

UCLA RADIOCARBON DATES X

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The measurements reported in this date list form the chronometric framework for obsidian hydration and trade studies in California (Ericson, 1975; 1977; 1978; 1981; Ericson *et al*, 1975; Singer and Ericson, 1977). All samples were analyzed as CO₂ gas at close to 1 atm in a 7.5L proportional counter with three energy channels. Radiocarbon ages are based by convention on the 5568 ± 30 yr half-life. The biospheric standard is 95% the count rate of NBS oxalic acid for radiocarbon laboratories. Background is based on CO₂ obtained from marble. Counter operation is checked against a historically dated wood sample from the funerary boat of Sesostri III, 1872 $\begin{smallmatrix} +4 \\ -8 \end{smallmatrix}$ BC (Hayes, 1962). All samples were subjected to accepted NaOH, HCl or other special chemical treatments to exclude contamination. No tree-ring calibration was applied to any of the samples listed.

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SAMPLE DESCRIPTIONS

California

Mammoth Junction series

Samples coll 1963-64 during excavation of Mammoth Junction site, 4-Mno-382, Mono Co (37° 39' N, 118° 50' W) by J W Michels and G L Sterud, Dept Anthropol, Univ California, Los Angeles and subm by J E Ericson.

Mammoth Junction site was large (8.5 ha) obsidian quarry workshop and occupation site, adjacent to Casa Diablo obsidian source (Ericson, Hagan, and Chesterman, 1976). This series of dates, assoc with many obsidian hydration measurements, was selected in order to substantiate diachronic production of obsidian for trade.

UCLA-1724A. Mammoth Junction	660 ± 60
Charcoal, Pit 26, 15 to 30cm depth.	
UCLA-1724B. Mammoth Junction	430 ± 80
Charcoal, Pit 29, 15 to 30cm depth.	
UCLA-1724C. Mammoth Junction	1000 ± 50
Charcoal, Pit 14, 45 to 60cm depth.	
UCLA-1724D. Mammoth Junction	170 ± 60
Charcoal, Pit 17, 15 to 30cm depth.	
UCLA-1724E. Mammoth Junction	450 ± 100
Charcoal, Pit 16, 15 to 30cm depth.	
UCLA-1724F. Mammoth Junction	600 ± 60
Charcoal, Pit 14, 15 to 30cm depth.	

Elderberry Canyon series

Samples coll 1970 during salvage excavations of Elderberry Canyon site, 4-LAn-324, Los Angeles Co (34° 34' N, 118° 38' W) by Clay A Singer and personnel of Archaeol Survey, UCLA, and Northridge Archaeol Research Center, California State Univ, Northridge, supported by California Dept Parks and Recreation prior to inundation of site by waters of Castaic Dam. Subm by J E Ericson.

UCLA-1771A. Elderberry Canyon **1720 ± 50**

Marine shell (*Haliotis*) from W sidewall of Knoll (55/EO), 45 to 60cm depth. This sample (W66-1088) dates cairn and "central" cemetery area.

UCLA-1771B. Elderberry Canyon **2040 ± 350**

Bone collagen from very thick occipital region of human skull of unique, uncremated cairn burial, Unit H4, 135cm below surface. Sample dates burial and "early or middle" period of site occupation.

Ridge site series

Samples coll summer of 1973 during salvage excavations of Ridge site, SBCM-128, San Bernardino Co (34° 20' N, 117° 26' W) conducted by C White, Dept Anthropol, Univ California, Los Angeles, in conjunction with San Bernardino Co Mus; subm by J E Ericson. *Comment (CW)*: for both samples, expected date was AD 500, based on bead chronology.

UCLA-1789A. Ridge site **1440 ± 50**

Charcoal from probable cooking area, N4/E4, subquad D, 30 to 40cm.

UCLA-1789B. Ridge site **1960 ± 50**

Charcoal from probable cooking area, N6/W8, 30 to 40cm.

UCLA-1794C. 4-Son-518 **120 ± 45**

Charcoal from circular house pit of 4-Son-518 (38° 20' N, 122° 44' W). This sample dates appearance of cultural traits characteristic of Southern Pomo just prior to (or just after) arrival of Caucasian settlers. Sample coll 1973 by Ward Upson, Santa Rosa, California, under contract with Sonoma Co Water Agency; subm by J E Ericson.

