

UNIVERSITY OF WISCONSIN RADIOCARBON DATES XX

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Procedures and equipment have been described in previous date lists. Except as otherwise indicated, wood, charcoal, and peat samples are pre-treated with dilute NaOH- $\text{Na}_4\text{P}_2\text{O}_7$ and dilute H_3PO_4 before conversion to the counting gas methane; marls and lake cores are treated with acid only. Very calcareous materials are treated with HCl instead of H_3PO_4 . Pretreatment of bone varies with the condition of the bone sample; solid bone with little deterioration is first cleaned manually and ultrasonically. The bone is treated with 8% HCl for 15 minutes, then dilute NaOH- $\text{Na}_4\text{P}_2\text{O}_7$ for 3 hours at room temperature, washed until neutral, and the collagen extracted according to Longin (1971). Charred bone is treated with dilute HCl, NaOH- $\text{Na}_4\text{P}_2\text{O}_7$, and then dilute HCl again.

The dates reported have been calculated using 5568 as the half-life of ^{14}C . The standard deviation quoted includes only 1σ of the counting statistics of background, sample, and standard counts. Background methane is prepared from anthracite, standard methane from NBS oxalic acid. The activities of the dated samples for which $\delta^{13}\text{C}$ values are listed have been corrected to correspond to a $\delta^{13}\text{C}$ value of -25‰ ; the activity of the standard methane has been corrected to -19‰ .

Sample descriptions are based on information supplied by those who submitted samples.

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I. ARCHAEOLOGIC SAMPLES

United States

Missouri

Feeler site (23Ms12) series

Samples from Feeler site in Maries Co ($38^\circ 07' 30''$ N, $91^\circ 52' 30''$ W) coll 1978 and 1981 and subm by R L Reeder, Univ Missouri, Columbia. Samples date Late Woodland village at which wide range of cultigens were found.

WIS-1400.

920 ± 70

Oak wood charcoal from Feature 76, small hearth 45cm diam and 15cm deep. Hearth matrix consisted of mixed rock, silt, charcoal flecks, and chunks. Top of hearth was ca 5cm below base of plow zone. Sample was 8 to 9cm below base of plow zone.

WIS-1402.**860 ± 70**

Oak wood charcoal from Feature 37, Level 4, large cylindrical trash pit, 80cm diam, depth 56cm from base of plow zone. Level 4 was a black moist soil of silt and large amounts of charcoal, rich in cultural material.

*South Dakota***Smiley-Evans site (39Bu2) series**

Samples from Smiley-Evans site, large fortified campsite in Butte Co (44° 40' N, 103° 50' W) coll in 1979 and 1980 and subm by L M Alex, South Dakota Archaeol Research Center, Ft Meade. Excavation revealed fortification stockade and ditch with peripheral structure and over 20 features of hearth/roasting/cooking pit variety. Artifacts and features suggest some resemblance to those of Initial Variant of Middle Missouri tradition (Alex, 1979).

WIS-1346.**1070 ± 70**

Wood charcoal from Feature 14a-1, Level 5 of large, fired, bell-shaped roasting pit containing much faunal material, fire-cracked rock, burned earth, and charcoal in Sq E45N5.

WIS-1347.**900 ± 70**

Wood charcoal from Feature 18, Level 3 of large, fired, slightly bell-shaped roasting pit containing faunal material, fire-cracked rock, burned earth, and charcoal in Sq E14S22.

WIS-1348.**1190 ± 70**

Wood charcoal from Feature 12, Level 2 of large, straight-sided pit containing faunal material, fire-cracked rock and some charcoal in Sq E26N7.

WIS-1349.**980 ± 70**

Wood charcoal from Feature 14a-2, Level 5 of large, fired, bell-shaped roasting pit containing much faunal material, fire-cracked rock, burned earth, and charcoal in Sq E45N5.

WIS-1350.**960 ± 70**

Charred wood and charcoal from Level 4 at base of man-made ditch in Sq W4S0. Level 4 consisted of concentrated midden in dark organic matrix overlain by sandy fill and underlain by white sand containing caliche.

WIS-1351.**810 ± 70**

Twelve cm segment cut from wooden post (Post G) in postulated stockade at W edge of site, from Sq W0S4. Post contained 15 rings, no bark remaining.

WIS-1352.**930 ± 70**

Ten cm sample cut from center of wooden post (Post S) found in structure peripheral to postulated stockade at W edge of site, from Sq

E0S6. Rock wedge occurred adjacent to post remnant. Post contained 18 rings, no bark remaining.

Winter site (39De5) series

Samples from Winter site at Coteau Lake, Deuel Co (44° 50' N, 96° 43' W) coll 1980 and 1981 by Betty Sterner and J K Haug; subm by J K Haug, South Dakota Archaeol Research Center. Artifacts and features recovered suggest numerous occupations, from Paleo-Indian through late prehistoric. Excavations concentrated largely on Middle and Late Woodland cultures.

