

SIMON FRASER UNIVERSITY RADIOCARBON DATES III

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This list reports measurements made on archaeological and geologic samples by our laboratory from June 1982 to December 1983. Results of measurements made during that period which lack review by submitters will be reported in a subsequent date list. Sample preparation techniques and benzene synthesis remain as described previously (R, 1982, v 24, p 344-351). For low organic samples, such as sediments, we now use a combustion tube assembly. These samples are burned under oxygen flow in a quartz tube. To absorb sulfur and break up nitrous compounds, we pass combustion gases through a 50% mixture of MnO_2 and CuO wire heated to ca 500°C. The gas is then bubbled through a distilled water and KMnO_4 solution to remove chlorides before being introduced into our standard dry ice and CO_2 traps.

Benzene is now counted on an LKB-Wallac *Rackbeta* liquid scintillation spectrometer. For 5ml counting volumes our background level is 4.0 ± 0.03 cpm. The normalized oxalic activity (Aon) is 7.51 ± 0.03 cpm at a ^{14}C counting efficiency of 68%. Our laboratory standard continues to be ANU sucrose which is routinely calibrated against both oxalic standards. All dates are expressed in ^{14}C years relative to AD 1950 based on the Libby half-life for ^{14}C of 5568 yr. Unless otherwise stated, dates have been corrected for isotopic fractionation only when the $\delta^{13}\text{C}$ value is given. No corrections have been made for natural ^{14}C variations. The following descriptions of samples are based on information provided by submitters.

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ARCHAEOLOGIC SAMPLES

Canada

British Columbia

Yale Series I

Charcoal from DjRi 7 site (49° 33' 17" N, 121° 26' 0" W) directly across river from Yale, British Columbia. Previous excavations (Borden, 1968; 1975) report basal date of 5240 ± 100 (I-8208). Samples coll and subm by Shawn Haley, Dept Archaeol, Simon Fraser Univ.

SFU-225.

4200 \pm 380

Charcoal from 0.79 to 0.85m below surface. *Comment* (SH): sample dates Pebble Tool tradition component.

SFU-238. 5900 ± 130

Charcoal from 1.4m below surface. *Comment* (SH): sample dates base of microblade component in rock shelter.

SFU-248. 3130 ± 500

Charcoal from 0.97m below surface. *Comment*: sample too small for base rinse. *Comment* (SH): sample provides basal date for culture-bearing deposit.

Kitselas Canyon Series II

Charcoal excavated from GdTc-16 site (54° 36' 28" N, 128° 25' 04" W), E side of Skeena R, Kitselas Canyon, 16km NE of Terrace, British Columbia. Samples subm to continue study of village site (R, 1983, v 25, p 901); coll and subm by Gary Coupland, Dept Anthropol, Univ British Columbia for Natl Mus Man, Ottawa.

SFU-255. 4060 ± 120

Charcoal from 30cm below surface of housefloor excavation #1. Sample subm to date occupation of this floor. *Comment* (GC): result seems to be very early — may be re-deposited from earlier (microblade) component.

SFU-256. 4130 ± 90

Charcoal from 140cm below surface, housefloor excavation #1. Sample assoc with microblades and thought to date microblade component in this excavation area. *Comment* (GC): result as expected.

SFU-257. 4250 ± 100

Charcoal from 115cm below surface of housefloor excavation #2. *Comment* (GC): sample assoc with microblades; dates microblade component.

SFU-258. 4270 ± 200

Charcoal from 95cm below surface of housefloor excavation #2. *Comment* (GC): sample dates microblade component in this excavation area.

SFU-259. 5050 ± 140

Charcoal from 101cm below surface. *Comment* (GC): this is test midden excavation. Sample assoc with microblades. Result as expected.

SFU-260. 1330 ± 90

Charcoal from 30cm below surface in housefloor hearth feature. *Comment* (GC): sample dates occupation of housefloor. Result as expected.

SFU-261. 4350 ± 320

Charcoal from 205cm below surface housefloor excavation #3 from sterile beach deposit underlying cultural deposit. *Comment* (GC): result seems too late for beach deposit at this elev above river level.

