oklahoma, Nelson, Cook (Bell and

Baerreis 1951:48-53, Wyckoff 1971:86), Hugo Dam (Burton 1970) and Pat Boyd (Rohrbaugh 1973).

The trouble with this impressive looking list is that, with the possible exception of the Pat Boyd site (which could be the remains of one of the Spiroan traders' way-stations that must have existed on the route from Sanders to Spiro, if my interpretation of the Sanders site is right) there isn't a plausible documented Sanders "focus" -- or Sanders phase -- assemblage on it. It is entirely a product of poor archeology (particularly poor ceramic typology) on the part of numerous practitioners. The alleged ceramic relationships upon which most "Sanders focus" identifications are based (a few, such as the identification of the Harling Mound are simply guesses based on no artifacts at all) are too flimsy to be taken seriously by anyone but a true believer in the reality of the Sanders "focus", a construct that remains hypothetical 51 years after it was launched. The Sanders site mortuary assemblage on which it was based (possibly erroneously, there being no evidence that the 21 graves Krieger reported all pertained to a single "Sanders focus" component, he just assumed they did) has not been found elsewhere in the Red River Valley, despite the wealth of mortuary data that has come out of that area in the last 50 years, and to this day nothing that could be called a Sanders focus domestic assemblage has been isolated and properly defined at Sanders or any other site.

[5] For example, the copper "Long-nosed God" ornaments, the Tennessee-Cumberland area "cloud-blower pipe," and the frog effigy pipe from the Gahagan site (Webb and Dodd 1939; Webb and Gregory 1978:6; Moore 1912:Figs. 13 -16; frontispiece, Phillips and Brown 1978;X and XI). See comments on some of these artifacts by Philip Phillips and others in Davis 1961:120-121), by Griffin (1961:33-34) and by Webb and Gregory (1986:7).

As Webb observed in an early summary paper (1958:55): "There are numerous evidences of a strong tradition of overland travel and trade throughout the Caddoan area and at all time levels". Later he noted (Webb and McKinney 1975:122) that one of the key characteristics of the high status graves at all the early Caddo ceremonial centers is "the evidence of trade and ceremonial intercommunication over distances of hundreds of miles."

I suspect that virtually all prestige goods found on Caddo sites in the Red River Valley and adjacent parts of Arkansas, Texas and Louisiana are imported Mississippian prestige goods. This would include all effigy pipes, all large bifaces, all shell work, all copper work, all ear spools, and probably most celts and spuds, particularly those of igneous rock. It might even include engraved pottery of the supposedly quintessentially Caddoan type Holly Fine Engraved. The central Mississippi Valley, where the technique of engraving designs on ornaments and containers of bone and shell has a long history, is at least as likely a source for this pottery as Middle America, the derivation suggested by Webb and Gregory (1986:5).

[6] This was the route used by early nineteenth century travelers such as Thomas Nuttall (1980:map on p. 175). Soon after Nuttall's journey it became part of the route of the Butterfield Overland Mail Trail which ran from St. Louis to El Paso via -- significantly, I think -- Fort Smith on the Arkansas and Fort Towson on the Lower Kiamichi (see Ballantine and Ballantine, eds. 1993: Map "The Expansion West", p.314). In 1832 it became the route of the military road between Fort Smith and Fort Coffee (the latter in the vicinity of the Spiro site) in the Arkansas Valley and Fort Towson (McWilliam, Lane and Johnston 1989). Finally it became the railroad route between Spiro, Oklahoma in the Arkansas Valley and -- crossing the Red River about 20 miles east of the Sanders site -- Paris, Texas in the Red River Valley. The "Kansas City - Southern" line ran from the town of Spiro to Poteau, Oklahoma. The "St. Louis - San Francisco" line ran, via a natural gorge through Winding Stair Mountain, from Poteau to Antlers, Oklahoma and Paris, Texas.

[7] Considering Phillips and Brown's (1978:169) conclusion that "the lower Mississippi Valley and the lower Red River Valley cannot have constituted the route by which the medium of engraved shell reached the Caddoan area," there is no plausible stylistic or

distributional basis for supposing that any of the Sanders shell inventory came from anywhere but the Arkansas Valley via an overland route from Spiro.

