

UNIVERSITY OF TEXAS AT AUSTIN RADIOCARBON DATES XIII

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This list reports certain ^{14}C measurements completed by November 1978; other projects completed by this time will be reported later. Age calculations are based on ^{14}C half-life of 5568yr and modern standard of 95% NBS oxalic acid, supplemented by tree rings of pre-industrial wood from a log cut in the 1850's (Tx-540; R, 1970, v 12, p 249). Deviations reported are based on counting statistics of sample, background and modern, and are $\pm 1\sigma$, except that when sample count approaches either modern or background, 2σ limits are reported. Unless noted, $^{12}\text{C}/^{13}\text{C}$ measurements were not made and results are not corrected for ^{13}C fractionation (assumed ratio = -25% WRT PDB). Our laboratory uses liquid scintillation counting of benzene, with Li_2C_2 and vanadium-activated catalyst in preparation; chemical yields range between 95% and 99%. Three counters are employed; a Packard Tri-Carb Model 3002 and 2 Beckman LS320 spectrometers obtained through a grant from the National Science Foundation.

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CORRECTION

There is an incorrect site attribution in the "Conejo shelter series" in our XI date list (R, 1977, v 19, p 309-310), in which all samples are said to be from Conejo shelter, 41 VV 162. In reality, the first three samples, Tx-879, -880, -881, are from 41 VV 162A, an unnamed site next to Conejo shelter. The remaining samples of the series, Tx-1757 through Tx-1763, are correctly attributed to Conejo shelter itself.

I. GEOLOGIC AND OCEANOGRAPHIC SAMPLES

Texas

La Paloma Ranch series, Texas

Bones from 2 sites 0.8km apart, 14.5km S of main gate of La Paloma Ranch, 11km W of Riveria on Hwy 285, Kenedy Co, S Texas ($27^\circ 10' \text{ N}$, $97^\circ 58' \text{ W}$). Mammoth and other late Pleistocene fossils lie at depth of 1.2 to 1.8m in clayey sand and sand interpreted as alluvium. Coll 1975 and subm by R W Suhm, Dept Geol, Texas A & I Univ, Kingsville, Texas.

Tx-2194. La Paloma #1, apatite **10,700 \pm 4300**

Carbonized mottled in bone, matrix center of stock tank, 1.5m depth. Large error due to small sample size.

| | | |
|------------------|-------------------------------------|--------------------|
| Tx-2195A. | La Paloma #10, apatite | 9560 ± 120 |
| Tx-2195B. | La Paloma #10, collagen | 9300 ± 2300 |
| | Mammoth and horse bone, 1.8m depth. | |
| Tx-2196. | La Paloma #11, apatite | 9830 ± 110 |
| | Mammoth bone, 1.8m depth. | |
| Tx-2197A. | La Paloma #16, enamel | 8080 ± 480 |
| Tx-2197B. | La Paloma #16, dentine | 9400 ± 4700 |
| | Mammoth molars, 1.8m depth. | |

General Comment (RWS): dates agree with stratigraphic data and generally verify that La Paloma fossils represent some of youngest to have survived in North America. Additionally, indirect assoc of worked flint recovered from excavation backdirt suggests early man could have co-existed here with Pleistocene mammals.

Tx-2593. BUC 32, Galveston Bay, Texas **Modern**

Wood in Holocene sediments from +3m on N shore Galveston Bay, Texas (29° 41' N, 94° 52' W). Coll 1976 and subm by E W Behrens, Geophysics Lab, Univ Texas Marine Sci Inst, Galveston, Texas. *Comment (EWB):* field position of sample suggested recent high sea level stand. Age does not correlate with any such stands postulated in literature. Thus sample probably represents storm or flood.

Buccaneer Field series, Gulf of Mexico

Samples of sediment cores taken from localities on continental shelf near Buccaneer Oil Field, in Gulf of Mexico, SSE of Galveston, Texas. Subm to establish time-depositional framework for suite of sediments possibly contaminated by oil field, and to test model of possible effects on stable and radiocarbon isotope values of sedimentary carbon. Coll 1976 and subm by E W Behrens. Titles of samples include core number and depth in cm below sediment surface. Comments by EWB.

Tx-2565. BUC 50E, 70 to 80 **22,100 ± 1500**
Clayey mud (Beaumont Clay), (28° 53' 28" N, 91° 41' 39" W).

Tx-2566. BUC 50E, 95 to 105 **24,800 ± 1200**

General Comment on Tx-2565, -2566: dates indicate that uppermost Beaumont Formation was either deposited, or received organic carbon, during later Wisconsinan time. Stable carbon isotope values ($\delta^{13}\text{C} = -22.5$ to -23.1) suggest this was terrigenous carbon deposited when sea level was below this site (-22m).

Tx-2567. BUC 50E, 0 to 5 **6210 ± 650**
Muddy sand (Holocene surficial sediment).