WIS-1358.

400 ± 70

Wood charcoal from Feature 1, large conoidal cache pit at 1N 6E, containing fire-cracked rock, faunal material, and ceramics.

WIS-1359.

1180 ± 70

Wood charcoal from Feature 2, shallow rock-filled hearth 50 to 60cm below ground surface, 3m S, 5m E of datum site. Feature contained faunal material, fire-cracked rock, ceramics, and lithic artifacts.

WIS-1371.

1110 ± 70

Wood charcoal from Feature 4a, part of Feature 4, Level 2, large cache pit 11m N, 18m W of site datum. Sample taken from 62 to 92cm below surface.

WIS-1372.

1250 ± 70

Wood charcoal from Feature 4, Level 2, large cache pit. Sample from 52 to 62cm below surface. Feature contained faunal remains, ceramics, fire-cracked rock, and lithic materials.

WIS-1373.

1950 ± 70

Wood charcoal from Feature 3, Level 2, shallow rock-filled basin 10.5m N, 15m W of site datum. Feature contained faunal remains, ceramics, fire-cracked rock, and lithic materials.

WIS-1369. Miner Rattlesnake site (39Cu417)

2370 ± 70

Wood charcoal from hearth in stone circle #2, Custer Co (43° 49' 30" N, 103° 12' 55" W) coll 1981 and subm by D M Hovde, South Dakota Archaeol Research Center. Sample recovered from basin-shaped hearth, 7cm deep, in center of stone circle. Highly friable large mammal long-bone was found near hearth and is assoc with occupation of stone circle (Hovde, 1981).

Hartford Beach Village site (39Ro5) series

Samples from Hartford Beach Village site, Robert Co (45° 24' N, 96° 41' W) coll 1981 and subm by J K Haug. Site is small fortified village on high bluff above Big Stone Lake. Evidence of bastioned fortification and palisade was uncovered. Earth lodge depressions were not present, but cache pit, hearths, and isolated post holes were found. Ceramics and other elements suggest similarities to Initial Variant of Middle Missouri

tradition. Samples are from large bell-shaped cache pit 23 to 120cm below surface, 10m N, 5m W of site datum.

WIS-1368. **830 ± 70**

Wood charcoal from Feature 3, Level 2, 33 to 120cm below surface.

WIS-1370. **650 ± 70**

Wood charcoal from Feature 3, Level 1, 23 to 33cm below surface.

Dirt Lodge Village site (39Sp11) series

Samples from Dirt Lodge Village site on James R in Spink Co (44° 55' N, 98° 29' W) coll in 1980 and 1981 and subm by T W Haberman, South Dakota Archaeol Research Center. Three major components are present including occupations by Woodland, Plains Village, and Historic Dakota populations. Dates are expected to correspond with those from Initial Middle Missouri tradition sites further S on James R (R, 1973, v 15, p 235, 618).

WIS-1374. **770 ± 70**

Wood charcoal from Feature 16, Levels 4 and 5, refuse-filled cache pit.

WIS-1375. **920 ± 70**

Wood charcoal from Feature 6, refuse-filled cache pit.

WIS-1376. **700 ± 70**

Wood charcoal from Feature 16, Levels 7 and 8, refuse-filled cache pit.

WIS-1377. **1410 ± 70**

Wood charcoal from Feature 125, Level 3, roasting hearth.

Tennessee

Tuskegee Pond series

Core coll from Tuskegee Pond, Monroe Co (35° 35' N, 84° 12' W) by P A Delcourt; subm by P A Delcourt, Univ Tennessee, Knoxville. Dates provide chronologic context for fossil-pollen sequence obtained from Tuskegee Pond for correlation with the archaeol record of human occupation at nearby Icehouse Bottom site (Delcourt, 1980; Chapman and Shea, 1981). Samples were slightly calcareous and were acid treated only.

WIS-1306. **250 ± 70**
 $\delta^{13}C = -25.7\text{‰}$

Clayey silt, 170 to 175cm below water surface.

WIS-1307. **200 ± 70**
 $\delta^{13}C = -26.2\text{‰}$

Silty clay, 130 to 136cm below water surface.

WIS-1313. **1630 ± 80**

Clayey sandy silt, 195 to 212cm below water surface.

*Wisconsin***WIS-1272. Ambro I site (47Cr350) 960 ± 80**

Charcoal from site in Crawford Co (43° 04' N, 91° 09' W) coll Aug 1980 and subm by J B Stoltman, Univ Wisconsin-Madison. Sample was taken from Shell Lens A, 48 to 66cm below surface. Date should apply to shellfish gathering of early participants in Effigy Mound culture in Prairie du Chien area. Directly assoc is uncollared vessel of Madison Cord-Im-pressed type.

