

UNIVERSITY OF TEXAS AT AUSTIN RADIOCARBON DATES XV

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This list begins a program of publishing our large backlog of unpublished dates. The dates listed here are not a specific block of dates but simply those ready for publication. In many cases we have received comments from submitters, to whom we are grateful. Where no comment is included, none was received.

Age calculations are based on the ^{14}C half-life of 5568 yr and modern standard of 95% oxalic acid, supplemented by tree rings of pre-industrial wood from a log cut in the 1850s (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 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 LS230 spectrometers obtained through a grant from the National Science Foundation.

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GEOLOGIC SAMPLES

United States

Tx-4259. Natural Lake, Oklahoma 1040 \pm 70

Mud from 53 to 58cm in core sample III, from base of Natural Lake, 2.5km E of Sardis, N of Jackfork Creek, Pushmataha Co (34° 2' N, 95° 1' W). Paleobot sample, coll 1977 by D G Wyckoff, P J Mehringer, L E Albert; subm 1981 by Albert, Oklahoma Archeol Survey, Univ Oklahoma, Norman. *Comment* (LEA): date regarded as accurate and useful in reconstruction of local vegetational and environmental settings (Albert, 1981).

Nevada

Helms Pit series

Samples from Helms gravel pit, city of Sparks (39° 32' 10" N, 119° 43' 46" W), to provide new control on Late Pleistocene and Holocene glacial

outwash sequence from Sierra Nevada. Coll and subm 1982 by J W Bell, Nevada Bur Mines & Geol, Univ Nevada, Reno.

Tx-4699. Helms V-2 **23,700 ± 580**

Log from silt lens 13.7m below surface in NW corner of pit.

Tx-4700. Helms V-6 **9150 ± 120**

Twigs from sand lens 7.6m below surface in SE corner of pit, overlying Tx-4699.

Tx-4701. Helms V-7 **6860 ± 110**

Peaty material from sandy silt lens ca 6m below surface in SE corner, overlying Tx-4700.

Tx-4702. Helms V-8 **7990 ± 530**

Peat from peat lens ca 4.6m below surface in SE corner, overlying Tx-4701.

Tx-4703. Helms V-9 **Modern**

Peat from peat layer ca 2m below surface in SE corner, overlying Tx-4702.

General Comment (JWB): pre-modern dates are from sand and gravel deposit of Truckee R, interpreted here as Tioga outwash. Tx-4701 and -4702 dates appear reversed from strat position.

Fallon Trench #1 series

Detrital and disseminated charcoal samples from backhoe trench excavated linear dune-covered ridge, 20km S of Fallon (39° 18' 30" N, 118° 49' 20" W). Coll and subm 1980 by J W Bell.

Tx-4079. Fallon 1 **1550 ± 140**

From base of Holocene soil (Camborthid) developed on Holocene-age Fallon fm in unfaulted sediments overlying fault, and interpreted to overlie Turupah Flat Ash; should give min ages for faulting and for deposition of Turupah Flat Ash.

Tx-4080. Fallon 2 **1680 ± 110**

From faulted lacustrine and/or colian sediments of Fallon fm 0.6m below Turupah Flat Ash; should determine recency of faulting and max age for Turupah Flat Ash.

General Comment (JWB): dates bracket age of Turupah Flat Ash, a widespread tephra in central and W Nevada.

Tx-4213. Carson Dam Trench 1 **11,660 ± 220**

Calcareous dendritic tufa from trench across fault on Lake Lahontan shoreline, 4140 amsl, 3.9km SW of Carson Diversion Dam (39° 27' 48" N, 119° 00' 48" W). Should give max age of movement on major fault zone. Coll and subm 1980 by J W Bell. *Comment* (JWB): sample dates dendritic

member of Schoofm; in good agreement with other tufa dates from this unit (Broecker & Kaufman, 1965).

Tx-4960. Sha Neva LV-1 **10,440 ± 490**

Mammoth rib (*Mammuthus* sp) from Sha Neva gravel pit, 4.8km NE of Reno-Stead Airport, Washoe Co, 4980 amsl (39° 40' 46" N, 119° 48' 36" W). Should date last major stand of Late Pleistocene Lake Lemmon. Coll 1983 by G Szecsody and D Bryan, and subm 1983 by J W Bell. *Comment* (JWB): date agrees well with ages obtained on last high stands of Lake Lahontan, which was probably contemporaneous with Lake Lemmon.

Australia

UDP-1 series, Northern Territory

Samples from Holocene overbank deposits, Uranium Development Proj Loc 1, 2.6km SE of UDP Falls, N bank South Alligator R (13° 27' S, 132° 26' E). Coll and subm 1980 by V R Baker, Dept Geol Sci, Univ Texas, Austin.

$\delta^{14}\text{C} = +353.62 \pm 7.9\text{‰}$
Tx-4207. UDP 1/W **Ultramodern**
 $\delta^{13}\text{C} = -25.9 \pm 0.2\text{‰}$

Wood, 1m below land surface, above contact with gray layer.

Tx-4211. UDP 1/C **280 ± 100**

Charcoal, 1m below surface at top of gray layer.

290 ± 60
Tx-4212. UDP 1/G $\delta^{13}\text{C} = -25.5 \pm 0.2\text{‰}$

Charcoal, 1.3m below surface within gray layer.

General Comment (VRB): samples give rates of overbank sedimentation (Baker, Pickup & Polach, 1983).

Finke River series, Northern Territory

Samples from Holocene slackwater sediments, from E bank Finke R, S of Hermannsburg. Coll 1980 by G Pickup; subm 1980 by V R Baker.

$\delta^{14}\text{C} = +336.01 \pm 29.5\text{‰}$
Tx-4208. Finke 2/2L5 **Ultramodern**

Charcoal, 2m below surface in Layer 5, 12km S of Hermannsburg (24° 03' S, 132° 46.5' E). *Comment* (VRB): date agrees with dates ANU-2400, -2402, and -2403 (Baker, Pickup & Polach, 1983).

$\delta^{14}\text{C} = +48.01 \pm 20.4\text{‰}$
Tx-4209. Finke 4/1L1R **Ultramodern**

Woody material, 20cm below surface, 4km S of Hermannsburg (23° 59' S, 132° 46.5' E). *Comment* (VRB): sample coll and dated to correlate with Tx-4208; correlation is confirmed.

General Comment (VRB): samples confirm recent phase of desert floods on Finke R.

OCEANOGRAPHIC SAMPLES

Orca Basin series, Louisiana

Samples from Orca basin, emponded brine basin on lower continental slope off W Louisiana. Coll 1978 by PL Parker and JL Worzel, and subm 1978 by E W Behrens, Univ Texas Marine Sci Inst Geophysics Lab, Galveston. Cm figures are depths in core of center of sample.

Tx-3174. IG27-04-155 **11,920 ± 150**

Core 4 (27° 00.3' N, 91° 23.4' W), 155cm.

Tx-3175. IG27-02-485 **7910 ± 170**

Core 2 (26° 55.6' N, 91° 19.5' W), 485cm. Gas-rich laminated black mud.

Tx-3176. IG27-02-570 **10,320 ± 200**

Core 2, same loc as Tx-3175; 570cm. Gas-poor massive gray mud.

Tx-3177. IG27-02-745 **17,380 ± 410**

Core 2, same loc as Tx-3175; 745cm.

General Comment (EWB): Tx-3174 gives sedimentation rate for normal continental slope next to basin. Tx-3175 and -3176 give rate for basin. All three are estimated to be basal Holocene. Tx-3177 is uppermost Pleistocene at major peak in manganese concentration in core, interpreted to represent major change in sedimentation rate, possibly when basin changed from normal slope environment to emponded brine basin.