Alexis Creek Series I

Charcoal from Sites FaRt 16 and FaRt 17, E side of Alexis Creek,

Chilcotin Plateau (52° 04' 45" N, 123° 18' 10" W). Samples coll and subm by Jean Bussey, Points West Heritage Consulting Ltd., Langley, British Columbia.

SFU-309. **700 ± 100**

Charcoal from FaRt 16. Sample subm to date lowest cultural layer in roasting pit feature. *Comment:* sample heavily contaminated by roots. No base rinse possible due to small size.

SFU-310. **500 ± 80**

Charcoal from FaRt 17. Sample subm to date circular cultural depression. *Comment:* heavy root contamination — no base rinse.

SFU-311. **620 ± 80**

Charcoal from FaRt 16. Sample subm to date use of roasting pit. *Comment:* heavy root contamination — no base rinse.

Namu Series II

Human bone collagen from Namu; prehistoric shell midden site, ELSx 1, E side of Fitzhugh Sound (51° 51' 32" N, 127° 51' 50" W). For additional inf on burial excavations, see Hester and Nelson (1978). Samples subm by Joanne Curtin, Dept Archaeol, Simon Fraser Univ.

SFU-341. **2530 ± 160**
 $\delta^{13}C = -13.0\text{‰}$

Collagen from long bone and rib fragments. Sample from cairn burial 10 to 70cm below surface excavated in 1978 by R Carlson. *Comment* (JC): probably one of most recent burials from Namu and may show different pattern of burial from earliest remains.

SFU-342. **4680 ± 160**
 $\delta^{13}C = -13.4\text{‰}$

Collagen from rib fragments and miscellaneous unid. bone. Sample from burial 7.5m below surface excavated by Hester in 1969 to 1970. *Comment* (JC): termination date for multiple internment involving at least 12 individuals.

SFU-343. **4390 ± 160**
 $\delta^{13}C = -13.0\text{‰}$

Collagen from rib fragments. Sample from burial 2m below surface excavated by Hester 1969 to 1970.

SFU-344. **5590 ± 100**
 $\delta^{13}C = -12.9\text{‰}$

Collagen from long bones sample from burial 1.5m below surface excavated by Hester 1969. *Comment* (JC): confirms stratigraphic evidence that this is 1 of 2 oldest burials from site.

Westbank Series I

Charcoal from DIQv 37 site (50° 53' 00" N, 119° 31' 00" W) on W

side of Okanagan Lake, British Columbia. Samples coll and subm by Mike Rousseau for Westbank Indian Council Heritage Proj.

SFU-302. **1080 ± 160**

Charcoal subm to date main occupation horizon of site.

SFU-350. **Modern**

Charcoal from hearth feature 78 to 85cm below surface. *Comment* (MR): possible charred root.

SFU-351. **1900 ± 80**

Charcoal assoc with main occupation horizon.

Alberta

Banff National Park Series I

Charcoal from EhPv 8 site in Bow Valley (51° 10' 30" N, 115° 38' 40" W). Samples coll and subm by Daryl Fedje for Parks Canada. *Comment*: all samples were heavily contaminated with carbonates; extensive acid treatment was used in their preparation.

SFU-314. **10,900 ± 270**

Charcoal from lowest cultural component.

SFU-316. **11,500 ± 300**

Charcoal from second lowest cultural component. *Comment*: sample indicates reversed stratigraphy compared to SFU-314.

SFU-317. **9400 ± 400**

Charcoal from lower cultural component.

SFU-318. **9800 ± 400**

Charcoal from lower cultural component.

SFU-346. **11,700 ± 290**

Charcoal from second lowest cultural component. *Comment*: sample supports SFU-316.

Manitoba

Stott Site Series I

Bison bone from Stott site (DlMa-1) near Brandon (49° 48' 45" N, 100° 5' 36" W). Site is bison kill and processing sta occupied at various times of year by small hunting groups. Samples were taken from loci within Grand Valley Prov Park. Samples subm by Historic Resources Branch, Manitoba.

SFU-224. **1140 ± 240**

Collagen extracted from *Bison bison* proximal left radius. Sample subm to date first exposed portion of major bone deposit.