Mostin site series

Series of human burials recovered in 1973 from test excavations of cemetery assoc with Paleo-Indian village of Mostin site, 4-Lak-380, formerly SDA-66 (39° N, 122° 50' W) at depth 6m below present surface in lacustrine deposits, deposited during later high-level stage of Clear Lake, Lake Co (McNitt, 1968). Close proximity of site to Mt Konocti and Borax Lake obsidian sources (Meighan and Haynes, 1970) dates one of oldest examples of obsidian use known in America (Ericson and Berger, 1974). Subm by D Fredrickson, Sonoma.

1795A. Mostin **10,260 ± 340**

Bone collagen from left fibula, 6m from left tibia, and diaphysis of right femur of human skeleton, Burial 4, below surface, assoc with seven analyzed obsidian artifacts (Ericson and Berger, 1974).

1795B. Mostin **9040 ± 210**
 $\delta^{13}C = -19.2\text{‰}$

Bone collagen from left and right femur of late adolescent human skeleton, Burial 1, tightly flexed, 6m below surface, assoc with seven analyzed obsidian artifacts (Ericson and Berger, 1974). Aspartic acid date for this skeletal sample was 8100 yr BP (Jeffrey Bada, pers commun). $^{13}C/^{12}C$ ratio indicates largely terrestrial diet of individual.

1795C. Mostin **7750 ± 400**

Bone collagen from right radius, right femur, left humerus of young adult (21 to 22 yr old) human skeleton, Burial 9, semi-flexed, to 6m below surface, assoc with seven analyzed obsidian artifacts. Aspartic acid date for this skeletal material was 10,500 yr BP (Jeffrey Bada, pers commun).

Stone Valley series

Samples coll 1962 during excavations of Stone Valley site, 4-CCo-308, Contra Costa Co (37° 51' N, 122° 1' W) by David Fredrickson, California State Coll, Sonoma, and subm by J E Ericson. This important series dates change in obsidian utilization (Fredrickson, 1969), derived almost in total from St Helena obsidian source in Napa Co (Jackson, 1975). Also dates Central California Horizon sequence in area.

UCLA-1786A. Stone Valley **470 ± 120**

Charcoal (Sample 1B) from human burial matrix, Burial 4 (matrix), 1.30m depth, assoc with Type 2a1 and 1a Olivella beads. *Comment* (DF): sample believed to date early Phase 1 of Central California's Late Horizon (ca < AD 300).

UCLA-1786B. Stone Valley 2860 ± 120

Charcoal (Sample 2B) from human burial matrix, Burial 32 (matrix), 3.65m depth, assoc with quartz crystal, bone awl fragment, and chipped-stone fragments. *Comment* (DF): sample believed to date middle of Central California's Middle Horizon (ca 2500 BP).

UCLA-1786C. Stone Valley 2870 ± 240

Charcoal from deepest part of site, derived from human burial, Burial 3 (matrix), 6.20m depth, assoc with bone tool fragments and two projectile points. *Comment* (DF): sample believed to date early Middle Horizon of Central California, contemporaneous with late Early Horizon (ca > 3000 BP), date younger than expected when compared with UCLA-1786B.

UCLA-1792A. Stone Valley 870 ± 50

Charcoal from site midden, M-1, 75 to 90cm depth. *Comment* (DF): sample believed to date early Phase 1 of Central California's Late Horizon (ca < AD 300).

UCLA-1792B. Stone Valley 940 ± 50

Charcoal from site midden, M-1, 105 to 120cm depth. *Comment* (DF): sample believed to date early Phase 1 or Middle Horizon/Late Horizon Transitional Phase of Central California (ca AD 300).

UCLA-1792C. Stone Valley 950 ± 50

Charcoal from site midden, M-1, 120 to 140cm depth. *Comment* (DF): sample believed to date beginning of early Phase 1 of Middle Horizon/Late Horizon Transitional Phase of Central California (ca AD 300).

UCLA-1792D. Stone Valley 1190 ± 130

Charcoal from site midden, M-1, 165 to 180cm depth. *Comment* (DF): sample believed to date Middle Horizon/Late Horizon Transitional Phase of Central California (ca > AD 300).

UCLA-1792E. Stone Valley 1250 ± 230

Charcoal from site midden, M-2, 3.6 to 3.8m depth. *Comment* (DF): sample should date middle of Central California's Middle Horizon (ca 2500 BP). Date is much too young; not consistent with remainder of dates from site.

UCLA-1792F. Stone Valley 3130 ± 230

Charcoal from site midden, M-3, 4.1 to 4.3cm depth. *Comment* (DF): sample believed to date early portion of Central California's Middle Horizon; may be contemporaneous with late Early Horizon.