Tx-3857. Sugar Bay D1-D2, Virgin Islands **3600 ± 140**

Shells (gastropod, *Halimeda thalli*) from 230cm sub-bottom depth in Core D, mid-channel core 300m from head of Sugar Bay on Salt R estuary, St Croix (17° 48' N, 64° 44' W). Coll 1978 and subm 1980 by R W Arnseth, Dept Geol Sci, Northwestern Univ, Evanston, Illinois. *Comment* (RWA): sample dates sedimentation rate for documentation of diagenetic change rates. Core penetrated marine grass bank deposit; linear sedimentation rate calculated to be 64cm/1000yr.

Tx-2205. Harrington Sound, Bermuda **850 ± 120**

Argopecten gibbus scallop from cores 75-9 and 75-12, 45 to 55cm below sediment-water interface, ca 24m below surface of Harrington Sound, 0.4m NW of Devil's Hole village (32° 19' 20" N, 64° 43' 00" W). Subm to examine faunal transition from *Argopecten* to *Gouldia*. Coll 1975 and subm 1975 by G R Clark, Dept Geol Sci, State Univ Coll, Geneseo, New York.

Continental Shelf series, Brazil

Samples from various loci, subm to establish preliminary reconstruction of Late Quaternary history of N and W sectors of Brazilian continental

shelf. Coll 1971 to 1974 and subm 1975 by H A F Chaves, Petrobras, Petróleo Brasileiro S A, New York City. Depth of water at site given after type of material.

Tx-2288. GEOMAR III-E 2533-ID **7960 ± 90**

Oyster shell, 21m, continental shelf off Salinópolis (0° 29.0' S, 47° 24.0' W); surface sample.

Tx-2289. GEOMAR III-E 2467-1B **2290 ± 60**

Shell (*Tivela fulminata*), 42m, continental shelf off Salinópolis (0° 52.5' N, 47° 16.0' W); surface sample.

$\delta^{14}\text{C} = +18.20 \pm 3.5\text{‰}$

Tx-2290. GEOMAR III-E 2496-2B **Ultramodern**

Oyster shell, 47m, continental shelf off Amapá (3° 32.0' N, 50° 24.0' W); surface sample.

Tx-2291. GEOMAR III-G 193-2D **7940 ± 110**

Shell (*Plicatula gibbosa*), 73m, continental shelf off Amapá (3° 37.0' N, 50° 1.0' W); surface sample.

Tx-2292. GEOMAR III-G 215-2D **10,790 ± 110**

Vermetidae and carbonate matrix, 122m, shelf break off Amapá (4° 6.0' N, 49° 36.0' W); surface sample.

Tx-2293. REMAC-AR-T 4294/1 **18,750 ± 280**

Shell hash, 73m, inner shelf off coastal plain between Niteroi and Cabo Frio, off Rio de Janeiro (23° 8.0' S, 42° 44.1' W); 45cm from top of 64cm piston core.

Tx-2294. REMAC-AR-T 4343/3 **6470 ± 70**

Shell, 19m, Albardão Bank, continental shelf off Rio Grande do Sul (32° 59.5' S, 59° 23.2' W); 55cm from top of 151cm piston core. Upper 40cm of core was inner transgressive sand sheet.

Tx-2295. REMAC-AR-T 4160/5 **10,620 ± 300**

Shell, 66m, Abrolhos Bank, continental shelf off Espirito Santo (18° 45.8' S, 38° 33.6' W); 95cm from top of 141cm piston core. Terrigenous mud facies just below contact with upper calcareous mud facies.

Tx-2296. REMAC-AR-T 4324/6 **17,330 ± 480**

Shell covered by calcareous algae, 132m, mid-outer shelf off Rio Grande do Sul (31° 10.5' S, 49° 55.3' W); 180 to 190cm from top of 237cm piston core. From coarse biogenic layer. Algae covering shell indicates climatic change.

Tx-2297. REMAC-AR-T 4304/7 **12,550 ± 140**

Shell, oyster, and shell hash, 105m, mid-shelf off São Paulo (24° 55.0' S, 45° 13.5' W); 150cm from top of 167cm piston core. Lower part of core

has rich biogenic assemblage; grades upward to pure sand without biogenic components.

Tx-2298. REMAC-AR-T 4333/11a **14,700 ± 170**

Shell hash, 55m, outer continental shelf, S Rio Grande do Sul (33° 44.7' S, 51° 34.8' W); 360cm from top of 388cm piston core; sandy mud facies with evidence of reworking during lowered sea level stand.

Tx-2300. REMAC-AR-T 4319/4a **19,900 ± 330**

Shell hash, 115m, mid-shelf off Santa Catarina (28° 40.05' S, 48° 9.0' W); 150cm from top of 200cm piston core. Bottom of transgressive Holocene sequence.

Tx-2301. REMAC-AR-T 4322/5a **42,100 ± 3900**

Coral, 528m, continental slope off Rio Grande do Sul (30° 51.0' S, 49° 3.2' S); 190cm from top of 200cm piston core. Coral layer was covered by slope mud.

Tx-2302. GIII-152-ID **7470 ± 70**

Carbonate rock, 125m, shelf break off Salinópolis (2° 29.5' N, 47° 36.5' W); dredged surface sample. Relict sediment; oldest-looking carbonate rocks found at shelf break.

Tx-2303. GVI-325 **21,100 ± 430**

Shell hash, 25m, shell bank, inner continental shelf off Rio Grande, Rio Grande do Sul (32° 13' S, 51° 46' W); surface sample, side of shoal. Probable ancient strandline of late Holocene age.

Tx-2304. GVI-362 **17,420 ± 270**

Shell hash, 135m, shell debris facies, outer continental shelf off Rio Grande do Sul (31° 6' S, 49° 46' W); surface sample. May be oldest and deepest exposed strandline deposits in this part of coastal plain.

Tx-2305. REMAC-AR-4335 **23,050 ± 550**

Shell hash, 28m, Albaradão Bank, inner shelf off Rio Grande do Sul (33° 27.4' S, 52° 27.0' W); surface sample. Possible marker of ancient shoreline.

Tx-2306. REMAC-AR-4277 **7450 ± 210**

Oyster and other shell, 28m, continental shelf off Campos, S of Paraíba do Sul delta (22° 12.0' S, 41° 2.7' W); surface sample. Relict coarse sand facies reflecting competence of sediment source not found today.

Tx-2307. WHOI-AR-3133 **13,780 ± 170**

Shell hash, 136m, outer continental shelf off Santa Catarina (27° 28' S, 47° 34' W); surface sample. Thought to be relict near-shore deposit; should give max age of shoreline.

Tx-2407. REMAC-AR-T 4322/2 **22,400 ± 1040**

Coral, 528m, continental slope off Rio Grande do Sul (30° 51.05' S, 49° 3.2' W); 25cm from top of 200cm piston core. Coral layer was covered by slope mud.

G-2 series, Persian Gulf

Marine shells (mixture of spp) from boring G-2 (25° 36' N, 54° 28' E), water depth 38m. Coll and subm 1977 by H Chafetz, Geol Dept, Univ Houston, Houston, Texas.

Tx-2824. G-2, S-21 **>40,000**
 $\delta^{13}C = 2.7 \pm 0.2\text{‰}$
 From ca 71.3m below msl.

Tx-2825. G-2, S-24 **>40,000**
 $\delta^{13}C = 2.1 \pm 0.2\text{‰}$
 From ca 75.6m below msl.

ARCHAEOLOGIC SAMPLES

United States

Texas

Texas dates are arranged geographically, W to E: trans-Pecos, south-central and south, coast, northeast.

Gobernadora site series

Charred wood from Gobernadora site, 41EP321, in right of way of Northeast Expressway, NE El Paso (31° 56' N, 106° 25' W). Late Mesilla phase, Jornada Branch, Mogollon. Coll 1981–82 and subm 1982 by J W Clark, Texas Dept Hwys & Public Transportation, Austin.