Even the freshwater beads and pearls must be imports because throughout its Texas, Oklahoma, Arkansas and north Louisiana reaches, the Red River is too salty to support significant populations of freshwater shellfish. Except fossilized "oyster" shell, shellfish do not appear on the extensive list of minerals, animals and plants observed or collected by Custis during the Freeman-Custis expedition (Flores 1984: 215-279). According to Flores (1984: 208, note 44) the salinity comes from the great Permian salt bed which underlies much of the course of the Red River across the southern plains and it is significant; Custis reported that "The Water of Red River above the Coushatta Village [in northwest Louisiana] is so strongly impregnated with salt as to render it unfit to drink. When the water is low we find the Sand beaches rendered white with salt" (Flores 1984:208).

[8] Unbeknownst to Krieger in 1976, his type Sanders Plain, which dominates the mortuary assemblage at the Sanders site, is the predominant fine ware type at Spiro where Brown has recognized that it is a regional variant of the Mississippi Valley type Old Town Red (Brown 1971:164-170; Schambach 1993a: 212-213).

Although he did not have the data necessary to see the Spiroan affinities of the Sanders pottery, Krieger (1946: 217) was aware of its numerous Middle Mississippian affinities. Noting "some thread of connection in the direction of the Ohio-Mississippi confluence," he commented on the resemblance of "at least one" Sanders bowl to the Cahokia type Monks Mound Red. He also noted that the engraving on his type Sanders Engraved resembled the "engraved motifs found in the central Mississippi basin" and that some Sanders Engraved pots resembled the 'bean pots' in the Spoon River and Trappist foci in southern Illinois." And he noted the Central Mississippi Valley affinities of certain attributes of his other new Sanders types, Monkstown Fingernail Punctated (as the type was then called) and Maxey Noded Redware.

[9] Krieger (1946:216-218) recognized that three or four of the 62 pots from the graves at Sanders, such as a "tripartite" bottle, a negative painted bottle and the two "bean pots" mentioned in the previous note were imports from the Mississippi Valley. This opens the possibility that, except one bottle Krieger himself considered an import form about 200 miles down the Red River in Arkansas, all the pots from the graves at Sanders were imported from the Arkansas Valley, if not farther east and north.

[10] When she compared the Sanders skeletons with Caddoan skeletons from the Hatchel-Mitchell site located 120 miles down the Red River from Sanders, Dow (1987) discovered that the two populations were genetically different. Having no inkling that the Sanders population might not have been Caddoan, she tried to explain the differences by raising the archeologically unsupported possibility that the Sanders people were interbreeding with some Plains population.

[11] Jackson (see Burnett 1990: 393-398) found the infection rate in the adult population at Sanders "dramatically" high compared to Caddoan populations in the Red River Valley, which exhibit low infection rates. She identified lesions of two types, osteitis and osteomyelitis, both unreported for early Caddo populations in the Red River Valley but grimly characteristic of the Spiro phase population of the Arkansas Valley where skeletons from the Morris and Horton sites evince an "epidemic" of endemic syphilis or some other form of treponemal infection of childhood (Burnett 1988:212-214). From this (and the abundant archeological evidence indicating a strong Arkansas Valley connection) I infer that the adults buried in archeologically confirmable "Sanders Focus" graves at the Sanders site were immigrants who grew up in the Arkansas Valley (Schambach 1993b:14).

[12] This study, which was done independently of my work on Sanders, admirably supports my conclusion (unknown to Wilson at the time she was doing her work) that the Sanders people were long distance traders regularly plying the 150 mile riverine and overland route between the Sanders site and the Arkansas Valley.

[13] Bois d'arc is now more commonly called Osage orange. Other names for it are: bodark, hedge, hedge apple, Osage apple, horse apple, mock orange, bow wood and yellow wood (Burton 1973:4).

[14] Caddo pots, arrow points, Red River Caddo pipes, Catahoula sandstone abraders and items of a few other types were traded up the overland route to Spiro and points north and east (Schambach 1993b:15) but I doubt they were the main reason Spiroan traders were moving high value prestige goods such as conch shell cups, engraved shell gorgets, and zoomorphic and anthropomorphic stone pipes the 150 miles from Spiro.