SFU-229.**1100 ± 150**

Collagen extracted from *Bison bison* distal right humerus. Sample subm to date adjacent hearth feature.

*United States**Kentucky***Lower Cumberland Archaeol Proj Series I**

Lower Cumberland Archaeol Proj is long-term, multidisciplinary investigation of prehistory of extreme W Kentucky with special emphases on Archaic period. From 1978 to present, wood, charcoal, and charred hickory and walnut shell samples have been recovered from five sites in lower Tennessee-Cumberland-Ohio Valleys region. Samples coll and subm by Jack Nance. Research has been supported by grants from Social Sciences and Humanities Research Council of Canada.

SFU-271.**8220 ± 100**

Carbonized wood and hickory nut shell from Morrisroe site (37° 03' 45" N, 88° 24' 30" W), 165 to 185cm below surface. Site is Archaic midden on N bank of Tennessee R, Livingston Co. Cultural materials are incorporated in compact clay/silt floodplain sediments. Site represents first well-dated, stratified Archaic material reported for this part of Kentucky. Sample dates earliest known occupation of site. *Comment* (JN): date agrees with stratigraphy and with assoc cultural remains.

SFU-270.**7180 ± 130**

Carbonized wood and hickory nut shell from Morrisroe site, 45 to 55cm below surface. Sample provides terminal date for middle Archaic occupation. *Comment* (JN): date agrees with stratigraphy and with assoc cultural remains.

SFU-121.**7110 ± 250**

Charcoal from Morrisroe site, 94 to 108cm below surface. Sample provides terminal date for middle Archaic. *Comment* (JN): date agrees with stratigraphy; date agrees with SFU-270.

SFU-130.**7530 ± 150**

Charcoal from Morrisroe site, 137 to 140cm below surface. Sample dates lower portion of middle Archaic stratum. *Comment* (JN): date agrees with stratigraphy and assoc cultural remains.

SFU-221.**8500 ± 460**

Charcoal from Whalen site (37° 06' 24" N, 88° 12' 56" W), ca 300cm below surface. Site is Archaic deposit eroding from E bank of Cumberland R, Lyon Co. Three organic midden zones (lower, middle, and upper) are visible in cutbank. Stone artifacts, bone, and charred plant remains are present, as are human burials. Surface coll projectile points include Kirk, Eva, and variety of stemmed forms. Sample provides date for earliest

known occupation of site. *Comment* (JN): sample was coll with only approx control on depth measurement (see SFU-249).

SFU-249.**7670 ± 630**

Charcoal from Whalen site, 300cm below surface. Sample establishes earliest occupation of site. *Comment* (JN): both SFU-221 and -249 agree with stratigraphy and cultural materials coll from eroding river bank; presumably, both date same occupation. However, estimated error of determination and cultural materials known from site suggest that SFU-221 is more accurate date.

SFU-252.**7100 ± 600**

Charcoal from Whalen site 220cm below surface. *Comment* (JN): this date establishes date for middle zone and agrees with stratigraphy and with artifacts coll from cutbank.

SFU-253.**Modern**

Charcoal from Cox site (37° 11' 24" N, 88° 04' 21" W), large multi-component habitation site and aboriginal chert quarry around cave and resurgent stream in Karst uplands, Caldwell Co. Features and artifacts suggest occupations ranging from Paleo-Indian to Mississippian, with major Archaic and Woodland components. Sample from 110cm below surface and dates sediment accumulated in mouth of cave. *Comment* (JN): modern date agrees with expectations.

SFU-250.**Modern**

Charcoal from Cox site, 150cm below surface, dates sediment accumulation in mouth of cave. *Comment* (JN): modern date agrees with expectations.

SFU-254.**1300 ± 160**

Carbonized wood and seed from Branstetter Shelter I site (37° 13' 42" N, 88° 19' 02" W), dense organic midden deposit >1m deep, in upland sandstone rockshelter N of Cumberland R, Livingston Co. Chipped stone and bone artifacts and ceramics suggest Woodland occupation. Sample from 80 to 90cm below surface. *Comment* (JN): date agrees with presence of limestone-tempered ceramics and suggests middle Woodland occupation (see SFU-251).