Tx-4713. 41EP321/19 **750 ± 130**
 Probable roof-beam fragment, fill of Pithouse #2; N60/E22, Level 7.

Tx-4714. 41EP321/59 **1120 ± 40**
 Probable roof-beam fragment, floor of Pithouse #1; N58/W2, Level 7.

Tx-4715. 41EP321/163 **1070 ± 180**
 Charcoal from hearth; N30/W40; Level 2.

Tx-4716. 41EP321/332 **790 ± 60**
 Charcoal from hearth; N68/E8, Level 5.

Tx-4717. 41EP321/345 **1440 ± 60**
 Charcoal from hearth; N68/E6, Level 1.

Tx-4718. 41EP321/350 **1190 ± 200**
Charcoal from hearth in floor of Pithouse #3; N66/E8.

Tx-4719. 41EP321/464 **970 ± 80**
Probable roof-beam fragment, floor fill of Pithouse #2; N60/E20, Level 7.

Tx-4720. 41EP321/423 **1110 ± 60**
Charcoal from hearth; N32/E12, Level 1.

Ojasen site series

Charcoal from Ojasen site, 41EP289, in right of way of Northeast Expressway, NE El Paso (31° 56' N, 106° 25' W). Late Mesilla phase, Jornada Branch, Mogollon. Coll 1981 and subm 1983 by J W Clark.

Tx-4863. 41EP289/283 **1230 ± 70**
From hearth outside pithouse, S32/E8; El Paso Brown, El Paso Polychrome and Mimbres Black-on-White ceramics assoc.

Tx-4864. 41EP289/295 **1490 ± 120**
From pithouse floor, S32/E10; El Paso Brown, El Paso Polychrome and Mimbres ceramics assoc.

Tx-4865. 41EP289/176 **1260 ± 70**
From trash pit assoc with pithouses, S34/E12, base of Level 2; El Paso Brown and El Paso Polychrome ceramics assoc.

Tx-4866. 41EP289/31 **1120 ± 130**
From probable base of pithouse floor, S20/W8, Level 1; El Paso Brown and El Paso Polychrome ceramics assoc.

Tx-2806. 41CU97/F5 **710 ± 50**
Charcoal from within wall of ring midden, Feature 5, in multi-midden site, 41CU97 (Katz, 1978), 200m S of Texas-New Mexico state line beside Dog Canyon arroyo in Guadalupe Mts Natl Park, Culberson Co (31° 60' N, 104° 50' W). Assoc materials include Perdiz and Livermore points, Jornada Brown and El Paso Polychrome sherds, all of which suggest Late Prehistoric, Jornada Mogollon affiliation. Coll 1976 and subm 1977 by S R Katz, Center Archaeol Research, Univ Texas, San Antonio. *Comment* (SRK): date verifies assoc (Katz, 1978, p 87).

41BS609 series

Charcoal from Site 41BS609, both sides of U S Hwy 385, 0.8km S of entrance to Big Bend Natl Park, Brewster Co (29° 40' N, 103° 10' W). Coll 1977 and subm 1977 by B J Baskin, Texas Archeol Research Lab, Univ Texas, Austin.

Tx-2869. 41BS609/3 **460 ± 70**

Hearth, W half Unit N504/E492, Level 3, 98.85m elev. No diagnostic artifacts assoc.

Tx-2870. 41BS609/7 **1060 ± 50**

Bottom of lowest occupation zone in test pit, Unit N491/E496, Level 4, 99.14 to 99.09m elev. No diagnostic artifacts assoc.

General Comment (BJB): dates place occupation of site either from Late Archaic through Late Prehistoric, or within purely Late Prehistoric period (Baskin, 1978, p 34).

Upper Four Mile Draw site series

Charcoal from Hearth 1, Area 4, at 41PC395, Upper Four Mile Draw site, 19.5km W of Sheffield, Pecos Co (30° 45' 10" N, 101° 58' 5" W). Late Prehistoric affiliation. Coll and subm 1980 by G M Canon, 850 Gaylord, Denver, Colorado.

Tx-4154. 41PC395/4 **460 ± 90**

From 8cm below ground surface.

Tx-4155. 41PC395/12 **1390 ± 110**

From 16.5cm below ground surface.

General Comment (GMC): Tx-4155 too old for Late Prehistoric; may indicate multiple use of hearth.

Tx-2805. 41BX305/c-3/40-50 **1230 ± 50**

Charcoal from Site 41BX305 (Katz, 1977), in John James Park, W bank Salado Creek in NE San Antonio, Bexar Co (29° 29' 35" N, 98° 25' 10" W). From Sq C-3, 40 to 50cm below surface, in burned rock concentration with Middle Archaic (Montell, Castroville, Bulverde) points. Coll and subm 1977 by S R Katz. *Comment* (SRK): dates small activity area; consistent with other dates for S central Texas Archaic.

Tx-2815. 41BX36/5-2 **300 ± 120**

Animal bone from Unit 5, 10 to 20cm below surface, Site 41BX36 (Gerstle, Kelly & Assad, 1978), Late Prehistoric site (Perdiz arrow point assoc) on large terrace overlooking Salado Creek near Camp Bullis headquarters in San Antonio (29° 38' 05" N, 98° 34' 10" W). Coll 1977 by C Assad and subm 1977 by T R Hester, Center Archaeol Research, Univ Texas, San Antonio. *Comment* (TCK): sample subm for comparison with charcoal date RL-817 (420 ± 120; Gerstle, Kelly & Assad, 1978, p 253); dates are comparable.

Panther Springs Creek site series

Wood charcoal from Panther Springs Creek site, 41BX228, E bank Panther Springs Creek, N of San Antonio, Bexar Co (29° 33' 8" N, 98° 30' 10" W). Coll 1977 and 1979 by T R Hester and S L Black; subm by T R Hester.

- Tx-2810. 41BX228/A-2** **480 ± 140**
Unit N100/W99, SE quad, 10 to 20cm below surface. Assoc with Late Archaic and Late Prehistoric projectile points.
- Tx-2811. 41BX228/A-3** **940 ± 180**
Same loc as Tx-2810, 20 to 30cm below surface. No assoc artifacts.
- Tx-2812. 41BX228/C-3** **1110 ± 110**
Unit N108/W104, Level 3 (20 to 30cm below surface). Assoc with Late Archaic Frio point.
- Tx-3852. 41BX228/19** **2660 ± 60**
Tr 4, N wall profile in vertical center of midden, 16 to 20cm below surface, 98.82m elev. No diagnostic assoc, but below Late Archaic, above pre-Archaic; thus, Early to Middle Archaic.
- Tx-3853. 41BX228/22** **4300 ± 130**
Area C, E1005.8/N1024.9, 58cm below surface, 98.92m elev. From lowest occupation level in N area of site; Early and pre-Archaic points from adjacent units on same level.
- Tx-3854. 41BX228/1** **1030 ± 70**
Area A, Unit E1017/N1020 vicinity, 11 to 16cm below surface, 100.05 to 100.0m elev. From Feature 1 (burned rock accumulation) fill; Late Prehistoric points and pottery assoc.
- Tx-3855. 41BX228/20** **1010 ± 150**
Area B, E996.88/N1011.45, 25cm below surface, 99.34m elev. From fill of Feature 3 (baked clay mass); Late Archaic Ensor point assoc.
- Tx-3856. 41BX228/17** **980 ± 60**
Area A, E1015.83/N1018.6, 31cm below surface, 98.81m elev. From Feature 5 (baked clay mass) fill; Middle Archaic Pedernales point assoc.
- Tx-3911. 41BX228/10** **240 ± 60**
Area B, E998.61/N1010.2, 20cm below surface, 99.5m elev. Assoc with Feature 2 (burned limestone cluster with metate). Transitional Archaic (Twin Sisters phase) points found in adjacent units at same level.
- Tx-3912. 41BX228/31** **4720 ± 170**
Area I, Unit E994/N969, Level 9 (98.6 to 98.5m elev), 84cm below surface. Lower transition zone with pre-Archaic (San Geronimo phase) tools; earliest cultural component found at site.
- Tx-2774. 41KL30/JLR-3** **1960 ± 100**
Charcoal from base of hearth, 60cm below surface, Scarborough site, 41KL30, 9km E of Ricardo, Kleberg Co, S Texas (27° 25' 40" N, 97° 45' 40" W). Late Prehistoric, Aransas focus. Coll and subm 1977 by J. L. Russell, Geol & Geol Dept, Texas A and I Univ, Kingsville.