[15] The qualities that make it superior are its high elasticity -- it is difficult to break a bois d'arc bow or wear one out -- and its high speed of recovery when the bow is bent and released. Thus bois d'arc bows were more durable and would shoot arrows significantly faster, harder and farther than bows of all other woods available to the Indians east of the Rocky Mountains (Hamm 1989:13-23).

[16] The other is yew. Yew (Pacific yew) was available along the Northwest Coast but apparently not widely traded east of the Rockies, so bois d'arc was the best bow wood available in Eastern North America, the Plains and the Southwest (Peattie 1953:480; Laubin and Laubin 1980:59; Hamm 1989:22; Hamm 1992; Atwill 1992).

[17] In his classic study in 1923 of aboriginal bows from around the world Saxton Pope (1962:14-15) found most North American specimens either weak or difficult to shoot. The outstanding exception, obtained from a Yaqui Indian, was "... a much used bow, of Osage orange or bois d'arc" which he judged "a strong, useful ... pleasant bow to shoot ... it pulls 70 pounds and casts the flight arrow 210 yards." "This," he wrote, "is the best distance made by any aboriginal bow in our tests, and speaks well for the wood employed."

The esteem of modern archers and bowyers for this wood was shared by Indian archers and bowyers, and by early European observers who saw or heard tell of bows of *Maclura pomifera* in action. Around 1920 an old Omaha bow maker told Francis La Flesche: "The Osage and the Kansa had the best and most costly [bows]. This remark does not refer to the making but to the quality of the wood. This wood was called by the Osage and Kansa minn'-dse-sta, smooth-bow and by the Omaha, Zhon-zi, yellow-wood, the most serviceable of any of the bow woods. The yellow-wood was called by the French, bois d'arc" (La Flesche 1924:112). "So much do the savages esteem the wood of this tree for the purpose of making their bows," wrote Meriwether Lewis to Thomas Jefferson in 1804, "that they travel many hundred miles in quest of it" (Jackson 1962:171). In 1806, Peter Custis said of the Red River Caddo, then (as we will see) at the end of what had been at least an 800 year tradition of making and using bows of *Maclura pomifera*: "They have some firearms among them, but their principal weapon is the Bow and Arrow, which they wield with astonishing dexterity & force. -- It is said they can with great ease throw the Arrow entirely through a Buffaloe" (Flores 1984:169-170).

[17] I have examined and photographed fragments of at least one and probably as many as 3 other bois d'arc bows in private collections from graves in mounds at the Bowman site (3LR46) in the Red River Valley in southwest Arkansas. These specimens, excavated in the 1960s by relic collectors, came from burials similar in age and type to Burial Pit 5, Mound 5 at Mounds Plantation.

There are three reasons for the survival of these 900 to 1000 year old bows. One is that the heartwood of bois d'arc "is the most decay resistant of all North American timbers, mainly because it contains an anti-fungal agent" (Burton 1973:5). Another is that the exceptionally deep grave pits characteristic of early Caddo burial mounds sometimes penetrated the water table beneath the mounds, as did Burial 5, Mound 5 at Mounds Plantation, creating a favorably moist environment for the preservation of wood. Third, the almost routine occurrence in early Caddo graves of clusters of arrow points probably representing quivers or bundles of arrows suggests that Caddo males were generally buried with bows and arrows at their sides.

[18] Although this is probably the oldest surviving

example from eastern North America, at least, the technique of "recurving" the tips of a bow to improve the "cast," (*i.e*, to make it shoot an arrow faster and thus with a flatter trajectory) was widely known and used in aboriginal North America (Laubin and Laubin 1980: 20). A good seventy pound bow with recurved tips will shoot about 30 feet per second faster than the 150 to 170 feet per second that a good seventy pound long bow is capable of. The extra 30 feet per second makes the recurved bow a more accurate long range (30 to 50 yard) weapon than an unmodified long bow (Hamm 1992:24- 25; Wallentine 1988:27: Laubin and Laubin 1980:20).

[19] Among modern archers, only the very strong and very experienced can handle a 70 pound long bow. Most prefer bows in the 55 to 65 pound range, which are powerful enough for any big game in North America, including buffalo.