WIS-1312. Hunter Channel II (47Cr313b) 1790 ± 90

Charcoal from site in Crawford Co (43° 04' N, 91° 09' W) coll Oct 1979 by J Theler; subm by J B Stoltman. Sample was from Feature 1, triangular pit in plain view, exposed by erosion, 130cm below top of river bank on Hunter Channel on Mississippi R. Top of eroded feature contained Lane Farm (rocker) stamped rimsherd.

Mill Pond series (47Cr186)

Samples from site in Crawford Co (43° 04' 30" N, 91° 09' 45" W) coll Aug 1980 by J Theler and C Arzigian; subm by J B Stoltman.

WIS-1276. 1880 ± 80
 $\delta^{13}C = -27.1\%$

Charcoal from Feature 21, 90cm below surface, 2m N of exposed Early Woodland shell midden. Date applies to newly defined Prairie phase, local manifestation of Black Sand culture (WIS-1291: R, 1982, v 24, p 86).

WIS-1310. 860 ± 80
 $\delta^{13}C = -26.3\%$

Charcoal from Feature 23, 98cm below surface, 30cm diam, 20 to 30cm deep. Date applies to 1st occurrence of corn with Late Woodland ceramics, not only in Prairie du Chien area, but in Upper Mississippi Valley outside of Illinois. Assoc ceramics, with slightly thickened lips and cord-impressing on both interior and exterior lip/rim junctures, look typologically later than comparable rims from 47Cr350 (WIS-1272).

WIS-1311. 1030 ± 80

Charcoal from Feature 13, 84cm below surface overlying Middle Woodland shell lens. Feature contained burned floral and faunal remains, including charred corn and Madison Ware ceramics. Sample dates unusual occurrence of corn and Late Woodland ceramics in Prairie du Chien area.

Mill Coulee Shell Heap (47Cr100) series

Charcoal from site in Crawford Co (43° 04' N, 91° 09' W) coll 1980 by J Theler and C Arzigian; subm by J B Stoltman. Dates provide earliest evidence of seasonally sedentary habitation in terrace settings above flood plain in Prairie du Chien area. Ceramics and projectile points coll from surface and features place site in Millville phase (Stoltman, 1979) (WIS-1249, -1290, R: 1982, v 24, p 86).

WIS-1308.**1620 ± 70** $\delta^{13}C = -25.8\%$

Sample from Feature 4 immediately adjacent to large clamshell pit (Feature 3), feature is 5cm below plow zone in Sq 3.

WIS-1335.**1670 ± 70**

Sample from Feature 3, basin-shaped feature filled with naiad shells, bones, charcoal, and burned rock.

WIS-1309. Dillman I (47Cr348)**1890 ± 80**

Charcoal from site in Crawford Co (43° 04' N, 91° 09' W) coll July 1980 by R Boszhardt; subm by J B Stoltman. Sample was coll from soil surrounding vessel that had collapsed upon itself. Silty loam soil contained charcoal and ceramic sherds all from vessel. Date applies to newly defined Prairie phase, local manifestation of Black Sand culture (WIS-1291: R, 1982, v 24, p 86).

WIS-1336. Quarter Mile Shell Midden (47Cr310)**1150 ± 70**

Charcoal from site in Crawford Co (43° 04' N, 91° 09' W) coll Aug 1980 by R Boszhardt; subm by J B Stoltman. Sample from base of extensive shell midden, 120cm below surface. Date should approximate beginnings of shift from small-scale shellfish collecting to intensive, large-scale exploitation. Apparently assoc with this shift was settlement change from low floodplain camps to residential terrace villages and affiliated, non-residential extraction stations (for shell fish) in low flood plain. This date is also of geol significance in that it is assoc with shell fish derived from active river channel that is now backwater slough.

Oak Lake site (47Fr143) series

Charcoal from site in Forest Co (45° 28' 32" N, 88° 55' 57" W) coll Oct 1981 by D Overstreet; subm by D Overstreet and L Brazeau, Great Lakes Archaeol Research Center, Waukesha. Samples were from sealed pit lenses assoc with lithic materials attributed to single component Lakes phase occupation (Salzer, 1969; 1974). Two of 43 refuse/storage pits were sampled. Site (47Fr143) is undisturbed; origins of pits are still visible on surface. Large storage facility areas have not been heretofore reported for Lakes phase sites (Overstreet, 1981).

WIS-1339.**750 ± 70**

Sample from Pit 6 at interface between burned pit fill and ash sand layer forming pit boundaries.