41GD21 series

Charcoal from 41GD21, Archaic through Late Prehistoric site, mid-way between Victoria and Goliad, SW side Sulphur Creek, 1.2km upstream from Perdido Creek, Goliad Co (28° 43' 30" N, 97° 12' 15" W). Coll and subm 1978 by D E Fox, Center Archaeol Research, Univ Texas, San Antonio. Levels are 20cm excavation levels, numbered from surface down.

	$\delta^{14}\text{C} = +380.57 \pm 12.4\text{‰}$
Tx-2923. 41GD21/17B	Ultramodern
Unit N107/E210, Level 6, lower portion Zone B.	
Tx-2924. 41GD21/17A	4260 ± 250
Unit N207/E210, Level 6, lower portion Zone B.	
Tx-2925. 41GD21/28	2660 ± 370
Unit N208/E210, Level 2, lower portion Zone A.	
Tx-2926. 41GD21/15	4550 ± 190
Unit N208/E210, Level 5, lower portion Zone B.	

General Comment (DEF): Tx-2924 and -2926 support Early to Middle Archaic affiliation of material within Zone B. Tx-2925 confirms Late Archaic age of Zone A, assoc with "Morhiss Complex" materials (Fox, 1979, p 62).

Palmetto Bend Reservoir

Samples from basin of Palmetto Bend Reservoir on Navidad R in Jackson Co, central coast of Texas. Coll 1976, 1977, and subm 1977 by W B Fawcett, Jr, Texas Archeol Survey, Univ Texas, Austin.

Chytka site series

Burned bone (except Tx-2752) from Chytka site, 41JK66, Late Archaic to Late Prehistoric site on N side Mustang Creek, 1.6km SE of Ganado, in Palmetto Bend Reservoir basin (29° 2' N, 96° 29' W). Residue from screening.

Tx-2752. 41JK66/1	2210 ± 70
Wood/charcoal, Zone 4. Probable Late Archaic period.	
Tx-2754. 41JK66/10	1470 ± 170
N16–17/E14–17, Zones 1 and 2.	
Tx-2755. 41JK66/11	770 ± 100
N14–15/E14–17, Zones 1 and 2.	
Tx-2756. 41JK66/13	1320 ± 90
N14–15/E16, Zone 3A. Austin phase, Late Prehistoric period.	

- Tx-2757. 41JK66/14** **510 ± 100**
 N12–13/E14–15, Zone 3A. Austin phase, Late Prehistoric period.
- Tx-2758. 41JK66/15** **1520 ± 100**
 N14–15/E12–13, Zone 3. Austin phase, Late Prehistoric period.
- Tx-2759. 41JK66/18** **790 ± 200**
 N16–17/E16–17, Zone 3A. Austin phase, Late Prehistoric period.
- Tx-2760. 41JK66/19** **1620 ± 280**
 N16–17/E14–17, Zone 3B. Early to Middle Austin phase, Late Prehistoric period.
- Tx-2761. 41JK66/20** **1260 ± 130**
 N12–13/E14–17, Zone 3B. Early to Middle Austin phase, Late Prehistoric period.
- Tx-2762. 41JK66/21** **2260 ± 270**
 N16–19/E14–17, Zone 4. Probable Late Archaic period.
- Tx-2763. 41JK66/24** **3280 ± 360**
 N12–15/E14–17, Zone 4. Probable Late Archaic period.
- Tx-2764. 41JK66/25** **3860 ± 370**
 N12–15/E14–17, Zone 3C. Transitional Archaic to early Late Prehistoric period.
- Tx-2766. 41JK66/28** **730 ± 80**
 N14–15/E14–16, Zone 3B. Early to Middle Austin phase, Late Prehistoric period.
- Tx-2767. 41JK66/29** **1100 ± 140**
 N14–15/E8, Zone 3. Austin phase, Late Prehistoric period.
- Tx-2768. 41JK66/30** **1290 ± 170**
 N18–19/E14–15, Zone 3. Austin phase, Late Prehistoric period.

General Comment (E M Davis): dates not consistent with stratigraphy; with other evidence from site, dates suggest widespread and fairly random disturbance of deposits by rodents and people (Texas Archeol Survey Staff, 1981, p 53).

Oslovsky Road site series

Burned bone from Oslovsky Road site, 41JK74, N side Mustang Creek, 2.4km SE of Ganado, in Palmetto Bend Reservoir basin (29° 2' N, 96° 29' W). Residue from screening.

- Tx-2769. 41JK74/1** **3950 ± 230**
 Levels 1 and 2 (0 to 40cm below surface).

Tx-2770. 41JK74/2 **5050 ± 180**

Levels 3 and 4 (40 to 80cm below surface).

General Comment (EMD): widely separated dates indicate 0.5m of cultural debris represents at least two culturally distinct Archaic assemblages (Texas Archeol Survey Staff, 1981, p 45).

Lake Fork Reservoir

Woody charcoal from sites in Lake Fork Reservoir, at confluence of Caney and Lake Fork Creeks, Wood Co, NE Texas (Bruseth & Perttula, 1981). Coll 1978 by TK Perttula and J Bruseth and subm 1978 by J Bruseth, Archaeol Research Prog, Southern Methodist Univ, Dallas, Texas.

Hines site series

Samples from Hines site, X41WD87, in uplands 1.6km from confluence of Burke and Caney Creeks, 16km NE of Alba, Lake Fork Reservoir basin (32° 54' 55" N, 95° 38' 56" W). Pecan Grove cultural phase (Sanders focus, early Caddoan).

Tx-3043. X41WD87, #1 **910 ± 50**

Burned post in house pattern, Feature 1.

Tx-3044. X41WD87, #2 **410 ± 60**

Burned timber, Feature 1, plow zone.

General Comment (JEB): Tx-3043 consistent with artifactual data from single-component Sanders focus structure. Tx-3044 should agree with -3043; sample probably out of context because of loc in plow zone.

Taddlock site series

Samples from Midden A, Taddlock site, X41WD39, on upland remnant 400m W of Lake Fork Creek, 9.7km NNE of Alba, Lake Fork Reservoir basin (32° 51' 46" N, 95° 36' 42" W). Pecan Grove cultural phase (Sanders focus, early Caddoan).

Tx-3046. X41WD39, #4 **950 ± 50**

Unit 25, Level 4, 30 to 40cm below surface.

Tx-3047. X41WD39, #5 **970 ± 40**

Unit 25, Level 5, 40 to 50cm below surface.

Tx-3048. X41WD39, #6 **1010 ± 60**

Unit 31, Level 3, 20 to 30cm below surface.

Tx-3050. X41WD39, #8 **490 ± 60**

Unit 18, Level 5, 40 to 50cm below surface.

General Comment (JEB): Tx-3046 through -3048 appropriate for single-component Sanders focus midden. Tx-3050 too young; reason unknown.

Spoonbill site series

Hickory nut shells (*Carya* sp) from Spoonbill site, 41WD109, 15.5km N of Quitman, on terrace of Caney Creek, in Lake Fork Reservoir basin (32° 55' 44" N, 95° 28' 03" W). Pecan Grove cultural phase (early Caddoan).