[20] An old and oft-repeated story among travelers on the Plains, beginning with Castenada's chronicle of the 1540 Coronado expedition where it is reported that a "Teya" Indian shot an arrow through both shoulders of a buffalo (Laubin and Laubin 1980: 16-17). Given good archers wielding powerful 60 and 70 pound bows at short range, this probably happened now and then, provided the arrow missed the bone.

[21] And earlier; according to Swanton (1942:138), "the Kadohadacho country was famous for its bow wood, the Osage orange or bois d'arc. Joutel [who was in the Red River Valley in 1687 states that Indians came to their country to get it from distances of 50 or 60 leagues, and that two Caddo Indians joined his party on their way to the Quapaw to barter bows and arrows for products to be had along the Mississippi."

[22] Significant numbers of turquoise beads and pendants have been found at the Sanders site by surface hunters (David Jurney, personal communication, 1994), at the Goss site directly across Bois d'arc Creek from the Sanders site (Housewright 1946), and at the nearby Sam Kaufman site (Skinner, Harris and Anderson 1969:13). Since turquoise is not found on sites farther east in the Red River Valley or in the adjacent uplands of southwest Arkansas, northeast Texas and northwest Louisiana, but only in the vicinity of the Sanders site where (as I argue further on) the only native stands of bois d'arc in the world were to be found, Swanton was probably right that Southwestern Indians were trading turquoise for bois d'arc bows.

[23] Bows remained popular among mounted Plains Indian buffalo hunters long after the introduction of muzzle-loading guns. The reason is apparent in this 1851 description by Rudolph Frederick Kurz of shooting buffalo from horseback with a muzzle loader. "The hunter chases buffaloes at full gallop, discharges his gun, and reloads without slackening speed. To accomplish this he holds the weapon close within the bend of his left arm and, taking the powder horn in his right hand, draws out with his teeth the stopper, which is fastened to the horn to prevent its being lost, shakes the requisite amount of powder into his left palm, and again closes the powder horn. Then he grasps the gun with his right hand, holding it in a vertical position, pours the powder down the barrel, and gives the gun a sidelong thrust with the left hand, in order to shake the powder well through the priming hole into the touch pan (hunters at this place discard percussion caps as not practical).

"Now he takes a bullet from his mouth and with his left hand puts it into the barrel, where, having been moistened by spittle it adheres to the powder. He dares never hold his weapon horizontal, that is, in position taken when firing, for fear the ball may stick fast in its course, allowing sufficient air to intervene between powder and lead to cause an explosion and splinter the barrel. So long as the ball rolls freely down there is no danger. Hunters approach the buffaloes so closely that they do not take aim but, lifting the gun lightly with both hands, point in the direction of the animal's heart and fire. They are very often wounded on the face and hands by the bursting gun barrels, which, especially when the weather is extremely cold are shattered as easily as glass" (Hanson 1959:127-128).

[24] Although there is no doubt that bois d'arc bows were widely distributed on the Plains, the evidence that the Osage were the middlemen in the trade of

these bows to the central and northern Plains tribes seems to be entirely circumstantial. While I am still hopeful, I have not been able to find historical confirmation that the Osage actually traded bois d'arc bows or bow staves to anyone. Thus my assertion that they "were purveying" them to the Plains tribes is an inference based mainly on these three pieces of evidence: (1) the fact that the wood was so strongly associated with them that it came to be known as "Osage orange" rather than bois d'arc during the nineteenth century; (2) the fact that they had the reputation of having "the best and mostly costly... and most serviceable of any of the bow woods.. the yellow-wood...called by the French bois d'arc" (La Flesche 1924:12), and (3) the fact that their location on the Missouri and their well documented seasonal movements between there and the Red River Valley (Voget 1974:64-103) would have made them the ideal middlemen between the stands of bois d'arc in the Red River Valley -- the only ones there were, in my opinion -- and the central and northern plains tribes desiring the wood.