La Serena series

Samples coll 1962 during excavations of La Serena site, 4-CCo-30, Contra Costa Co (37° 50' N, 122° 1' W) by David Fredrickson, and subm

by J E Ericson. This series dates change in obsidian utilization (Fredrickson, 1969), derived almost totally from St Helena obsidian source in Napa Co (Jackson, 1975). Also dates Central California Horizon sequence in area. *Comment* (DF): major occupation of site was middle Phase 1, although some Phase 2, post AD 1500 occupation.

UCLA-1793A. La Serena **440 ± 50**

Charcoal from site midden, I-28, 45 to 60cm depth. *Comment* (DF): sample believed to date Phase 1 of Central California's Late Horizon (ca > AD 1500).

UCLA-1793B. La Serena **590 ± 50**

Charcoal from site midden, I-28, 90 to 105cm depth. *Comment* (DF): sample believed to date Phase 1 of Central California's Late Horizon (ca > AD 1500).

UCLA-1793C. La Serena **370 ± 50**

Charcoal from site midden, Q-40, 45 to 60cm depth. *Comment* (DF): sample should date Phase 1 of Central California's Late Horizon (ca > AD 1500), but may be from Phase 2 occupation.

UCLA-1793D. La Serena **470 ± 50**

Charcoal from site midden, Q-40, 90 to 105cm depth. *Comment* (DF): sample should date Phase 1 (ca > AD 1500), but may be from Phase 2 occupation.

UCLA-1853B. Houx **680 ± 40**

Charcoal from site midden, 4-Lak-261, SM-24, 45 to 60cm depth (38° 52' N, 122° 36' W). Sample coll during excavations in 1961 by D Fredrickson; subm by S DeAtley and F J Findlow. *Comment* (DF): sample believed to date North Coast Range equivalent to Central California's Middle Horizon (ca > AD 300). Some post-AD 1500 occupation of site on basis of clam-shell disk bead cross-dating.

Pocheco site series

Samples coll Spring 1973 during excavation of Pocheco site, 4-Mrn-152, Marin Co (37° 42' N, 123° 32' W) by C W Clewlow, Archaeol Survey, Inst Archaeol, Univ California, Los Angeles, and subm by J E Ericson. *Comment* (CWC): although dates were unexpectedly early, subsequent analysis of assoc materials confirmed Central California Early Horizon date. Samples probably represent burials, earliest known in Marin Co, California.

UCLA-1891A. Pocheco **3270 ± 70**

Bone collagen, derived from human bone, Burial 4, 3N/5W and 2N/5W, 85 to 90cm depth.

UCLA-1891B. Pocheco **3050 ± 130**

Bone collagen derived from human bones. Burial 5, 90cm depth.

"Tlotlic"-Cold Creek Canyon site series

Samples coll April 1973 during excavation of Cold Creek Canyon site, "Tlotlic" village, 4-Lak-153, Lake Co (39° 5' N, 122° 32' W) by R L Orlns, Univ California, Davis; subm by J E Ericson.

UCLA-1913A. Cold Creek Canyon <300

Charcoal from site midden, Unit S12/E16, 20 to 30cm depth.
Comment (RLO): expected date, 1000 bc; Houx Pattern of North Coast Range cultural sequence after Fredrickson (1973).

UCLA-1913B. Cold Creek Canyon 620 ± 60

Charcoal from base of site midden, Unit S12/E16, 60 to 70cm depth.
Comment (RLO): expected date, 3000-5000 bc; Borax Lake Pattern of North Coast Range cultural sequence after Fredrickson (1973).

4-Mad-179 series

Samples coll 1971 during excavations of Late Horizon/Protohistoric site, 4-Mad-179, Madera Co (37° 8' N, 119° 52' W) by E Gary Stickel, and members of Dept Anthropol, California State Univ, Long Beach, and subm by J E Ericson. Samples should date very late occupation of site.

UCLA-1920A. 4-Mad-179 430 ± 110

Charcoal, House pit No. 15, 120 to 140cm depth.

UCLA-1920B. 4-Mad-179 1000 ± 300

Charcoal, House pit No. 15, 140 to 160cm depth.

UCLA-1950. Peterson 2 390 ± 90

Charcoal (Lowie Mus 1-80528) from Tr 1, Unit 3, 76cm depth.
Coll 1948 during excavations of Peterson 2 site, 4-Sol-2, Solano Co (38° 15' N, 121° 47' W), by the late R F Heizer and members of Archaeol Field Method Class 195, Univ California, Berkeley; subm by J E Ericson.