Tx-3570. 41WD109, #1 **1010 ± 80**
Feature 1, hearth.

Tx-3571. 41WD109, #2 **950 ± 50**
Feature 2, hearth, Level 1.

Tx-3572. 41WD109, #3 **720 ± 80**
Feature 2, hearth, Level 2.

Tx-3573. 41WD109, #4 **690 ± 70**
Feature 5, pit.

Tx-3574. 41WD109, #5 **690 ± 60**
Feature 9, possible smudge pit.

Tx-3045. Killebrew #3 **1760 ± 50**
From hearth (Feature 3), Killebrew site, X41WD64/69, 11.3km NE of Alba, 1.6km upstream of confluence of Caney and Lake Fork Creeks, in Lake Fork Reservoir basin (32° 50' 47" N, 95° 32' 08" W). Forest Hill cultural phase (Titus focus, late Caddoan). *Comment* (JEB): date >1000 yr too old for Forest Hill; may represent earlier Archaic occupation also evident at site (Bruseth & Perttula, 1981, p 31).

Tx-3049. Osborn #7 **1190 ± 50**
Sample from Osborn site, X41WD16, on upland remnant 9.7km E of Alba, 40m W of Lake Fork Creek, in Lake Fork Reservoir basin (32° 48' 34" N, 95° 33' 01" W). Midden A, Unit 10, Feature 2, 37 to 44cm below surface. Lone Oak cultural phase (early Caddoan). *Comment*(JEB): agrees well with current consensus of earliest Caddoan.

Idaho

Tx-3698. Spalding 79/1 **2160 ± 130**
Wood charcoal from Spalding site (10NP108), left bank Lapwai Creek 200m from mouth, Nez Perce Co (46° 26' 10" N, 116° 49' 20" W). Composite of several samples taken from floor of pit house #1; small side-notched points assoc. Coll 1979 and subm 1979 by D H Chance, Lab Anthropol, Univ Idaho, Moscow, Idaho. *Comment* (DHC): other dates from House 1: UGa-3308, 1530 ± 190; UGa-3309, 1265 ± 70 (Chance, pers commun). All 3 dates appear unrealistically early, as side-notched points first appear in this area ca 750 BP. Reason for discrepancy is unknown.

Washington

Charcoal, except where otherwise noted, from sites on Lake Roosevelt, on Columbia R, NE Washington. Coll 1972 and 1978; subm 1979 by D H Chance. All refs to GaK and WSU dates are from Chance (pers commun).

45FE45 series

Samples from 45FE45, W side Lake Roosevelt just above Kettle Falls (48° 38' N, 118° 07' W).

Tx-3494. LR72/28 **1630 ± 80**

Strata 2A and 3 mixed, Level 4, 30 to 40cm; assoc with Sinaikst period materials. *Comment* (DHC): ca 500 yr older than expected.

Tx-3495. LR72/30 **3910 ± 80**

Stratum 5, Level 12, 110 to 120cm; assoc with terminal climax occupation of Ksunku period. Strat context limited vertically and very clear. *Comment* (DHC): other dates from Stratum 5: WSU-1420, 2960 ± 60; GaK-6420, 3850 ± 140; on related material: GaK-7711, 3630 ± 390. Expected age: 3600–3800 BP.

Tx-3496. LR78/109 **2890 ± 340**

Area A, upper Stratum 4, Level 20; assoc with end of period of minimal occupation following Ksunku period. *Comment* (DHC): should be earlier than WSU-1658, 1740 ± 70.

Tx-3497. LR78/126 **1000 ± 80**

Area A, Stratum 3, Level 26–27; outer lag horizon (prehistoric fluvial redeposition). *Comment* (DHC): other date, GaK-7710, 750 ± 90, seems too late.

45ST65 series

Charcoal from Site 45ST65 at China Bend on upper Columbia R, 40km above Kettle Falls (48° 49' N, 117° 56' W). Coll 1978 and subm 1979 by D H Chance.

Tx-3498. LR78/132 **6510 ± 100**

From floor of sealed house, Area A, Stratum 7. *Comment* (DHC): GaK-7707, 4780 ± 140 from same occupation.

Tx-3499. LR78/133 **600 ± 70**

From fill of Feature 9, Area B, Stratum 4, Level 1, Chekwo component, probably of Sinaikst period. *Comment* (DHC): estimated age: 1000 BP; charcoal may be later than assoc cultural material.

45ST94 series

Samples from midden at 45ST94, salmon fishing site next to Kettle Falls on Columbia R (48° 38' N, 118° 07' W). Coll 1974 and 1978; subm 1979 by D H Chance.

Tx-3500. LR74/36 **460 ± 50**

Charcoal from Area A, base of Stratum 2, Level 3; early Shwayip period. *Comment* (DHC): WSU-1502, 550 ± 70 from Stratum 3 just below.

Tx-3501. LR78/26, 78/27 **3850 ± 100**

Sand and silt with carbon particles from Area A, base of Stratum 5, within top of fluvial cobble zone, Takumakst period. *Comment* (DHC): WSU-1530, 1360 ± 100, from level 10 just above Stratum 5, seemed much too late; WSU-1653, 2910 ± 160, seems more accurate.

Tx-3502. LR74/51 **780 ± 70**

Charcoal from Area B, Stratum 2, Level 2, above Feature 2; assoc with early Shwayip period materials.

Tx-3503. LR76/21 **1620 ± 270**

Charcoal from Area E, Stratum 3, Level 7, Takumakst period. *Comment* (DHC): WSU-1657, 1470 ± 120, from intrusive hearth, possibly from same level.

Missouri

Tx-2872. Crane 14-5 **920 ± 50**

Charcoal from Level 5 (40 to 50cm below surface) in Pit 14, Crane site (23SN615), 0.8km S of Crane, on Crane Creek, Stone Co (36° 53' N, 93° 33' W). From shallow pit in disturbed deposit. Coll 1977 by C Helm and M Caldwell and subm 1977 by R E Cooley, Center Archaeol Research, Southwest Missouri State Univ, Springfield, Missouri. *Comment* (B L Turner & C Helm): no certain artifact assoc with pit; Woodland and Mississippian projectile points and grit-tempered pottery in adjacent deposit. Date is compatible with these finds.

Tx-3016. Morgan Spring #3 **1390 ± 220**

Charcoal from base of midden deposit, Morgan Spring site (230R49), W bank Elevenpoint R, ca 1.6km above Hwy 142, Mark Twain Natl Forest (36° 34' N, 91° 11' W). Outside Feature 1, base of Level 2, at N348.68 E306.11, 19cm below surface; assoc with thick pottery tempered with limestone and shell. Coll and subm 1978 by C R Price, Center Archaeol Research, Southwest Missouri State Univ.

Fourche Creek series

Samples from Test Pit 1, Feature 1, Level 2, Site 23RI192, N fork Fourche Creek, 13km SW of Doniphan, Ripley Co (36° 34' N, 90° 57' W). Assoc with Early Mississippian pottery (Coles Creek period, Scatters/Beckwith phase). Coll and subm 1979 by J Zarins, Center Archaeol Research, Southwest Missouri State Univ.

Tx-3608. 23RI192 #1 **1300 ± 70**

Carbonized nut and wood fragments.

Tx-3609. 23RI192 #2 **1240 ± 110**
Carbon-stained earth.

Kentucky

Southwest Jefferson Project series

Samples from sites in suburbs of Louisville, S Jefferson Co. Coll 1977 by B Driskell and M B Collins and subm 1978 by M B Collins, Dept Anthropol, Univ Kentucky, Lexington.