SFU-251.**4420 ± 280**

Charcoal from Branstetter site, 40 to 50cm below surface. *Comment* (JN): sample provides first date for rockshelter occupation in Lower Tennessee-Cumberland Valleys. Compared with SFU-254 sample suggests site is multicomponent and earlier component is late Archaic. Deposits have been disturbed by pothunters. Stratigraphic reversal suggests that disturbance has resulted in deposition of Archaic materials over Woodland component. Artifactual evidence for Archaic component is slim.

SFU-306.**1060 ± 100**

Charcoal from Gordon II site (37° 16' 00" N, 88° 29' 30" W), on

terrace of S bank of Ohio R, Livingston Co. Surface coll ceramics include Mississippian Plain, Bell Plain, Kummswick, and Tolu Fabric-Imprinted, and Old Town Red. Sample 47 to 56cm below surface. *Comment* (JN): date agrees with Mississippian cultural assignment for site but appears to be 200 to 300 yr too early considering assoc ceramic assemblage.

GEOLOGIC SAMPLES

Canada

British Columbia

Stikine River Series I

Charcoal and carbonaceous silt from W side of Stikine R, 100m N of mouth of Ned Shears Creek (57° 58' 23" N, 131° 04' 26" W). Samples subm by Peter Read, Geotex Consultants Ltd, Vancouver, British Columbia, as part of hydroelectric feasibility studies for BC Hydro and Power Authority.

SFU-340. **25,100 ± 1900**

Carbonaceous silt; subm to date lava flow.

SFU-345. **>45,700**

Charcoal underlying top of exhumed Quaternary lava flow. *Comment* (PR): we are uncertain of stratigraphic loc of sediments enclosing sample, and although age ca 10,000 yr is possible, age beyond limit of ¹⁴C dating is also possible because sediments as old as 0.45My are exposed in terraces along banks of Grand Canyon of Stikine R.

Iskut Project

SFU-246. **8730 ± 600**

Wood from drill core taken in Iskut Valley 65km upstream from confluence of Stikine and Iskut Rivers (56° 42' 00" N, 130° 36' 00" W). Sample subm by BC Hydro and Power Authority to date lava flow. *Comment*: sample agrees with SFU-161 from same site.

Alberta

Boone Lake Series I

Gyttja from 5cm diam sediment core taken near center of Boone Lake (53° 34' 30" N, 119° 25' 30" W). Depths are below sediment surface. Samples subm as part of paleo-ecologic study of ice-free corridor in Peace R Dist, Alberta (see also White, Mathewes, & Mathewes, 1979). Samples coll and subm by James White and Rolf Mathewes, Dept Biol, Simon Fraser Univ.

SFU-206. **7400 ± 130**
 $\delta^{13}C = -22.0\text{‰}$

Gyttja from 3.7 to 3.8m level. *Comment* (JW): sample dates early postglacial birch peak.

SFU-207.**5700 ± 120**
 $\delta^{13}C = -23.5\text{‰}$

Gyttja from 2.43 to 2.5m level. *Comment* (JW): sample dates end of mid-Holocene pine max.

SFU-208.**3430 ± 360**

Gyttja from 0.8 to 0.87m level. *Comment* (JW): sample provides chronologic control for influx pollen diagram.

SFU-209.**9250 ± 180**
 $\delta^{13}C = -29.0\text{‰}$

Gyttja from 4.79 to 4.9m level. *Comment* (JW): sample dates early postglacial transition from aspen dominated to spruce-pine-birch dominated forest.

Spring Lake Series I

Gyttja from 5cm diam sediment core taken near center of Spring Lake (55° 30' 36" N, 119° 35' 00" W), 835m asl. Depths are below sediment surface. Samples subm by White and Mathewes as part of Boone Lake series study, above.

SFU-210.**10,800 ± 180**
 $\delta^{13}C = -24.0\text{‰}$

Gyttja from 4.34 to 4.42m level. *Comment* (JW): sample dates early postglacial zonal change from aspen dominated to spruce-pine-birch dominated forest.