[25] In 1832, when the value of horses was probably already a bit lower on and near the Central Plains than it was in 1810, George Catlin traded two horses, bought from a local trader at $25 each, for a Mandan headdress he craved, apparently the one depicted in his painting of the Mandan chief Mah-to-toh-pah, or "Four Bears" (Catlin 1973: 101 and Frontispiece). Since a bois d'arc bow was worth more than a horse in the Plains Indian exchange system circa 1810, one blanket more to be exact, bois d'arc bows would have been worth at least $25 each in U.S. currency.

Considering the wages being paid in that area *circa* 1810, that would have been a significant sum of money. For example, in 1804 "A blacksmith was sent to the Big Osage village at a salary of four hundred dollars per year" (Din and Nasatir 1983: note 11), or about a dollar and a quarter a day for a six day week. And in 1806, Peter Custis's pay as co-leader and chief scientist on the Freeman-Custis expedition up the Red River was "three dollars a day" plus expenses (Rowland 1930;189). Assuming that the blacksmith's $400 per annum would have been equivalent to minimum wage today (@ $4.50 an hour or $8640 a year), a bois d'arc bow would have been worth about $540 in 1995 dollars. As it happens, modern bowyers generally charge $500 to $600 for custom made bois d'arc bows.

The relative value of horses, and -- it would appear -- of bois d'arc bows as well, in the Plains Indian prestige goods economy in the first few decades of the nineteenth century can be deduced from Catlin's (1973; 101) explanation for why he had to trade fifty dollars-worth of horses for his Mandan headdress. "I have had abundant opportunity," he wrote, "of learning the great value which these people sometimes attach to ... items of dress and ornament" [such as head dresses] "and I have often been surprised at the prices demanded for them." Head dresses were, he explained (1973:101), "the most costly part of an Indian's dress in all this country ... owing to the difficulty of procuring .... the war-eagles' or ravens quills and ermine" of which they were "generally made"... "the war eagle being the '*rara avis*' and the ermine the rarest animal that is found in the country. The tail of a war-eagle in this village, provided it is a perfect one ... will purchase a tolerable good horse."

Since a bois d'arc bow was worth more than a horse in 1810, it was probably also worth more than a "war eagle tail", and two bows were probably worth as much as a whole head dress, surely one of the most valuable items in the Plains Indian prestige goods economy.

[26] I now doubt that this stand, which is reportedly at a place called Bois d'arc Spring in Big Bend National Park is natural. Peattie (1953:480), who is the only one to claim it is a natural stand, offers no justification for doing so. The name suggests the trees came from the Red River Valley as seeds or seedlings.

[27] I hate to beg the question on this point, but this subject is too complicated to be dealt with in an end note. As I will demonstrate in a forthcoming publication based on a paper presented at a recent conference (Schambach 1994), close reading of sources pertinent to the distribution of bois d'arc from the seventeenth century through the first decades of the nineteenth century (Jackson 1962:170-171; McDermott 1963:94 n.55, 111, 114, 114 n.121, 121;

Rowland 1930;162-174; Flores 1984:39, 92-93, 193 n.35, 260, 327-330, 330 n.14; Flores 1985:119 n.29; Lottinville 1980:131-132, 158, 172-173, 177; Bushnell 1927:7-8, Pl. 3; Bell and Weddle 1987:255), and of sources pertinent to the ecological requirements and evolutionary history of the species (Burton 1972:4-5; Smith and Perino 1981:28-30, Fig. 2; Winberry 1979; Brown 1986:53; Janzen and Martin 1982:27), indicates that the distribution of bois d'arc *circa* 1700 was probably considerably more limited than that suggested by the regional environmental historian, Flores (1984:260-261 n.224; 1985:114, n.29), which is dramatically more limited than even the most conservative distribution proposed by the botanists, who have generally misunderstood the historical data.

Implausible as it may sound, a good case can be made for the hypothesis that as of 1700 all the bois d'arc in the world was growing along Bois d'arc Creek and perhaps a few other nearby streams meandering through the Blackland Prairie in northeast Texas. Considering the unusual ecological and evolutionary status of the species at the time of European contact (Janzen and Martin 1982:27), namely that it was probably virtually extinct for want of an animal vector that could disperse its seeds efficiently and in the right environments, even the stands Nuttall (1980:172-178) discovered on the north side of the Red River in 1819 may not have been natural. They might have been recently established by the horses that Spanish expeditions accidentally introduced into that part of the Red River Valley in 1689-91 (Flores 1985:102, n.8), and that quickly proliferated, taking the place of the one or more extinct or extirpated Pleistocene species -- perhaps horses -- that Janzen and Martin (1982) suggest must have dispersed and propagated bois d'arc originally.