Tx-2568. BUC 50E, 5 to 10 **7420 ± 670**
Muddy sand (Holocene sediment).

| | | |
|---|----------------------------|----------------------|
| Tx-2569. | BUC 50E, 10 to 15 | 7470 ± 430 |
| Muddy sand (Holocene sediment). | | |
| Tx-2570. | BUC 50E, 40 to 50 | 12,300 ± 4100 |
| Sandy mud (Holocene sediment immediately above Beaumont Clay). | | |
| Tx-2571. | BUC 500E, 0 to 5 | 2510 ± 170 |
| Muddy sand (Holocene surficial sediment), (28° 53' 28" N, 94° 41' 35" W). | | |
| Tx-2572. | BUC 500E, 5 to 10 | 5450 ± 290 |
| Muddy sand (Holocene sediment). | | |
| Tx-2573. | BUC 500E, 10 to 15 | 6340 ± 220 |
| Muddy sand (Holocene sediment). | | |
| Tx-2574. | BUC 500E, 28 to 32 | 8760 ± 710 |
| Sandy Mud (Holocene sediment). | | |
| Tx-2575. | BUC 500E, 50 to 60 | 11,500 ± 8100 |
| Sandy mud (Holocene sediment immediately above Beaumont Clay). | | |
| Tx-2576. | BUC 6000E, 0 to 5 | 1520 ± 280 |
| Muddy sand (Holocene surficial sediment), (28° 53' 28" N, 94° 40' 33" W). | | |
| Tx-2577. | BUC 6000E, 5 to 10 | 2490 ± 160 |
| Muddy sand (Holocene near-surficial sediment). | | |
| Tx-2578. | BUC 6000E, 10 to 15 | 5080 ± 520 |
| Muddy sand (Holocene near-surficial sediment). | | |
| Tx-2579. | BUC 6000E, 27 to 33 | 9370 ± 600 |
| Sandy mud (Holocene sediment). | | |
| Tx-2580. | BUC 49-52, 0 to 4 | 680 ± 240 |
| Muddy sand (Holocene surficial sediment), (28° 50' 00" N, 94° 38' 40" W). | | |
| Tx-2581. | BUC 49-52, 4 to 8 | 1420 ± 220 |
| Muddy sand (Holocene near-surficial sediment). | | |
| Tx-2582. | BUC 49-52, 8 to 12 | 1780 ± 300 |
| Muddy sand (Holocene near-surficial sediment). | | |
| Tx-2584. | BUC 49-52, 37 to 43 | 3350 ± 350 |
| Sandy mud (Holocene sediment). | | |
| Tx-2670. | BUC 49-52, #19 | 2140 ± 130 |
| Shell, 12 to 16m below sediment surface. | | |

General Comment on Tx-2567 to -2582, -2584, -2670: samples are from stations with 3 or 4 replicate cores per station and stations spaced 15m (50E), 152m (500E), 1.8km (6000E), and 7.3km (49-52) in generally offshore direction from one of two major producing platforms in Buccaneer Oil Field. Dates indicate: 1) disseminated organic matter (source of carbon dated) gives compatible results in that all ages within a core increase with depth; 2) sedimentation rates generally increase with age from less than 0.5cm/100yr at surface to between 1.5 and 2cm/cent at depths of 0.5 to 1m; 3) surficial and near-surface sediments are oldest nearest platform and youngest farthest from it, which indicates erosion caused by concentration of currents by platform legs; 4) post-Pleistocene transgression inundated this area ca 12,000 BP, but this is either 4000yr too early or 20m too high according to widely used eustatic sea level curves. High standard deviation of Tx-2570 and -2575, 4000 and 8000yr, respectively, reduce certainty of this discrepancy, but other dates with much lower standard deviations support it.

Tx-2591. BUC 50E, 1.5 to 11.5 7550 ± 370

Muddy sand (Holocene near-surficial sediment), (28° 53' 28" N, 94° 41' 39" W). *Comment:* sample from replicate core at Sta 50E, representing same depth interval as Tx-2567 to -2569 combined. Dates are within 7% of each other and support use of composite material from replicate cores.

Tx-2664. BUC 500E, #7 4000 ± 120
Shell, same as Tx-2571.

Tx-2665. BUC 500E, #8 4700 ± 180
Shell, same as Tx-2572.

Tx-2667. BUC 6000E, #14 4460 ± 230
Shell, same as Tx-2578.

Tx-2669. BUC 49-52, #17 1250 ± 170
Shell, same as Tx-2581.

Tx-2671. BUC 49-52, #20 2230 ± 170
Shell, same as Tx-2584.

General Comment on Tx-2664, -2665, -2667, -2669, -2671: dates are on shell material from same samples as Tx-2571, -2572, -2578, -2581, -2584, respectively. Shell dates approximately corroborate all but one of disseminated carbon dates but range from 200 to 1100yr younger; Tx-2664 is 1500yr older. Cause for differences not known.

Tx-2585. BUC 61-64, 8 to 12 3890 ± 150
Sandy mud (Holocene near-surficial sediment).

Tx-2586. BUC 61-64, 23 to 27 11,540 ± 460
Sandy mud (Holocene sediment).

Tx-2587. BUC 61-64, 48 to 52 **10,860 ± 380**
Sandy mud (Holocene sediment).

Tx-2588. BUC 61-64, 73 to 77 **11,120 ± 440**
Sandy mud (Holocene sediment).