WIS-1340.**830 ± 70**

Sample from Pit 8 at uppermost burned layer of pit fill. Profile suggests this is intrusive episode into earlier use of pit. Burned layer is stratigraphically above 3 additional burned layers that are separated by ashy sand layers.

WIS-1378. Poor Man's Farrah site (47Gt366) 1030 ± 70

Wood charcoal from Poor Man's Farrah site (42° 30' 55" N, 90° 37' 31" W) coll by C Erickson and J Penman; subm by J Penman, State Hist Soc Wisconsin, Madison. Site is one of several Late Woodland mound groups on bluff tops above Mississippi R ca 2km N of Illinois state line. Sample is from feature below mound fill and may provide date of mound construction.

II. GEOLOGIC SAMPLES

*United States**Connecticut***Lantern Hill Pond series**

Core coll Sept 1980 from Lantern Hill Pond, New London Co (41° 27' 30" N, 71° 57' W) by K McGown *et al.* Subm by T Webb, III, Brown Univ, Providence, Rhode Island. Water depth 10m. Dates previously reported (R, 1982, v 24, p 89).

WIS-1344. 6220 ± 80
Gyttja, 607 to 613cm below sediment surface.

WIS-1345. 4000 ± 80
Gyttja, 377 to 383cm below sediment surface.

WIS-1405. Mohawk Pond 12,460 ± 110

Livingstone core, 5cm diam, coll Jan 1982 from Mohawk Pond, Litchfield Co (41° 49' N, 73° 17' W) by D C Gaudreau *et al.*, subm by D C Gaudreau, Brown Univ. Gyttja 1179 to 1183cm. Basal date for Holocene pollen analysis.

*Massachusetts***Duck Pond series**

Core 4.5m, coll June 1980 from Duck Pond, Barnstable Co (41° 50' N, 70° 00' W), subm by M Winkler, Univ Wisconsin-Madison. Water depth 18.2m. Dates previously reported on this site (R, 1981, v 23, p 153-154) (R, 1982, v 24, p 90).

WIS-1318. 9140 ± 100
Gyttja, 2138 to 2142cm below water surface.

WIS-1391. 8230 ± 90
Gyttja, 2070 to 2075cm below water surface.

Tom Swamp series

Core coll Nov 1979 from Tom Swamp, Harvard Forest, Worchester Co (42° 31' N, 62° 13' W) by C Lenk *et al.*, subm by T Webb. Pollen diagram from Tom Swamp was pub (Davis, 1958). Dates on other levels were reported (R, 1982, v 24, p 89).

WIS-1321. 6920 ± 80

Herbaceous peat with some ligneous detritus, 465 to 469cm deep, dates events in "oak" zone.

WIS-1322. 7280 ± 80

Herbaceous peat with some ligneous detritus, 565 to 569cm deep, dates events in "oak" zone.

WIS-1323. 6080 ± 80

Herbaceous and ligneous peat, 336 to 340cm deep, dates events in "oak" zone.

*Minnesota***WIS-1303. Wentzel's Pond 800 ± 80**
 $\delta^{13}C = -29.6\text{‰}$

Livingstone core, 5cm diam, from Wentzel's Pond, Hubbard Co (46° 57' N, 94° 57' W). Coll March 1980 by J C Almendinger *et al*; subm by J C Almendinger, Univ Minnesota, Minneapolis. Slightly calcareous algal copropel with occasional snail shell, 75 to 80cm below sediment surface. Water depth 157cm; sediment thickness 4m over glacial outwash. Increase of pine pollen at this level marks development of jack pine forest on this sec of Park Rapids-Staples outwash plain. Dates from several sites will be compared to test hypothesis that jack pine forests invaded patches of Minnesota's outwash plains at various times throughout Holocene. Acid treatment only.

WIS-1304. Lake Moran 2460 ± 80
 $\delta^{13}C = -24\text{‰}$

Livingstone core, 5cm diam, from Lake Moran, Hubbard Co (46° 51' N, 95° 04' W). Coll March 1980 by J C Almendinger *et al*; subm by J C Almendinger. Algal copropel, 280 to 290cm below sediment surface. Water depth 471cm; sediment thickness 14m over glacial outwash. Same observations as for WIS-1303, above. Acid treatment only.

WIS-1305. Mud Lake 3060 ± 80
 $\delta^{13}C = -27.9\text{‰}$

Livingstone core, 5cm diam, from Mud Lake, Hubbard Co (46° 52' N, 94° 45' W). Coll March 1980 by J C Almendinger *et al*; subm by J C Almendinger. Algal copropel, 330 to 340cm below sediment surface. Water depth at 827cm; sediment thickness 10m over glacial outwash. Same observations as for WIS-1303, above. Acid treatment only.