Tx-2950. 15JF18, C-5 **170 ± 50**

Charcoal, Site 15JF18, E bank Ohio R at river mile 622½ (38° 06' N, 85° 54' W). Feature 92, 50cm below surface. Burned clay pit, no artifacts assoc; suspected to be historic, AD 1790–1850.

Tx-3010. 15JF110, CS-5/6 **2390 ± 70**

Carbonized wood from Site 15JF110, ca 50m E of Ohio R, 300m N of mouth of Mill Creek (38° 04' 00" N, 85° 54' 30" W). Feature 21, Levels 5–9, N592.1 E703.0. Late Archaic-Early Woodland.

Tx-3013. 15JF14, C-1 **3090 ± 150**

Carbonized wood from Site 15JF14, E bank Ohio R at river mile 621.5, S of Louisville (36° 6' 45" N, 85° 54' 0" W). Feature 2, Zone II, Levels 5 and 6, N769.3 E354.0. Possible Late Archaic context.

15JF243 site series

Samples from Site 15JF243, E bank Ohio R at river mile 725 (38° 4' 0" N, 85° 54' 20" W). This is part of SW Jefferson Project, above.

Tx-2951. 15JF243, CN-9 **8420 ± 110**

Charcoal from Feature 19, Zone III, ca 50cm below present surface. N498 E494. Early Archaic, bifurcated-base points assoc.

Tx-3011. 15JF243, CS-17 **8440 ± 380**

Carbonized wood from small charcoal-lined pit, Feature 153, Zone VII, N398 E506. Early Archaic, Kirk-like projectile points.

Tx-3012. 15JF243, CS-36 **9490 ± 230**

Carbonized wood from Feature 194, Zone XIII, N401.32 E507.8. Early Archaic, stratigraphically below Tx-3011 (above); one projectile point (Kirk variant?) assoc.

Florida

Tx-2636. Little Salt Spring 025 **12,030 ± 200**

Wood from Little Salt Spring site (8-SO-18), ca 4km NNE of center of North Port (27° 04' 27" N, 82° 14' 01" W). From stake assoc with extinct variety of giant land tortoise; excavation B75, Test 1, ca 22m below msl.

Coll 1975 and subm 1977 by C J Clausen, General Development Foundation, Inc, North Port. *Comment* (CJC): assoc tortoise shell date: Tx-2335, $13,450 \pm 190$ (R, 1977, v 19, p 315–316).

Tx-2637. Jones site 030 **810 \pm 70**

Bone from Glades period midden, Jones site (8-SO-85), 3.4km NW of Port Charlotte (27° 02' N, 82° 06' W). Test 1, Level 2, 10 to 20cm below surface. Coll 1977 and subm 1977 by C J Clausen.

Mexico

All samples subm 1975 by A García Cook, Monumentos Prehispánicos I N A H, Córdoba no. 45, Mexico D F, except where noted.

Tlaxcala

Los Teteles de Ocotitla series

Charcoal from Los Teteles de Ocotitla site (T-358), on N slope La Caldera arroyo, in valley of Sierra de la Caldera, 14km N of Huamantla (19° 27' 30" N, 90° 53' 00" W). Coll 1974 by A García Cook. Except where noted, assocs are with materials of early Tenanyecac phase (Teotihuacán II).

Tx-2137. T-358, 1 **2230 \pm 60**

Pit 1, E 1.2, 0.85m depth, next to Burial 2.

Tx-2138. T-358, 2 **1780 \pm 50**

Pit 1, Tomb 1, Burial 4, 1.60m depth. Very early Tenanyecac (Teotihuacán IA).

Tx-2139. T-358, 3 **1840 \pm 60**

Pit 1, Tomb 1, Burial 6, 1.60m depth.

Tx-2140. T-358, 4 **1540 \pm 60**

Pit 1, Exterior Tomb (E side), 1.50m depth.

Tx-2141. T-358, 5 **1820 \pm 60**

Pit 1, Tomb 1, upper part, 0.53m depth.

Tx-2142. T-358, 6 **1690 \pm 130**

Pit 1, Tomb 1, middle part, 0.95m depth.

Tx-2143. T-358, 7 **1940 \pm 60**

Pit 1, Tomb 1, middle part, 1.07m depth.

Tx-2239. T-358, 43 **1810 \pm 60**

Pit 4, Level J, 2.70m depth. Transition between local Tezoquipan and Tenanyecac phases (Protoclassic).

- Tx-2240. T-358, 44** **1580 ± 40**
 Cut W, Sec C, Level D, 0.90m depth. Fireplace. Beginning of early Tenanyecac phase.
- Tx-2241. T-358, 45** **1990 ± 50**
 Cut W, Sec C, Level E, 1.10m depth. Fireplace. Beginning of early Tenanyecac phase.
- Tx-2242. T-358, 46** **1560 ± 50**
 Pit 4, Level E, 1.90m depth.
- Tx-2243. T-358, 47** **1860 ± 40**
 Pit 4, Level H, 2.55m depth.

San José Tetel series

Charcoal from San José Tetel site (T-24), on slope 2km N of Apizaco (19° 26' 10" N, 98° 09' 30" W). Coll 1975 by A García Cook.

- Tx-2245. San José Tetel 49** **1870 ± 100**
 Pit 2, Level B, 0.85m depth. Early Tezoquipan phase.
- Tx-2246. San José Tetel 50** **2470 ± 80**
 Pit 2, Level C, 1.29m depth. Texoloc phase.
- Tx-2247. San José Tetel 51** **2530 ± 100**
 Pit 2, Level D, 1.50m depth. Early Texoloc phase and/or late Tlatempa phase.
- Tx-2248. San José Tetel 52** **2230 ± 80**
 Pit 1, Level D, 0.9m depth. Late Texoloc phase.
- Tx-2249. San José Tetel 53** **2130 ± 140**
 Pit 1, Level F, 1.70m depth. Texoloc phase.

San Rafael Tenanyecac series

Charcoal from San Rafael Tenanyecac site (T-288), between Nativitas Hwy to San Martin and left bank of Atoyac R, in valley at foot of Cerro Nativitas (Xochitecatl) (19° 14' 00" N, 98° 21' 15" W). Coll 1973 by R Abascal and A García Cook.

- Tx-2154. San Rafael Tenanyecac 18** **2530 ± 110**
 Pit 2, Level V, 0.85m, depth. Initial Tezoquipan phase.
- Tx-2155. San Rafael Tenanyecac 19** **2760 ± 130**
 Pit 2, Level IX, 1.80m depth. Early Texoloc phase.

Cerro Gordo de Ixtacuixtla series

Charcoal from Cerro Gordo de Ixtacuixtla site (T-182), 1km S of San Felipe Ixtlacuixtla at side of San Martin-Tlaxcala hwy (19° 19' 19" N, 98° 22' 40" W). Coll 1973 by R Abascal.