General Comment on Tx-2585 to -2588: dates from upper 25cm of cores indicate that rate of sedimentation was much the same as at other sites from ca 11,000 BP to present; but next lower 50cm was deposited extremely rapidly at older date.

Tx-2641. BUC 57-60, 0 to 1 **4240 ± 100**
Shell hash (Holocene surficial sediment), (28° 55' 48" N, 94° 44' 22" W).

Tx-2642. BUC 57-60, 0 to 1 **4560 ± 70**
Shell hash (Holocene surficial sediment).

Tx-2643. BUC 57-60, 15 to 17 **4610 ± 70**
Shell hash (Holocene sediment).

Tx-2644. BUC 57-60, 14 to 16 **4460 ± 70**
Shell hash (Holocene near-surficial sediment).

Tx-2646. BUC 57-60, 33 to 35 **4130 ± 100**
Shells (Holocene sediment).

Tx-2672. BUC 57-60, 48 to 52 **3690 ± 200**
Shell.

Tx-2592. BUC 57-60, 48 to 52 **3850 ± 440**
Sediment.

General Comment on Tx-2641 to -2644, -2646, -2672, -2592: dates are from very shelly coring site inshore from oil field. Shell and disseminated organic carbon dates support each other within 300yr. However, ages do not increase with depth. Anomalous ages suggest that shell beds were deposited very rapidly ca 4000 BP and are essentially relict at present time.

Tx-2589. BUC 3000N, 100 to 110 **9500 ± 740**
Sandy mud (Holocene sediment), (28° 53' 57" N, 94° 41' 43" W).

Tx-2590. BUC 3000N, 90 to 100 **8940 ± 510**
Sandy mud (Holocene sediment).

General Comment on Tx-2589, -2590: samples from core at N edge of oil field; support rates of sedimentation indicated in control area offshore from field, Site 49-52, and support time of initial transgression over this area at ca 11,000 BP.

*Bahamas and Canada***Lucaya series, Grand Bahama Island**

Coral samples from ledge on Barrier Reef vertical drop-off, 1.6km S of Lucaya, Grand Bahama I. (26° 30' N, 78° 30' W). Coll 1975 and subm by R A Slater, Dept Earth Sci, Univ North Colorado, Greeley, Colorado.

Tx-2268. Lucaya 21-75 **650 ± 60**

74.48m depth.

Tx-2269. Lucaya 2-75 **3940 ± 120**

54.72m (180 ft) depth.

General Comment (RAS): dates fit in with other similar rocks from similar areas around Caribbean. Young date, Tx-2268, shows that coral tumbles down front of reef and is cemented to deep fore-reef wall under marine conditions.

Tx-2919. Eildun Lake #1, NW Territories **7510 ± 120**

Core sample of gyttja with small amount of shell and carbonate mud, 148 to 160cm below surface of sediment column, from Eildun Lake, adjacent to S arm of Fish Lake in Middle Mackenzie region, Dist Mackenzie, Northwest Territories, Canada (63° 08' N, 122° 47' W). Coll 1977 and subm by D S Slater, Archaeol Lab, Univ Manitoba, Winnipeg, Manitoba. *Comment (DSS)*: date and pollen data in general agreement, marking establishment of Boreal forest vegetation in this region.

II. ARCHAEOLOGIC SAMPLES

Texas

Tx-2564. Fall Creek #4, Texas **810 ± 80**

Charcoal from hearth in Fall Creek Site #4, N Fork Fall Creek, ca 48km W of Austin, Texas (30° 30' N, 98° 08' W). Unit 1, 3m E, 9.7m S, 50cm DBS, Level 5. Beneath Archaic component in different geol deposit. Coll 1976 and subm by M Stevenson, Simon Fraser Univ, Burnaby, British Columbia, Canada. *Comment (MS)*: evidently site was disturbed, possibly by major flooding of creek, which is ca 3.5m below shelter, > 800 yr ago.

Pratt Cave series, Texas

Samples from Pratt Cave site (MKA-1), McKittrick Canyon, Guadalupe Mountains Natl Park, 11.1km NE of Pine Springs, Texas (31° 59' N, 104° 46' W). Tx-1021, -1022 coll 1961 and subm by A H Schroeder, Natl Park Service, Santa Fe, New Mexico. Tx-2191, -2192, -2467 coll 1975 by E Lundelius Jr and subm by A H Schroeder.

Tx-1021. Pratt Cave 2588 **1420 ± 60**

Wood slab extending vertically from Level 1 into upper Level 2.

Tx-1022. Pratt Cave 2598 **1840 ± 60**

Basket fragment extending from Level 1 into upper Level 2, in trash area assoc with vertical wooden slabs, Tx-1021.

Tx-2191A. Pratt Cave 1302-3, apatite 2560 ± 340

Tx-2191B. Pratt Cave 1302-3, collagen 2820 ± 180

Bones of modern animal species, Level 2, Blocks 10 through 15.

Tx-2192A. Pratt Cave 1305-6-7, apatite 2090 ± 420

Tx-2192B. Pratt Cave 1305-6-7, collagen 2320 ± 70

Bones of modern animal species, Level 2, Blocks 2 through 9.