SFU-211.**2400 ± 200**
 $\delta^{13}C = -25.1\text{‰}$

Gyttja from 0.95 to 1.04m level. *Comment* (JW): sample provides chronologic control for influx pollen diagram.

SFU-212.**5700 ± 270**

Gyttja from 2.93 to 3.01m level. *Comment* (JW): sample dates mid-Holocene pine max.

*United States**Tennessee***Anderson Pond Series I**

Sediment from two parallel cores, 76C and 76D, taken at Anderson Pond (36° 0' 0" N, 274° 30' 0" E) White Co. Depths are below sediment surface. Samples subm to determine ^{10}Be deposition rate during late Quaternary. Similar cores dated by Univ Arizona (Lund, 1981). Samples SFU-330, -333, and -336 were processed using wet oxidation. Samples subm, pretreated and combusted by Tom Brown, Dept Physics, Simon Fraser Univ.

SFU-320.**9200 ± 400**

130 to 135.3cm sec, Core 76C#1.

SFU-321. 140.6 to 145.9cm sec, Core 76C#1.	11,600 ± 440
SFU-322. 151.2 to 156.6cm sec, Core 76C#1.	13,400 ± 400
SFU-323. 209.7 to 216.9cm sec, Core 76C#1.	13,900 ± 640
SFU-324. 237.4 to 286.8cm sec, Core 76C#2.	11,900 ± 220
SFU-325. 431.4 to 475.5cm sec, Core 76C#4.	18,600 ± 1100
SFU-326. 523.5 to 571.7cm sec, Core 76C#5.	18,840 ± 1000
SFU-327. 726.1 to 657.9cm sec, Core 76C#6 & 76C#7.	19,400 ± 400
SFU-328. 59 to 66.7cm sec, Core 76D#1.	1160 ± 160
SFU-329. 92.4 to 97.6cm sec, Core 76D#1.	3300 ± 300
SFU-330. 101.2 to 106.3cm sec, Core 76D#1.	5600 ± 200
SFU-331. 106.3 to 114cm sec, Core 76D#1.	3000 ± 480
SFU-332. 114 to 122.9cm sec, Core 76D#2.	9300 ± 1300
SFU-333. 122.9 to 128.8cm sec, Core 76D#2.	8400 ± 630
SFU-334. 134.7 to 140.6cm sec, Core 76D#2.	11,300 ± 480
SFU-335. 140.6 to 146.5cm sec, Core 76D#2.	11,500 ± 800
SFU-336. 187.2 to 193.1cm sec, Core 76D#2.	12,600 ± 800
SFU-337. 193.1 to 199cm sec, Core 76D#2.	13,300 ± 600

SFU-338.**15,400 ± 380**

339.1 to 383.2cm sec, Core 76D#3.

SFU-339.**12,900 ± 250**

295.5 to 333.5cm sec, Cores 76C#2 & 76C#3.

REFERENCES

- Borden, C D, 1968, A late Pleistocene pebble tool industry in southwestern BC: Eastern New Mexico Univ contr in Anthropol 1, v 4, p 55-69.
- 1975, Origins and development of early Northwest Coast culture to about 300 BC: Mercury series paper no. 45.
- Hester, J J and Nelson, S M, eds, 1978, Bella Bella prehistory: Simon Fraser Univ Dept Archaeol pub no. 5.
- Hobson, K A and Nelson, D E, 1983, Simon Fraser University radiocarbon dates II: Radiocarbon, v 25, p 899-907.
- Lund, S P, ms, 1981, Late Quaternary secular variation of the earth's magnetic field, as recorded in the wet sediments of three North American lakes: PhD thesis, Univ Minnesota.
- Nelson, D E and Hobson, K A, 1982, Simon Fraser University radiocarbon dates I: Radiocarbon, v 24, p 344-351.
- White, S M, Mathewes, R W, and Mathewes, W H, 1979, Radiocarbon dates from Boone lake and their relation to the "Ice-free corridor" in the Peace River District of Alberta, Canada: Canadian Jour Earth Sci, v 16, no. 9, p 1870-1874.