WIS-1314. Hostage Lake 1870 ± 80

Livingstone core, 5cm diam, from Hostage Lake, Crow Wing Co (46° 33' N, 94° 08' W). Coll March 1981 by J C Almendinger *et al*; subm by J C Almendinger. Algal copropel, 215 to 225cm below sediment surface. Water depth 151cm; sediment thickness 7m over glacial outwash. Increase of pine pollen at this level marks development of jack pine forest on this sec of Crow Wing outwash plain. Same observations as for WIS-1303, above. Acid treatment only.

WIS-1315. Big John Pond**1700 ± 80**

Livingstone core, 5cm diam, from Big John Pond, Beltrami Co (47° 33' 30" N, 94° 58' W). Coll Feb 1981 by J C Almendinger *et al*; subm by J C Almendinger. Calcareous algal copropel with occasional shell, 60 to 65cm below sediment surface. Water depth measured at 60cm and sediment thickness 450cm over glacial outwash. Increase of pine pollen at this level marks development of jack pine forest on this sec of Bemidji sand plain. Same observations as for WIS-1303, above. Acid treatment only.

WIS-1316. Peterson Slough**840 ± 80**

Livingstone core, 5cm diam, from Peterson Slough, Becker Co (46° 58' N, 95° 19' W). Coll Feb 1981 by J C Almendinger *et al*; subm by J C Almendinger. Calcareous algal copropel with occasional shell, 40 to 50cm below sediment surface. Water depth 390cm; sediment thickness 12m over glacial outwash. Same observations as for WIS-1303, above. Acid treatment only.

WIS-1317. Lydick Lake**3760 ± 90**

Livingstone core, 5cm diam, from Lydick Lake, Cass Co (47° 23' 30" N, 94° 25' W). Coll Feb 1981 by J C Almendinger *et al*; subm by J C Almendinger. Algal copropel, 300 to 310cm below sediment surface. Water depth 482cm; sediment thickness 5m over glacial outwash. Same observations as for WIS-1315, above. Acid treatment only.

Swift site series

Livingstone core, 5cm diam, from Swift, Roseau Co (48° 49' N, 95° 14' W). Coll Aug 1981 by Svante Bjorck; subm by H E Wright, Jr, Univ Minnesota, Minneapolis. Area is covered with 2m beach gravel underlain by 40cm peat over lacustrine silt. Dates water level changes in Glacial Lake Agassiz (Prest, 1970). Acid treatment only.

WIS-1324.**9350 ± 100**

Peat from 2 to 5cm below beach gravel.

WIS-1325.**10,050 ± 100**

Peat from 33 to 38cm below beach gravel.

Irvin Lake series

Livingstone core, 5cm diam, from Irvin Lake, Itasca Co (47° 08' N, 93° 38' W). Coll Dec 1980 by B C Alwin and E J Cushing; subm by E J Cushing, Univ Minnesota. Depths are measured from water surface. Water depth at coring site was 540cm. Acid treatment only.

WIS-1337.**1540 ± 60**

Algal copropel from 580 to 590cm depth. Dates second increase of birch pollen and decrease of white pine pollen.

WIS-1338.**1950 ± 70**

Algal copropel from 660 to 670cm depth. Dates shift to higher values of birch pollen and lower values of white pine pollen.

WIS-1341. 3170 ± 80

Algal copropel from 810 to 820cm depth. Dates shift in pine assemblage from higher values of oak and herb pollen to high values of white pine and birch pollen.

WIS-1342. 5890 ± 80

Algal copropel from 987 to 997cm depth. Dates increase in pine pollen and decrease in oak pollen.

WIS-1343. 7500 ± 80

Silty algal copropel, calcareous with some shell fragments from 1110 to 1115cm depth. Date marks decrease in red/jack pine pollen and increase in oak pollen.

Billy's Lake series

Livingstone core, 2.5cm diam, from Billy's Lake, Morrison Co (46° 16' N, 94° 33' W) coll by G L Jacobson, Jr; subm by E J Cushing. Depths are measured from water surface. Water depth at core site 180cm. Series will provide dates of Holocene movement of prairie-forest border through site (Jacobson, 1979).

WIS-1364. 2960 ± 70

Marly copropel from 400 to 410cm depth.

WIS-1365. 4590 ± 70

Marly copropel with fine plant detritus from 600 to 610cm depth.

WIS-1366. 6870 ± 80

Marly copropel with fine plant detritus (*Ceratophyllum* leaves) from 800 to 810cm depth.

WIS-1367. 10,650 ± 100

Silty copropel from 1000 to 1010cm depth.

*New York***Burden Lake series**

Livingstone core, 5cm diam, from Burden Lake, Rensselaer Co (42° 36' 16" N, 73° 34' W) coll by D C Gaudreau *et al*; subm by T Webb, III and D C Gaudreau. Depths are measured from sediment surface, water depth 11.2m.