Tx-2467. Pratt Cave 1340, collagen 2200 ± 60

Burned human bones, Feature 1; from below rocks at base of Level 2 and small pit dug into Level 3.

General Comment (AHS): Level 2 dates (Tx-2191, -2192, -2467) are appropriately older than wood and basketry assoc with trash area which is evidently intrusive into Level 2. Cultural affiliation unknown.

Horn Shelter No. 2 series, Texas

Charcoal and snail shells (*Bulimulus*) from Horn Shelter No. 2 (41BQ46; Watt, 1978), W bank Brazos R ca 9km below Whitney Dam, above Waco, Texas (31° 47' N, 97° 19' W). Site has 2 main sedimentary units: upper, red alluvial sands; lower, gray cave spalls. Lower unit has upper and lower parts. Coll 1969-1972, except as noted, by F H Watt and subm by Watt, D A Story, and E M Davis, this lab.

Tx-1720. Horn #2: 1 3470 ± 160

Charcoal from Sq 52, depth 259 to 290cm (102-114 in) in red alluvial sands, assoc with Pedernales points and bone fishhooks.

Tx-1722. Horn #2: 3 9980 ± 370

Charcoal from Sq 47, depth 396 to 411cm (156-162 in) in upper gray cave spall unit, assoc with Brazos Fishtail points and crude patinated scrapers.

Tx-1723. Horn #2: 5 590 ± 60

Charcoal from Sq 5B/5C, depth 147 to 152cm (58-60 in), in upper part of red alluvial sands outside overhang of shelter, assoc with earliest occurrence of Perdiz points at site.

Tx-1830. Horn #2: A 9500 ± 200

Charcoal from Sq 46, depth 381 to 406cm (150-160 in), same context as Tx-1722, above. Double burial nearby.

Tx-1995. Horn #2: 1A 3690 ± 70

Snail shells from Sq 47, depth 259 to 290cm (102-114 in), assoc with Tx-1720, above.

Tx-1996. Horn #2: 2A 8400 ± 110

Snail shells from Sq 42, depth 320 to 355cm (126-132 in), in calcified red sand stratum dividing upper from lower gray cave spall unit, assoc with Plainview points.

Tx-1997. Horn #2: 3A **10,310 ± 150**

Snail shells from Sq 42, depth 381 to 406cm (150-160 in), same context as Tx-1722, above.

Tx-1998. Horn #2: 6A **10,030 ± 130**

Snail shells from Sq 41, depth 381 to 406cm (150-160 in), same context as Tx-1722, above.

Tx-1999. Horn #2: 8 **2330 ± 60**

Charcoal from Sq 17, depth ca 191cm (75 in), beneath rock slab in upper part of red alluvial sands, assoc with Marcos points.

Tx-2000. Horn #2: 8A **2510 ± 90**

Snail shells, same context as Tx-1999, above.

Tx-2001. Horn #2: modern snails $\delta^{14}\text{C} = +286.38 \pm 3.6\%$

Shells of modern snails coll alive in 1974 from low bushes near Horn Shelter #2. *Comment* (EMD): ultra-modern ^{14}C content indicates shells are not significantly contaminated by metabolism of environmental lime.

Tx-2189. Horn #2: B **10,150 ± 120**
 $\delta^{13}\text{C} = -4.48\%$

Turtle bones (*Geochelone* or *Gopherus*; E L Lundelius, pers commun) from bottom of gray cave spall unit, on surface of underlying gravels. No artifacts assoc; sample is deeper than Brazos Fishtail and other fishtail points. *Comments* (EMD), (ELL): date more recent than current estimates of time of extinction of giant tortoises in this area; recent work, and this date, suggest these estimates must be reexamined.

General Comment (FHW & EMD): dates are stratigraphically consistent and provide 1st chronology for human occupation of central Brazos valley from Paleo-Indian to recent times. Shell dates are older than assoc charcoal, as expected in limestone environment; however, modern shells (Tx-2001) suggest this should not be the case.

Mitchell Ridge series, Texas

Samples from Mitchell Ridge site (41GV66), Texas, 17.7km SW of Galveston City on E-W ridge, highest point on Galveston I. (29° 13' 06" N, 94° 56' 08" W). Coll 1975-76 and subm by B Burger, Dept Anthropol, Rice Univ, Houston, Texas, unless otherwise indicated.

Tx-2598. Mitchell Ridge 1160 **230 ± 70**

Shell from hearth, Feature 28, with pottery and bone remains, Area C C, underlying Stake S15 E71, hearth depth 10 to 25cm.

Tx-2599. Mitchell Ridge 1218 **>40,000**

Charcoal-like substance, Area C C, S16 E74, 29cm from N, 38cm from E, Level 3, depth 15 to 20cm.

Tx-2600. Mitchell Ridge 687A 32,500 ± 2610

Charcoal-like substance under possible "shell floor," Area Cross, balk 20cm sq beneath Stake N36 E79, depth 33cm; sample 0.5m S of Burials 7 and 8 also beneath shell floor.

Tx-2601. Mitchell Ridge 752 >40,000

Charcoal-like substance from Area Cross, N38 E80, Subfloor 2, 14cm. Assoc with shell, pottery and faunal remains. Coll 1975 by P Bruce.