[28] My interpretation of Spiro (Schambach 1993a) and Sanders in terms of prestige-goods economics parallels and complements Peregrine's (1992) conceptualization and interpretation of the Mississippian phenomenon as a prestige good world-system theory (*e.g.*, Schortman and Urban 1987). Thus the Sanders site was an entrepot in a mid-continent wide prestige good world-system centered at Cahokia which, via Spiro, included the Southern Plains and the Caddo area.

[29] I am beginning to suspect there was more involved than mere "appreciation" and "use" of Mississippian prestige goods on the part of an established and fundamentally independent Caddo hierarchy. According to one of the basic tenants of world-system theory (e.g., Champion 1989; Dincauze and Hasenstab 1989), participation in the Mississippian prestige goods economy via trade in bois d'arc bows (manufactured by craftsmen living up and down the Red River) could have helped sustain the Early Caddo chiefdoms of the Red River Valley, perhaps considerably, and it may even have helped create them.

Obviously, this is another idea that can't be dealt with in an end note, but -- for two reasons, mainly -- I think it is worth pursuing. One is that Mississippian prestige goods are characteristic of all the early Red River Valley centers (end note 5) and, if anything, they seem to be most abundant at the earliest ones. The other is that in the Ouachita and Little Missouri drainages, where there was no bois d'arc, we have found no ceremonial centers as early as Crenshaw, Bowman, Mounds Plantation, and Gahagan, and no early Mississippian prestige goods to speak of.

[30] I think that is where many of them went but, considering the obvious superiority of bois d'arc bows to any other kind, others must have gone east and northeast to Cahokia via Spiro (Lafferty 1994:201) and other Mississippian centers just as they were being traded east tot he Mississippi Valley in 1687 (Swanton 1942:138).

[31] There is (Schambach 1993a:198-199) good evidence that from at least A.D. 1100 (Dillehay 1974 to the contrary notwithstanding; Davis 1987:119) "bison hides were being processed in a big way at habitation sites throughout the Arkansas Valley from the Forks of the Arkansas to Spiro". So there is archeological support for my argument that buffalo products were being canoed down the Arkansas, and probably the Canadian as well, to Spiro.

Voget (1974:250, 252) states that during the historic

period in the territory that is now Oklahoma "buffalo *en masse* did not appear east of the 97th meridian, latitude 37 degrees" and that "the 97th parallel represented the eastern extension of buffalo at the Arkansas River, curving northeastwards in the direction of the Kansas River, and sweeping sharply to the southwest near the Canadian River". Perhaps that wasn't true *circa* A.D. 1000. But supposing that it was, and supposing that Spiroan traders interested in trading bois d'arc bows for buffalo products would have established entrepots at points where major rivers entered the buffalo country, we would expect to find entrepot sites on the Arkansas River in the vicinity of Arkansas City -- and assuming the "buffalo line" curved southwest from there to the Canadian River, as Voget's statement seems to indicate -- on the North Canadian in the vicinity of Oklahoma City; there might be another on the Cimarron between Perkins and Guthrie.

I think one of these entrepots has already been found, namely the mysterious Nagle site (Shaeffer 1957), known only from 16 graves salvaged from a cemetery of (as everyone now seems to agree) Spiroans who died 170 miles from home in central Oklahoma (Schambach 1993a:207-208; 1993b:25, 26, n.20, n.219). Brooks (1994:319-321) has argued, on an *ad hoc* basis, that "it appears that the Nagle people were a refugee population from the Spiro site .... a lineage or population group that was forced to emigrate". Since the site is on the North Canadian River a half mile north and two miles east of Oklahoma City, *i.e.*, between 27 and 28 degrees west of the 97th meridian, I think they were Spiroan traders and their families who had established an entrepot on what was then the eastern edge of good buffalo country.

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