- Tx-2158. T-182, 22** **2710 ± 90**
Pit 2, Level IV, 0.45m depth. Middle Texoloc phase.
- Tx-2159. T-182, 23** **2260 ± 200**
Pit 2, Level V, 0.87m depth. Early Texoloc phase.
- Tx-2160. Piedra del Padre 25** **1830 ± 60**
Charcoal from Structure 1, Level III, 0.75m depth, Piedra del Padre site (T-436), 7km ESE of Terrenate (19° 29' 15" N, 97° 51' 10" W). Early Tenanyecac phase. Coll 1974 by A García Cook.
- Tx-2161. San Jorge Tezoquipan 24** **2600 ± 1340**
Charcoal from Pit 1, Level III, 0.47m depth, San Jorge Tezoquipan site (T-263), 1km S of San Jorge Tezoquipan (19° 18' 45" N, 98° 18' 15" W). Texoloc phase. Coll 1973 by R Abascal.
- Tx-2162. Tetepetla Contla 26** **2740 ± 520**
Charcoal from strat cut, depth 3.50m, Tetepetla Contla site (T-336), N side of San Bernadino Contla (19° 20' 05" N, 98° 09' 10" W). Tezoquipan phase. Coll 1973 by A García Cook.
- Tx-2163. Tlacateopan Contla 27** **2480 ± 70**
Charcoal from side of pit in Edificio 1, 3.20m below surface, Tlacateopan Contla site (T-337), 1km NE of San Bernadino Contla (19° 20' 00" N, 98° 08' 47" W). Transition between Tezoquipan and Tenanyecac phases. Coll 1973 by A García Cook.
- Tx-2166. Las Calaveras Tlacocalpan 30** **2460 ± 80**
Charcoal from Pit 1, Level III, 0.42m depth, Las Calaveras Tlacocalpan site (T-285), 7km NE of city of Tlaxcala (19° 22' 08" N, 98° 12' 20" W). Local manifestation of Texcalac phase. Coll 1973 by A García Cook.
- Tx-2250. Los Cerritos de Guadalupe 54** **1690 ± 70**
Charcoal from Pit 2, Level C, 0.54m depth, Los Cerritos de Guadalupe site (T-85), on property of Ejido Cuamanzingo, ca 14km NW of Apizaco (19° 31' 20" N, 98° 14' 40" W); alt 2535m. Teotihuacán phase (Classic). Coll 1975 by A García Cook.
- Puebla*
- Tx-2165. Piedra Parada 29** **880 ± 70**
Charcoal, probably from Level II, 1.03m depth, Piedra Parada site (P-187), in pine forest 11km N of Santa Rita Tlahuapan (19° 25' 25" N, 98° 33' 55" W). Probably Tlaxcala phase. Coll 1973 by R Abascal.
- La Pedrera de Tlalancaleca series**
Charcoal from La Pedrera de Tlalancaleca site (P-119), 11km WNW of San Martin Texmelucan, Puebla, above right edge of present Mexico-

Puebla hwy (19° 19' 10" N, 98° 32' 52" W). Coll 1973 by R Abascal and A García Cook.

Tx-2144. La Pedrera 8 **1700 ± 80**

Pit 6, Level IV, 0.90m depth. Early Tenanyecac phase (Protoclassic).

Tx-2145. La Pedrera 9 **2840 ± 270**

Pit 6, Level VI, 1.30m depth. Late Texoloc/Early Tezoquipan phase (Late Preclassic).

Tx-2146. La Pedrera 10 **2550 ± 1020**

Pit 6, Level IX, 2.10m depth. Early Texoloc phase (Middle Preclassic).

Tx-2147. La Pedrera 11 **2170 ± 140**

Pit 9, Level IIa, 0.45m depth. Early Texoloc phase.

Tx-2148. La Pedrera 12 **2330 ± 100**

Pit 17, Level II, 0.35m depth. Early Texoloc phase.

Tx-2149. La Pedrera 13 **2280 ± 80**

Pit 17, Level III, 0.77m depth. Late Tlatempa phase (Middle Preclassic).

Tx-2150. La Pedrera 14 **2250 ± 100**

Pit 18, Level III, 0.87m depth. Early Texoloc phase.

El Ameyal de la Pedrera de Tlalancaleca series

Charcoal from El Ameyal de la Pedrera de Tlalancaleca site (P-119), 11km WNW of San Martín Texmelucan, above right edge of Mexico-Puebla hwy in territory of San Matías Tlalancaleca (19° 18' 30" N, 98° 31' 09" W). Coll 1973 by A García Cook. All samples from "Elemento 7."

Tx-2151. P-119, 15 **1820 ± 90**

Sq N5/E3, Level IV, 1.17m depth.

Tx-2152. P-119, 16 **1860 ± 100**

Sq N4/E3, Level III, 1.13m depth.

Tx-2153. P-119, 17 **2200 ± 170**

Sq N2/E7, Level V, 1.77m depth.

Tx-2244. P-119, 48 **1670 ± 80**

Sq N6/E3, Level III(?), 1.15m depth. Tezoquipan phase (Protoclassic).

Gualupita las Dalias series

Charcoal from Gualupita las Dalias site (P-164), on tableland surrounded by ravines, 10km NE of Santa Rita Tlahuapan (19° 25' 20" N, 98° 31' 20" W), alt 2650m. Coll 1973, 1975 by A García Cook.

- Tx-2164. Gualupita las Dalias 28** **2180 ± 60**
 From tunnel in interior of pyramidal structure, 4.0m depth. Tezoquipan phase (Preclassic).
- Tx-2251. Gualupita las Dalias 55** **2310 ± 90**
 Pit A, Level B, 0.37m depth. Late Tezoquipan phase (Protoclassic).
- Tx-2252. Gualupita las Dalias 56** **2280 ± 100**
 Pit A, Level D, 0.90m depth. Tezoquipan phase.
- Tx-2253. Gualupita las Dalias 57** **2350 ± 100**
 Pit 3, Level H, 2.07m depth. Early Tezoquipan and late Texoloc phases.
- Tx-2254. Gualupita las Dalias 58** **1960 ± 70**
 Pit 4, Level F, 2.05m depth. Early Tezoquipan phase.
- Tx-2255. Gualupita las Dalias 59** **1960 ± 70**
 Pit 6, Level G, 1.80m depth. Early Tezoquipan phase.
- Tx-2256. Gualupita las Dalias 60** **2150 ± 80**
 Pit 4, "Elemento 1," 2m depth. Early Tezoquipan phase.
- Tx-2257. Gualupita las Dalias 61** **1970 ± 80**
 Pit 5, "Elemento 1," 2.25m depth. Early Tezoquipan phase.
- Tx-2258. Gualupita las Dalias 62** **2180 ± 80**
 Pit 8, "Elemento 2," 1.42m depth. Early Tezoquipan phase.
- Tx-2259. Gualupita las Dalias 63** **2360 ± 70**
 Pit 11, "Elemento 3-A," 2.07m depth. Early Tezoquipan phase.
- Tx-2260. Gualupita las Dalias 64** **1980 ± 60**
 Pit 13, "Elemento 4-A," 1.45m depth. Tezoquipan phase.
- Tx-2261. Gualupita las Dalias 65** **2490 ± 80**
 Pit 14, "Elemento 4-A," 1.80m depth. Early Tezoquipan phase.

Matlactzingo series

Charcoal from Matlactzingo site (P-62), at confluence of Atoyac and los Chorros Rivers (18° 49' 40" N, 98° 00' 30" W). Final epoch of local Classic culture. Coll 1975 by A Salas Porras and P Dávila Cabrera and subm 1975 by P Dávila Cabrera.

- Tx-2227. P-62, 31** **1550 ± 60**
 Pit 3, Level VI, 0.54m depth.
- Tx-2228. P-62, 32** **2250 ± 60**
 Pit 4, Level XII, 2.48m depth.

Tx-2229. P-62, 33 **580 ± 110**

Pit 4, Level XIII, 2.66m depth. Sample was split and 2 parts prepared and run separately: 480 ± 150, 670 ± 160; date is average.

Tepeaca Viejo series

Charcoal from Tepeaca Viejo site (P-8), in canyon at E end of Tepeaca mt ridge, 1km NW of Tepeaca (18° 58' 25" N, 97° 55' 00" W). Assoc with ceramics (principally polychrome) of Mixteca-Puebla culture. Coll 1975 by S Mesa Dávila, A Salas Porras, and D Z de Dávila; subm 1975 by P Dávila Cabrera, Fundación Alemana Inv, Mexico City.

Tx-2230. P-8, 34 **2100 ± 50**

Pit 3, Level IV, 0.35m depth.

Tx-2231. P-8, 35 **610 ± 60**

Pit 1, Level IV, 0.50m depth.