Tx-2602. Mitchell Ridge 832 >40,000

Charcoal-like substance from Area Cross, N46 E78, 25cm from S, 17cm from E, Level 5, 24cm below surface. Assoc with pottery, faunal remains, and burned shell in occupation area.

Tx-2603. Mitchell Ridge 834 >40,000

Charcoal-like substance from pit fill of Burial 10, Area Cross, N40 E79, depth 77cm. Coll 1976 by W McClure.

Tx-2604. Mitchell Ridge 750 Modern

Shell from oval shell concentration, Feature 27, Area Cross, N38 E80, depth 10cm; shell concentration may have been floor of hut or marker of burials beneath. *Comments* (BB): no explanation for modern date as all artifacts assoc with sample were Indian. (SV, Jr): shell normally gives older dates than charcoal in this area; sample must be modern.

Tx-2605. Mitchell Ridge 2106 780 ± 150

Charcoal from hearth, Feature 10, Area Corral 2, TT 1, Sq 7, depth 10 to 25cm. Assoc with oyster shell and large pieces of pottery. Coll 1975 by W L Fullen and B Burger.

Tx-2606. Mitchell Ridge 2106A 510 ± 50

Oyster shell from same location as Tx-2605, above. Coll 1975 by W L Fullen and B Burger.

General Comments (BB): Tx-2598, -2605, -2606 fall within expected time range of Karankawa occupation; Tx-2599 through -2603 probably contaminated by asphaltum used by Indians to waterproof and mend pottery. (SV, Jr): "charcoal-like substance," when burned in lab, resembled petroleum product; asphaltum use is logical explanation.

Hoxie Bridge series, Texas

Charcoal from fire pits, Hoxie Bridge site (41WM130), S bank San Gabriel R, 300m E of Hoxie Bridge, in Granger Reservoir basin, central Texas (30° 41' 10" N, 97° 22' 30" W). Coll 1977 by Bond & Shafer and subm by C L Bond, Anthropol Research Lab, Texas A & M Univ, College Station, Texas. Depths are below surface. Comments by CLB.

Tx-2729. Hoxie Bridge, AM-C13 800 ± 70

Feature 5, Unit 5(J), N202E270, depth 35cm. Scallorn point assoc. *Comment*: probably later Austin phase occupation.

Tx-2730. Hoxie Bridge, AM-C15 700 ± 60

Feature 7, Unit 5, N202E270, depth 30 to 35cm. Alba point assoc.
Comment: early Toyah phase.

Tx-2731. Hoxie Bridge, AM-C31 1740 ± 100

Feature 16, Unit 11(M), N208E270, depth 106 to 109cm. Burned rock pavement, Darl point assoc. *Comment:* Twin Sister phase, one of earlier occupations of site.

Tx-2868. Hoxie Bridge, AM 14/F26(596) 1360 ± 640

Feature 26, Unit 14(P), N206E268, depth 40cm. Alba point assoc.
Comment: dated to separate times of Austin and Toyah phase components. Large error, due to small sample size, prevents such separation.
General Comment: dates indicate > 1000yr of almost unchanged exploitative strategy from Twin Sisters through Toyah phases.

Hinds Cave series, Texas

Samples from Hinds Cave (41VV456; Shafer & Bryant, 1977), W side Still Canyon, 3.2km above confluence with Pecos R, Val Verde Co, SW Texas (29° 53' 29" N, 101° 26' 24" W). Coll 1975-77 by Shafer *et al* and subm by H J Shafer, Anthropol Research Lab, Texas A&M Univ, College Station, Texas. All samples charcoal unless otherwise indicated. Comments by HJS.

Tx-2732. 41VV456/196X #6 6230 ± 90

A-C trench, Unit 2, Lens 8. Assoc with early burned rock midden and Bandy projectile point. *Comment:* date in late range for Bandy.

Tx-2733. 41VV456/297 #7 1820 ± 70

Area F-3, Unit 3, Level III, Lens I. Stratigraphically late burned rock and fiber midden with assoc Ensor points. *Comment:* date consistent with nearby Arenosa Shelter sequence (Dibble, 1967).

Tx-2734. 41VV456/650X #8 8490 ± 130

Area G, Unit 1-C, Level IV. Assoc with Bandy and Plainview golon-drina points. *Comment:* date in early range for Bandy.

Tx-2735. 41VV456/96X #9 6160 ± 80

Area A-C trench, Unit 3, Lens 5C. Early Archaic; same assoc as Tx-2732 (above). *Comment:* agrees with Tx-2732.

Tx-2736. 41VV456/885 #10 7490 ± 100

Unit C, Level II. Early Archaic. *Comment:* date consistent with diagnostic "early barbed" point types and stratigraphic context.

Tx-2737. 41VV456/172 #11 8180 ± 110

Area D, Unit D-1, Level 7. Early Archaic. *Comment:* date is from one of deepest occupation lenses in cave, assoc with coprolites and early sandal form.