North San Juan series

Samples coll Summer 1954 during excavations of North San Juan site, 4-Nev-15, Nevada Co (39° 22' N, 121° 06' W) by members of Anthropol Class S197, Univ California, Berkeley; subm by J E Ericson.

UCLA-1951A. North San Juan 1950 ± 60

Charcoal (Lowie Mus 1-173143) from 16-SW-23, 30 to 60cm depth.

UCLA-1951B. North San Juan 280 ± 40

Charcoal (Lowie Mus 1-172975) from 21-SE-27, 30 to 60cm depth.

Winslow Cave series

Samples coll April 1952 during excavations of Winslow Cave, 4-Cal-99, Calaveras Co (38° 09' N, 120° 29' W), by C W Meighan and M A Baumhoff, then students of Dept Anthropol, Univ California, Berkeley; subm by J E Ericson.

- UCLA-1952A. Winslow Cave** **1620 ± 400**
Bone collagen, extracted from faunal bones (Lowie Mus 1-139073), from Pit 3, surface to 15cm depth.
- UCLA-1952B. Winslow Cave** **1200 ± 100**
Bone collagen, extracted from faunal bones (Lowie Mus 1-139082), from Pit 3, 60 to 75cm depth.
- UCLA-1953. Hotchkiss site** **350 ± 50**
Charcoal (Lowie Mus 1-226900) from 1G-S5, 110 to 125cm depth, coll 1968-70 during excavations of Hotchkiss site, 4-CCo-138, Contra Costa Co (37° 57' N, 121° 35' W) by J A Bennyhoff and members of Anthropol Class 195, Univ California, Berkeley.
- UCLA-1954. Snow Creek No. 5 site** **280 ± 60**
Charcoal sample Pit 4, Feature 2, 20 to 40cm depth, assoc with hearth and milling slab, dating recent aboriginal occupation of site; coll during Sept 1974 excavation of Snow Creek No. 5 site, Mono Co (37° 38' N, 188° 59' W) by N Leonard, Univ California, Riverside. *Comment* (NL): expected Late Horizon date, after AD 1200.
- UCLA-1955. Colville Rockshelter** **1910 ± 60**
Charcoal (Lowie Mus 1-130644) from Unit C-8, 15 to 30cm depth, coll July 1951 during excavations of Colville Rockshelter, 4-Iny-222, Inyo Co (36° 45' N, 177° 30' W) by C W Meighan and M A Baumhoff.
- UCLA-1957. Cottonwood** **<300**
Bone collagen, 15cm depth, extracted from faunal bones (Lowie Mus 1-202690), from Unit 5-LI; coll 1950-51 during excavations of Cottonwood site, 4-Iny-2, Inyo Co by Mr and Mrs H Riddell, Jr.
- UCLA-1958. 4-Eld-44** **2150 ± 190**
Bone collagen, extracted from faunal bones (Lowie Mus 1-197574) from Tr A, Sq 2, 30 to 60cm depth; coll March 1956 during excavations of 4-Eld-44, El Dorado Co (38° 42' N, 120° 58' W) by F A Riddell, Archaeol Survey, Univ California, Berkeley.
- UCLA-1959. 4-Alp-7** **1090 ± 100**
Charcoal (Lowie Mus 1-145132) from B-6, 0 to 30cm depth; coll Aug 1953 during excavations of 4-Alp-7, Alpine Co (38° 41' N, 119° 46' W) by A B Elsasser and staff of Archaeol Survey, Univ California, Berkeley. Subm by J E Ericson.
- UCLA-1960. Bamert Cave** **440 ± 80**
Charcoal (Lowie Mus 1-121013) from test pit, coll April 1950 during test excavation of Bamert Cave, 4-Ama-3, Amador Co (38° 15' N, 120° 58' W) by the late R F Heizer and A E Treganza, Archaeol Survey, Univ California, Berkeley. Subm by J E Ericson.

El Sobrante series

Samples coll 1951-52 during excavations of El Sobrante site, 4-CCo-151, Contra Costa Co (37° 58' N, 122° 18' W) by the late R F Heizer, C W Meighan, and members of Anthropol Class 195, Univ California, Berkeley. Subm by J E Ericson.

UCLA-1961A. El Sobrante **1010 ± 130**

Charcoal (Lowie Mus I-210507) from B-4, 150cm depth, coll Spring 1951.

UCLA-1961B. El Sobrante **1260 ± 110**

Charcoal (Lowie Mus I-211162) from J-7, 190cm depth, coll Spring 1952.

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