Tx-2232. P-8, 36 **1670 ± 50**

Pit 2, Level VIII, 1.22m depth.

Los Teteles de San Miguel series

Charcoal from Los Teteles de San Miguel site (P-6), ca 500M NE of Cuauhtinchan (18° 57' 25" N, 98° 00' 00" W). Similar to Texoloc phase. Coll and subm 1975 by P Dávila Cabrera.

Tx-2233. P-6, 37 **2830 ± 180**

Pit 4, Level IV, 1m depth.

Tx-2234. P-6, 38 **2390 ± 50**

Pit 4, Level IV, 1.10m depth.

Capulac Concepción series

Charcoal from Capulac Concepción site (P-211), in Poblano Valley on Hacienda Las Vegas, 3km NW of Amozoc (19° 03' 40" N, 98° 02' 40" W). Local Tezoquipan phase (Protoclassic). Coll 1975 by A García Cook.

Tx-2235. P-211, 39 **1550 ± 90**

Pit 3, upper Level D (in banquette), 1m depth.

Tx-2236. P-211, 40 **680 ± 110**

Pit 1, base of Level A, 0.50m depth.

Tx-2237. P-211, 41 **480 ± 60**

Pit 2, Level D (in banquette), 1.30m depth.

Tx-2238. P-211, 42 **790 ± 50**

Pit 4, fireplace in structure assoc with ball game, 0.30m depth.

Guatemala

Charcoal from sites in vicinity of Santa Cruz del Quiche. Subm 1980 by K L. Brown, Dept Anthropol, Univ Houston, Houston, Texas.

Gumarcaaj series

Samples from Gumarcaaj site (47-40-191), ca 3km W of Sta Cruz del Quiche (15° 01' N, 91° 10' W). Estimated age: AD 1350–1524 (Spanish conquest). Coll 1978 by K L. Brown.

Tx-3813. Gumarcaaj 78-7219 **700 ± 40**

Unit 9/37B, Level 19, elev 45.71 to 45.61m.

Tx-3814. Gumarcaaj 78-6911 **1530 ± 40**

Unit 25/19H, Level 2.

Tx-3815. Gumarcaaj 78-7141 **890 ± 90**

Unit 31/19H.

Tx-3816. Gumarcaaj 78-5888 **780 ± 40**

Unit 1/37B. Sample split and 2 parts run independently: 850 ± 50, 750 ± 60; date is average.

Greater Utatlan series

Samples from sites at Greater Utatlan, ca 3km W of Sta Cruz del Quiche (15° 01' N, 91° 10' W). Estimated age: AD 1350 to Spanish conquest. Coll 1978 by T Babcock.

Tx-3817. 47-41-290, 78-4989 **730 ± 80**

Charcoal, Unit 6, Level 7, beneath slab structure in tomb.

Tx-3826. 47-41-290, 78-4956 **510 ± 100**

Charcoal, Unit 6, Level 2, from ash and sherd lens overlying burials intrusive above tomb.

Tx-3818. 47-41-336, 78-4735 **1210 ± 60**

Charcoal, Unit 7, Level 11, beneath lowest mound floor, N end of Pakaman site.

Tx-3820. 47-41-307, 78-2362 **1100 ± 80**

Charcoal from burial pits E of Resguardo. Unit 2, Level 6.

Tx-3821. 47-41-317, 78-3971 **3030 ± 230**

Charcoal from burial pits cut through midden on N slope of Pakaman site. Unit 4, Level 5.

Tx-3822. 47-41-320, 78-3137 **1070 ± 100**

Wood carbon from base of mound fill in copper-working area, Unit 7, Level 9.

Tx-3823. 47-31-265, 78-0690 1440 ± 230
Carbon from obsidian workshop on La Rochela, Unit 2, Level 5.

Tx-3824. 47-40-039, 78-0999 2220 ± 50
Carbon assoc with whole vessels within feature in Unit 1, Level 4.

Tx-3825. 47-41-223, 78-2363 1450 ± 50
Charcoal from burial pit of structure on Ovan Rojas, Unit 5, Level 8.

Chitinamit series

Samples from Chitinamit site (23-43-222), 3.5km N of Sta Cruz del Quiche (15° 07' N, 91° 04' W). Estimated dates: AD 700–900, time of initial conquest of Quiche area by Toltecs. Coll 1978 by L. Sutro.

Tx-3828. 78-7207 2340 ± 50
Early structure floor, Unit 1/1M, Level 8.

Tx-3829. 78-7204 1200 ± 60
Basal occupation for site, Unit 2/2M, Level 22.

Tx-3830. 78-7206 2090 ± 40
Early structure floor, Unit 3/1M, Level 4.

Tx-3831. 78-3207 1080 ± 30
Within retaining wall of platform, Unit 1/1W, Level 13.

Tx-3832. 78-1407 1340 ± 60
Below Feature 18, Unit 20N/16W, Level 7.

Tx-3833. 78-1382 1150 ± 90
From early cut stone structure, Unit 6/7M, Level 4.

Tx-3834. 78-3226 1360 ± 40
From hearth of palace floor, Unit 26N/30W, Level 12.

Tx-3835. 78-3147 1200 ± 50
From hearth residence zone, Unit 7N/34W, Level 7.

Tx-3836. 78-3149 580 ± 50
From residence terrace, Unit 16N/44E, Level 8.

Tx-3837. 78-4725 1400 ± 40
From hearth residence, Unit 2N/68E, Level 12.

Tx-3838. 78-4721 1540 ± 40
From residence terrace, Unit 46N/88E, Level 3.

Chujuyab series

Samples from Chujuyab site (36-14-015), pre-Toltec mound, estimated age: AD 700–800, in Chujuyab Valley 15km NE of Sta Cruz del Quiche (15° 06' N, 91° 03' W). Coll 1978 by T Majewski.

Tx-3840. 78-3196 **1520 ± 110**

From possible pre-mound construction phase, Unit 5/IVm, Level 3.

Tx-3841. 78-4266 **1270 ± 50**

From plaza between Mounds 3 & 5, Unit 70E/88S, Level 9.

Tx-3842. 78-3160 **1380 ± 60**

Assoc with mound retaining wall, Unit 3/Vm, Level 8.

Tx-3843. 78-3193 **1380 ± 60**

Near edge of mound, Unit 1/IVm, Level 3.

Tx-3844. 78-3158. **1320 ± 60**

From part of mound retaining wall, Univ 11/IVm, Level 5.

Tx-3845. 78-3155 **1650 ± 70**

Between V-shaped rock and semi-dressed mica slab above it; Unit 4/IIIm, Level 3.

Tx-3846. 78-0108 **1560 ± 100**

From ceramic feature, Unit 24E/34N, Level 6.

*Peru***Huaricoto series**

Carbonized or burned plant tissue samples from Huaricoto site (PAn 3-35) in Marcará, Prov Carhuaz, Dept Ancash (9° 19' 57" S, 77° 36' 57" W). Ceremonial center, late Preceramic to beginning of Middle Horizon. Coll 1978 and subm 1979 by R I. Burger, Calif State Univ, Hayward.

Tx-3580. Huaricoto #2 **4500 ± 180**

Huaricoto IIA, Sec Iglesia, from ceremonial hearth, Floors D/E; mid-Early Horizon.

Tx-3581. Huaricoto #5 **4770 ± 200**

Huaricoto III, Sec Camino, from platform surrounding probable late Preceramic ceremonial hearth; stratigraphically below early Middle Horizon structures.

Tx-3582. Huaricoto #6 **2540 ± 130**

Huaricoto IVC, Sec Toril, Level 7b, 130 to 140cm, outside of monumental wall, Early Horizon.

Tx-3583. Huaricoto #7**2330 ± 80**

Huaricoto IVC, Sec Toril, Level 6b, 120 to 130cm, outside of Early Horizon monumental walls.

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