- Tx-2738. 41VV456/407X #12** **7470 ± 120**
Area C-South, Unit 3, Lens 5. Early Archaic context with Bandy points. *Comment:* date stratigraphically consistent with Tx-2736.
- Tx-2739. 41VV456/AC 19X #13** **11,550 ± 190**
Prickly pear with charcoal from N wall A-C trench, prickly pear pad floor. Coll 1977 by G Williams-Dean. *Comment:* date should be more recent than earliest occupation lens (Tx-2866, below, 9120±90) but is inconsistently early; reason not known.
- Tx-2740. 41VV456/786 #14** **3840 ± 70**
Area A, Unit Ae, Lens V. Middle to late Archaic.
- Tx-2741. 41VV456/771 #15** **3780 ± 70**
Unit Ae, Lens IV. Late Archaic.
- Tx-2742. 41VV456/612 #16** **4510 ± 70**
Area Aw, Lens IXB. Middle Archaic.
- Tx-2743. 41VV456/661 #17** **4990 ± 70**
Area A, Unit Aw, Lens XII. Middle Archaic.
General Comment on Tx-2740-2743: dates from stratified fiber lenses generally lack diagnostic artifacts but correlate with major depositional episodes in site. In these terms, Tx-2740 and -2741 apply to Langtry and Val Verde points; Tx-2742 and -2743 apply to Pandale and Nolan points.
- Tx-2744. 41VV456/438X #18** **6540 ± 70**
Area A, Block A, Lens 5C. Early Archaic. *Comment:* assoc with same burned rock midden feature as Tx-2732, 2735, above; this date is older, but is in reasonable agreement.
- Tx-2745. 41VV456/504X #19** **8250 ± 80**
Area A, Block A. Lens 5K, beneath burned rock midden; early Archaic. *Comment:* date from one of deepest occupational lenses, assoc with diagnostic early sandal type.
- Tx-2746. 41VV456/666 (1975) #20** **2280 ± 60**
Area B, Block B, Lens III (1975). Late Archaic.
- Tx-2747. 41VV456/970 (1975) #21** **4760 ± 70**
Area B, Block B, Lens XI (1975).
- Tx-2748. 41VV456/821 (1975) #22** **3680 ± 80**
Area B, Block B, Lens VII-A (1975). Coll 1975 by V Bryant and E Baxter. Middle Archaic.
- Tx-2749. 41VV456/958 (1975) #23** **4410 ± 70**
Area B, Block B, Lens XI (1975). Middle Archaic.
- Tx-2750. 41VV456/335X #24** **4610 ± 70**
Area B, Block B South, Lens IIIB. Early Archaic latrine area.

Tx-2751. 41VV456/486X #25 6950 ± 90

Area B, Block B South, Lens 10B. Early Archaic coprolite lens. Coll 1976 by E Baxter.

General Comment on Tx-2746-2751: dates from stratified fiber lenses generally lacking diagnostic artifacts but which correlate with major depositional episodes in site. In these terms, Tx-2746 applies to corner-notched and expanding-base Archaic points; Tx-2747 and -2749 apply to Pandale points; Tx-2750 and -2751 apply to Bandy and "Early Barbed" points. Tx-2750 is inconsistently late in the stratigraphic sequence.

Tx-2865. 41VV456/B-77 #26 7530 ± 120

Charred wood, N wall A-C Trench, upper prickly pear lens. Early Archaic.

Tx-2866. 41VV456/E-77 #27 9120 ± 90

Stratigraphically deepest occupation lens in N wall A-C trench. Early Archaic or Paleo-Indian.

Tx-2867. 41VV456/A-77 #28 7950 ± 110

Lens 45 to 50cm below Tx-2865 in N wall A-C trench and stratigraphically above Tx-2866.

General Comment on Tx-2865-2867: dates consistent with stratigraphy: Tx-2866 oldest, Tx-2867 next, Tx-2865 latest. Tx-2865 & -2867 date Bandy and "Early Barbed" points. Note inconsistent date, Tx-2739, which is from same stratigraphic sequence.

Bear Creek site series, Texas

Charcoal from Bear Creek site (41HI17), N side Old Fort Park, E side Bear Creek, Lake Whitney, Texas (32° 00' 35" N, 97° 23' 50" W). Coll 1978 and subm by M J Lynott, Archaeol Research Program, Southern Methodist Univ, Dallas. All measurements below surface.

Tx-2939. SMU-ML5 630 ± 50

Unit 11, Level 8, 70 to 80cm. Perdiz point assoc; Toyah focus.

Tx-2940. SMU-ML1 1380 ± 100

Hearth in NE corner, Unit 3, Level 12, 110 to 120cm. Scallorn point assoc; Austin focus.

Tx-2941. SMU-ML2 1340 ± 60

Unit 3, Level 15, 140 to 150cm. Transitional I occupation zone.

Tx-2942. SMU-ML4 1570 ± 60

Hearth in Unit 2, 140 to 150cm. Transitional I occupation zone.

Tx-2958. SMU-ML6 4150 ± 140

Hearth in Unit 11, Level 25, 240 to 250cm. Late Archaic occupation zone, probably disturbed context.

Tx-2959. SMU-ML7 2110 ± 150
Unit 10, Level 23, 220 to 230cm. Transitional occupation zone.