WIS-1360. 2870 ± 70

Gyttja from 250 to 256cm depth. Dates appearance of *Castanea* (chestnut) pollen.

WIS-1361. 4630 ± 70

Gyttja from 520 to 526cm depth. Dates decline in *Tsuga* (hemlock) pollen.

WIS-1362.**6700 ± 80**

Gyttja from 750 to 756cm depth. Dates appearance of *Carya* (hickory) pollen.

WIS-1363.**8730 ± 90**

Gyttja from 980 to 986cm depth. Dates base of core.

*Wisconsin***Lima Bog series**

Core coll Jan 1980 from Lima Bog, Rock Co (42° 48' N, 88° 51' W) and subm by Kent Van Zant, Earlham Coll, Richmond, Indiana. Dated to learn more of postglacial vegetation in S central Wisconsin (Van Zant and Lamb, 1980). Measurements are from bog surface. Samples were very calcareous, requiring lengthy acid treatment. Previous dates from site were reported, WIS-1045 (R, 1980, v 22, p 121), WIS-1131, -1134, -1135 (R, 1981, v 23, p 156-157).

WIS-1275.**10,180 ± 110** $\delta^{13}C = -32.2\text{‰}$

Calcareous gyttja with a few snail shells, 1238 to 1248cm depth. Color changed from brown to black from top to bottom in this 10cm. *Picea* pollen decreased from 20% to 5% during this interval. *Pinus* pollen peaked at 24% at base of sample. *Quercus* pollen increased to 25%.

WIS-1278.**25,700 ± 460**

Calcareous varved silt banded yellowish brown and black, 1934 to 1967cm depth. Basal 33cm in core, dating beginning of sedimentation in basin. (1 5-day count.)

WIS-1319. Morris Creek Site A**1480 ± 80**

Wood, 200cm depth, from site in Monroe Co (43° 48' N, 90° 36' W). Coll Aug 1981 and subm by J C Knox, Univ Wisconsin-Madison. Dates late Holocene river channel system that was adjusted to flood and erosional processes representative of very late Holocene climate and vegetation conditions (Knox, McDowell, and Johnson, 1981).

WIS-1320. LaFarge Dam Site I**5620 ± 90**

Wood, 305cm depth, from site in Vernon Co (43° 36' N, 90° 38' W). Coll July 1981 and subm by J C Knox. Date is max age for relict paleo-channel and demonstrates that in larger valley floors of Kickapoo drainage system, much of early Holocene alluvium was removed by late Holocene channel lateral migration (Knox, McDowell, and Johnson, 1981).

WIS-1326. McCoy Site B**7840 ± 90**

Wood, 270cm depth, from site in Monroe Co (43° 45' N, 90° 35' W). Coll Aug 1981 and subm by J C Knox. Dates early Holocene river channel system. Small capacity of channel cross-sec indicates that high-frequency floods were significantly smaller than prevailing flood conditions that occurred after ca 6000 yr BP (Knox, McDowell, and Johnson, 1981).

WIS-1332. Cox Site C 2540 ± 70

Wood, 245cm depth, from site in Monroe Co (43° 46' N, 90° 33' W). Coll Aug 1981 and subm by J C Knox. Dates very late Holocene river channel system that was apparently adjusted to frequent large floods (Knox, McDowell, and Johnson, 1981).

WIS-1333. Warner Creek Site A 6180 ± 80

Wood, 155cm depth, from site in Vernon Co (43° 38' N, 90° 32' W). Coll Aug 1981 and subm by J C Knox. Dates late Holocene river channel system that was adjusted to frequent large floods (Knox, McDowell, and Johnson, 1981).

WIS-1334. Powell Site 2 1110 ± 70

Wood, 196cm depth, from site in Monroe Co (43° 44' N, 90° 36' W). Coll Aug 1981 and subm by J C Knox. Dates very large capacity late Holocene river channel system. Large capacity implies adjustment to frequent large floods that approach magnitude of large contemporary floods adjusted to agricultural land use.

Platte R series

Samples taken from Bollant site, on bank of Platte R, Grant Co (42° 55' 26" N, 90° 30' 15" W). Coll 1981 and subm by J C Knox (Knox, McDowell, and Johnson, 1981).

WIS-1380. 6000 ± 90

Woody fragments, from core 152 to 168cm below surface, 90m from river bank (Bollant 1). Dates relatively large river channel adjusted to climatic episode with relatively frequent large floods.

WIS-1381. 1200 ± 70

Small log, 7.5cm diam, from bank exposure, 195cm below bank surface (Bollant 2). Dates period of active lateral erosional activity by late Holocene channel system.