Tx-2960. SMU-ML8 1130 ± 50
Hearth in Unit 12, Level 16, 150 to 160cm. Probably Austin focus.

Tx-2961. SMU-ML9 1030 ± 50
Unit 10, Level 15, 140 to 150cm. Austin focus.

Tx-2962. SMU-ML10 950 ± 50
Hearth in N half Unit 5, Level 11, 100 to 110cm. Austin focus.

Tx-2963. SMU-ML11 770 ± 100
Hearth in Unit 11, Level 10, 90 to 100cm. Toyah focus.

Tx-2964. SMU-ML12 1770 ± 140
Hearth in Unit 5, Level 18, 170 to 180cm. Transitional II occupation zone.

Tx-2965. SMU-ML13 2380 ± 220
Hearth in Unit 2, Level 26, 250 to 260cm. Late Archaic occupational zone.

General Comment (MJL): dates permit more accurate correlation of arbitrary excavation levels than possible with only stratigraphic data.

Florida, Mississippi, Arizona, Nevada

Little Salt Springs series, Florida

Samples from Little Salt Springs (8SO18) submerged sinkhole site within city of North Port, Florida (27° 04' 01" N, 82° 14' 01" W). Coll 1975 to 1977 and subm by C J Clausen, Gen Development Foundation, North Port, Florida; comment by CJC.

Tx-2460. GDF-LSS-0001 9500 ± 120

Segment of wooden stake placed in marly sediment at SW end of Trench 2, 12.8m below surface. *Comment*: this date and Tx-2461, below, reflect time of use of sinkhole by Paleo-Indian inhabitants when water level was lower than this feature.

Tx-2461. GDF-LSS-0002 9920 ± 160

Hickory nuts from calcitic mud sediment, SW end of Trench 2, 12.8m below surface. *Comment*: dates mud deposition; see Tx-2460, above.

Tx-2594. GDF-LSS-010 9080 ± 250

Wood from carved, partially burned mortar found near informal hearth on gray sand zone, Excavation A75, Sq I, 8.8m below present water surface. *Comment*: date applies to apparent occupation surface on which also lay socketed antler point, opened fresh water mussels, and scorched bones.

Tx-2595. GDF-LSS-011 10,190 ± 1450

Wood ash and charcoal fragments from informal hearth, Excavation B76 (apron), ca 6m below water surface. *Comment:* sample dates hearth on former surface of upper basin of spring.

General Comment: dates refer to times when site was passive sinkhole rather than active spring.

Claiborne Site series, Mississippi

Charcoal samples from Claiborne site (22HC35; Gagliano & Webb, 1970), 3.2km SE of Pearlington, Hancock Co, Mississippi, on terrace front overlooking Mulatto Bayou, 1.3km E of Pearl R at estuary (30° 13' N, 89° 35' W). Largest Poverty Point culture site on Gulf coast. Coll 1968 by Lowry and subm by C H Webb, 3409 Creswell, Shreveport, Louisiana.

Tx-1403. Claiborne #1 3990 ± 80

From possible cremation, E perimeter of semicircular midden, near mid-portion of arc, ca 0.9m depth in sand below midden immediately below cache of steatite vessels, assoc with copper rolls, copper pendant, and red bead.

Tx-1404. Claiborne #2 3470 ± 160

From midden at 46 to 61cm depth, N end of midden semicircle, ca 15.3m from end of midden where it drops off terrace toward marsh level. Elev above marsh and Gulf ca 4.7m. From black midden, assoc with clay ball fragments and other Poverty Point materials.

General Comment (CHW): dates are internally consistent in terms of time spread of Poverty Point culture, but are earlier than previous Poverty Point dates (Gagliano & Saucier, 1963; Gagliano 1963).

Dragoon Rockshelter series, Arizona

Charcoal from Dragoon Rockshelter #26, 21.7km NNE of Tombstone, Cochise Co, Arizona (31° 54' 20" N, 110° 02' 12" W). Coll and subm by N M Whalen, Dept Anthropol, Southwest Texas State Univ, San Marcos.

Tx-2801. Dragoon 26, #1 870 ± 70

Sq 1, depth 10 to 15cm, 90° and 50cm from datum.

Tx-2802. Dragoon 26, #2 210 ± 50

Sq 2, depth 23cm, 25° and 113cm from datum.

Tx-2804. Dragoon 26, alt 340 ± 50

Same as Tx-2801, depth 15 to 23cm.

General Comment (NMW): assoc with plain pottery and lithic debris. Inversion of dates reflects reversed stratigraphy caused by moving of earth by more recent inhabitants to create level floor.

Trego Hot Springs series, Nevada

Charcoal from Site 26PE118 (Davis & Elston 1972, p 45-48; Davis 1978), near Trego Hot Springs, S margin of Black Rock Desert, ca 60m N of State Hwy 49, 28.6km NE of junction with State Hwy 34, Pershing Co, Nevada (40° 46' N, 119° 07' W). Dated to correlate soil and sediment sequence in this part of Great Basin with cultural materials. Coll 1972 by J Toney and subm by M Rusco and J O Davis, Nevada Archeol Survey, Univ Nevada, Reno.

Tx-1728. 26PE118, #1 1120 ± 60

Feature 8, Sq 5N-9W, Level 4. Horizon 2d, uppermost horizon in Unit 2; latest horizon beneath surficial dune sand. From house pit fill assoc with small points resembling Elko series, but arrow, rather than dart, sized.

Tx-1729. 26PE118, #6 3020 ± 140

Sq 2S-1W, Level 5. Lowest level of midden deposit in this square. Position relative to vesicular horizon not certain; most likely just above (Horizon 2j, bottom of Unit 2) but may be below (Horizon 3c, highest part of Unit 3).

Tx-1730. 26PE118, #7 3810 ± 280

Sq 3S-13W; from hearth-like feature, Horizon 3d, lower part of Unit 3. Assoc with non-diagnostic artifacts. Earliest occupation of site, beginning of Medithermal Fallon Fm eolian sand deposition after drying up of Sehoo stand of Lake Lahontan.

Tx-1731. 26PE118, #2 2930 ± 90

Sqs 1S-3W and 1S-4W. Lower part of Unit 2, below Horizon 2d, assoc with living floors and cultural material.

Tx-1732. 26PE118, #3 2390 ± 80

Sq 2S-14W, Level 7. Lower part of Unit 2, below Horizon 2d, assoc with living floor, flake debris, possible graver.

Tx-1733. 26PE118, #4 2780 ± 260

Sq 2S-14W, Level 7, assoc with living surface at approx same level as Tx-1732, above. Assoc with chipped and ground stone artifacts.

Tx-1734. 26PE118, #5 3040 ± 850

Feature 7, Sq 2S-14W, Level 8. Lower part of Unit 2, assoc with living surface and cultural debris ca 10cm below Tx-1732 and -1733, above. *General Comment (JOD)*: archaeol analysis of site not completed. Dates are within Fallon Fm of Morrison (1964) and should postdate Toyeh Soil. Toyeh Soil not id here, but sand of site (Fallon Fm) overlies clay of lower Member of Sehoo Fm; clay contains Trego Hot Springs tephra bed (Davis, 1978). Dates indicate vesicular horizons can develop on eolian sand within 1000yr if source of fines (playa) available; several vesicular horizons formed during Medithermal.

Mexico

Laguna Zope series, Mexico

Charcoal from Laguna Zope (JU1; R N Zeitlin 1978; Zeitlin & Heimbuch, 1978), Preclassic site, ca 2km WSW of Juchitan, Oaxaca, Mexico (16° 25' N, 95° 03' W). Coll 1972 and subm by R N Zeitlin, Dept Anthropol, Brandeis Univ, Waltham, Massachusetts. Comments by RNZ.

Tx-1812. Laguna Zope D37A/DF 3050 ± 380

Test Pit JU1-D, 400cm level, rectangular pit lined with fired clay; Middle Preclassic (Rios phase) assoc. *Comment*: based on cultural assoc, date seems slightly early; sample age probably falls towards upper limit of 1 σ .

Tx-1952. Laguna Zope D36/DE 2650 ± 390

Test Pit JU1-D, 390cm level; Middle Preclassic (Rios phase) assoc. *Comment*: date agrees with cultural assoc, but large 1 σ error reduces usefulness.

Tx-1953. Laguna Zope D13/DB 2170 ± 80

Test Pit JU1-D, 160cm level; Late Preclassic (Kuak phase) assoc. *Comment*: date agrees with cultural assoc.

Tx-1954. Laguna Zope C13A/CG 1600 ± 190

Test Pit JU1-C, in pit lined with fired clay, 340cm level; Late Preclassic (Niti phase). *Comment*: relative to cultural assoc, date seems somewhat late; age probably closer to lower limit of calculated radiocarbon age.

Tx-1969. Laguna Zope BO/CM/CO 1990 ± 90

Test Pit JU1-B-C, 360 to 380 cm level; Late Preclassic (Kuak phase) assoc.

Tx-1970. Laguna Zope E23/EC 2250 ± 110

Test Pit JU1-E, 260 to 270cm level; Late Preclassic (Goma phase) assoc. *Comment*: date agrees with cultural assoc.

Tx-1971. Laguna Zope B9/BZ 1980 ± 70

Test Pit JU1-B, 180 to 200cm level; Late Preclassic (Kuak phase) assoc. *Comment*: date agrees with cultural assoc.

Saltillo site series, Mexico

Charcoal from Saltillo (JU2; J F Zeitlin, 1978), Classic and Early Postclassic site, W bank of Rio Perros, Barrio of Saltillo, Juchitán, Oaxaca, Mexico (16° 25' N, 95° 02' W). Coll 1972 and subm by J F Zeitlin. Dept Anthropol, Brandeis Univ, Waltham, Massachusetts.

Tx-1955. Saltillo D14/2DE 1210 ± 110

Test Pit JU2-D, 170cm level; Late Classic (Tixum phase).

Tx-1956. Saltillo D20/2DG 2080 ± 310

Test Pit JU2-D, 230cm level; Early Classic (Xuku phase). *Comment* (JFZ): large 1σ error reduces usefulness of determination; date is earlier than archaeol estimate.

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