WIS-1383. Kickapoo Cemetery 28,900 ± 650

Silty peat, 1390 to 1440cm taken near NE corner of Kickapoo Center Cemetery, Vernon Co (43° 29' N, 90° 42' W). Coll July 1981 and subm by J C Knox. Date supports interpretation that Woodfordian substage (20,000 + to ca 12,000 yr BP) was time of major hillslope erosion and basal hillslope colluviation in Driftless Area of SW Wisconsin. Peat growth and hillslope stability between 20,000 to 40,000 yr BP is also consistent with observation in Pecatonica valley on SE margin of Driftless Area (Knox, Clayton, and Mickelson, 1982; Wittecar and Davis, 1982). (1 6-day count.)

WIS-1397. White Clay Lake Marsh 620 ± 70

Wood (*Thuja occidentalis*) from White Clay Lake Marsh (44° 47' N, 88° 24' W) in Shawano Co. Coll by F Madison; subm by A M Swain, Univ Wisconsin-Madison. From marl sediment 35 to 45cm below base of beach ridge and 75 to 85cm from ridge surface. Date helps establish chronology for pollen diagram from this site.

Lake Mendota series

Livingstone core, 5cm diam from Lake Mendota, Dane Co (43° 06' N, 89° 25' W). Coll Feb 1982 and subm by A M Swain. Dates from 3 of 4 cores coll along transect of varying water depth in University Bay should indicate times of low and high water levels during Holocene. Acid treatment only.

WIS-1382. **11,400 ± 100**

Decomposed peat from 26 to 32cm in 70cm core (Core A) coll at water depth 70cm. Peat was covered by sand and organic lake sediment. Date marks end of high-water level of Lake Mendota.

WIS-1386. **3430 ± 70**

Sandy marl sediment from 53 to 73cm in 130cm core (Core B) coll at water depth 2.7m. Sample overlies transition from sandy to silty sediment. Date marks return of higher water level in lake.

WIS-1387. **11,100 ± 110**

Silty marl sediment from 73 to 93cm in same core as WIS-1386, immediately underlying change from sandy to silty sediment. Sample should date end of high water level of lake.

WIS-1406. **3240 ± 80**

Marl lake sediment from 50 to 60cm in 5m core (Core D) coll at water depth 3.7m, overlying 10cm layer of sandy marl. Date is estimate of return of higher lake level.

WIS-1407. **6980 ± 80**

Marl lake sediment from 80 to 90cm in 5m core (Core D), underlying 10cm layer of sandy marl. Date from this level should mark end of higher lake level.

Argentina

WIS-1384. Caballo Muerto **3410 ± 70**

Peat from Caballo Muerto, S of Laguna Guayatoyoc, alt 3800m, Jujuy prov (24° 00' S, 66° 00' W). Coll April 1981 and subm by Vera Markgraf, Inst Arctic and Alpine Research, Boulder, Colorado. Sample at 60 to 70cm depth, interbedded with sand layers underlying artifacts. Date to be used in paleoclimatic analysis of Holocene sec.

WIS-1385. Guayantayoc **2540 ± 70**

Peat from Guayantayoc, W of Laguna Pozuelos, alt 3750m, Jujuy prov (22° 20' S, 66° 10' W). Coll April 1981 and subm by V Markgraf. From peat sec eroded by arroyo underlain by lacustrine sediments. Date to be used in paleoclimatic analysis of lacustrine and peat sec.

WIS-1388. Cumbres Calchaquies **1190 ± 70**

Peat from Cumbres Calchaquies, Lagunas Huaca Huasi, alt 4250m, Tucuman prov (26° 44' S, 65° 44' W). Coll May 1981 by Stephen Halloy, Inst Lillo, Tucuman, and subm by V Markgraf. From peat sec at 100 to

110cm depth near small lakes of glacial origin. Date to be used in paleoclimatic analysis of peat sec.

WIS-1389. El Aguilar Mine **2120 ± 70**

Peat from El Aguilar Mine, alt 3900m, Jujuy prov (23° 05' S, 65° 45' W). Coll April 1981 and subm by V Markgraf. From 140 to 150cm in peat sec cut by arroyo. Date to be used along with previous dates for paleoclimatic profile from area on which there is no information on 10,000-yr history.

WIS-1390. La Mejicana Bog **9490 ± 100**

Peat from La Mejicana Bog and E slope of Sierra Famatina, alt 2450m, La Rioja prov (28° 44' S, 67° 37' W). Coll April 1981 and subm by V Markgraf. From peat sec cut by arroyo. Date to be used in paleoclimatic analysis.

Canada

Rattle Lake series

Three Livingstone cores, 5cm diam, from Rattle Lake, Kenora dist, Ontario (49° 21' N, 92° 42' W). Coll by S Bjorck; subm by H E Wright, Jr, Univ Minnesota. Water depth 525cm. All measurements from water surface. Dates will be used to calculate deglaciation, early plant migration, and possible effects during hypsithermal (Prest, 1970). Acid treatment only.

WIS-1327. **11,110 ± 110**

Clay gyttja with some coarse organic matter from 1266 to 1271cm depth.

WIS-1328. **10,150 ± 100**

Clay gyttja from 1242 to 1245cm depth.

WIS-1379. **10,850 ± 100**

Clay gyttja from 1255 to 1260cm depth.

WIS-1395. **6500 ± 80**

Gyttja, blackish brown to rust-colored, from 1025 to 1030cm depth. Dates highest abundance of white pine pollen.

WIS-1396. **7150 ± 80**

Gyttja, brownish-black, from 1070 to 1075cm depth. Dates immigration of white pine.

WIS-1398. **8420 ± 90**

Gyttja, dark brown from 1205 to 1210cm depth. Dates immigration of white pine.

Sioux Pond series

Three Livingstone cores, 5cm diam, from Sioux Pond, Kenora dist, Ontario (49° 56' N, 91° 34' W). Coll Aug 1981 by S Bjorck; subm by H

E Wright, Jr. Dates will be used in same way as for Rattle Lake series, above. Acid treatment only.

WIS-1329. **9740 ± 100**

Clayey gyttja with shell fragments from 549 to 552cm below peat surface.

WIS-1393. **6690 ± 80**

Coarse-detritus gyttja, dark brown, from 430 to 435cm below peat surface. Dates immigration of white pine.

WIS-1394. **5470 ± 80**

Fine to coarse detritus gyttja with brown and dark-brown lamina, from 395 to 400cm below peat surface. Dates highest abundance of white pine pollen.

Cristal Lake series

Livingstone core, 5cm diam, from Cristal Lake, Kenora dist, Ontario (52° 07' N, 90° 05' W). Coll by S Bjorck, subm by H E Wright, Jr. Water depth 260cm. Dates will be used in same way as for Rattle Lake series, above. Acid treatment only.

WIS-1330. **6720 ± 80**

Gyttja with shell fragments from 786 to 791cm below water surface.

WIS-1392. **6370 ± 70**

Dark-brown gyttja, from 760 to 765cm below water surface. Dates hypsithermal max.

Indian Lake

Three Livingstone cores, 5cm diam, from Indian Lake, Kenora dist, Ontario (50° 56' N, 90° 27' W). Coll Aug 1981 by S Bjorck; subm by H E Wright, Jr. All measurements from water surface. Water depth 2m. Dates will be used in same way as for Rattle Lake series, above. Acid treatment only.

WIS-1331. **9140 ± 100**

Clayey gyttja from 884 to 887cm depth.

WIS-1399. **6560 ± 80**

Algal gyttja, greenish brown from 730 to 735cm depth. Dates hypsithermal max.

WIS-1401. **7300 ± 80**

Algal gyttja, dark brown, from 810 to 815cm depth. Dates immigration of white pine.

Leech Fen series

Livingstone cores, 5cm diam, from Leech Fen, Labrador North dist, Labrador (53° 10' N, 58° 45' W) by G A King and D R Foster; subm by G A King, Univ Minnesota. String fen is 200m long, with rise of 180cm

from fen base to top. Cores were taken at various intervals up fen to determine its stratigraphic relationships. Acid treatment only.

WIS-1353. 1210 ± 70

WIS-1353 to -1355 are from core taken from 1st pool at lower end of Leech Fen. Core consists of 50cm of peat overlying 90cm of lake sediment. This sample, 15 to 19cm below water surface in pool, and 3 to 7cm below top of peat surface, dates top of peat deposit in pool.

WIS-1354. 4530 ± 70

58 to 63cm below water surface in Pool 1, dating transition from lake sediment to peat.

WIS-1355. 4440 ± 60

Basal wood and woody peat, from 73 to 76cm in core from pool 2/3 of distance up fen, dates initiation of peat deposition at this loc (Core 25).

WIS-1356. 2900 ± 70

Sample from basal peat layer, 75 to 79cm deep, of uppermost pool in fen; dates initiation of peat deposition at this loc (Core 17).

WIS-1357. 7110 ± 80

Final date from Pool 1 core from base, 144 to 148cm below water surface. Date indicates when lake sediment deposition began within this shallow bay of Leech Lake.

WIS-1403. 760 ± 70

Sedge peat from base, 27 to 32cm, of Core 20 coll in transition area between fen and forest vegetation at upslope end of fen; dates beginning of peat deposition at this loc.

WIS-1404. 410 ± 70

Sample from 31 to 36cm below water surface and 1cm below water-peat interface (Core 24). Core was coll from pool 2/3 of distance up fen.

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