

ILLINOIS STATE GEOLOGICAL SURVEY  
RADIOCARBON DATES VIII

CHAO LI LIU, KERRY M RILEY, and DENNIS D COLEMAN  
Illinois State Geological Survey, Champaign, Illinois 61820

This article reports on archaeological samples processed from February 1974 through May 1980 at the Illinois State Geological Survey (ISGS) Radiocarbon Dating Laboratory.

The benzene liquid scintillation technique was used following laboratory procedures reported by Coleman (1973, 1974). All ages were calculated on the basis of a  $^{14}\text{C}$  half-life of 5568 yr, using the NBS oxalic acid standard as reference. Errors ( $1\sigma$ ) reported account only for uncertainties in activity measurements of the sample, standard, and backgrounds. Assignment of modern and minimum ages is based on the  $3\sigma$  criteria. If the difference in activity between the sample and the standard is less than three times the standard deviation of that difference, the age is reported as modern and the activity is reported as percent of modern. Samples having net activities less than  $3\sigma$  are reported as minimum ages with the minimum age based on the net activity  $+2\sigma$ . Corrections for isotopic fractionation have been included for samples dated since December 1979.

ARCHAEOLOGIC SAMPLES

*United States*

*Illinois*

**Crab Orchard site series**

Charcoal from Jackson Co, in Shawnee Hills of S Illinois. Assoc with potsherds, chert flakes, and large quantities of sandstone. Coll 1973 by Walter Brieschke and William Gremin; subm by M J McNerney, S Illinois Univ Mus.

**ISGS-245. 24B3-100** **1920  $\pm$  80**

From 15km SW of Carbondale (37° 36' 50" N, 89° 17' 32" W) from fill of Feature 19, 87cm below surface.

**ISGS-246. 24B3-111** **1900  $\pm$  80**

From 10km SW of Carbondale (37° 39' 00" N, 89° 15' 50" W), from fill of Feature 5.

*General Comment (MJM):* Features 19 and 5 were apparently cooking or roasting facilities and contained Crab Orchard fabricmarked, and Sugar Hill cordmarked potsherds (McNerney, 1975).

**ISGS-251. Loy site, F-181b** **1970  $\pm$  80**

Carbonized wood and nutshell from Greene Co, 18km S of Greenfield (39° 14' 00" N, 90° 12' 02" W). Separated from soil and coll at 15cm level of Middle Woodland and refuse pit. Coll 1971 and subm by K B Farnsworth,

Univ Michigan. *Comment* (KBF): date falls very close to previous Loy site dates (ISGS-171: 1970  $\pm$  75 BP and ISGS-181: 2010  $\pm$  90 BP, R, 1975, v 17, p 168), reinforcing conclusion that Loy site was of short-term, perhaps seasonal, occupation.

#### Helton Mound series

Wood charcoal from Greene Co, 10.5km S of Eldred (39° 11' 20" N, 90° 32' 40" W), from burned log that was part of crematory containing 6 individuals. Coll 1973 by Ann Magennis; subm by Jane Buikstra, Northwestern Univ.

**ISGS-257. 22-4A** **1020  $\pm$  80**

**ISGS-258. 22-4B** **1130  $\pm$  80**

*General Comment* (JB): dates are relatively recent for pottery vessel found above crematory, typed as "early bluff" and assoc with early portion of Late Woodland period in this region. Dates are important to define Late Woodland in this region.

#### Cahokia site series

Wood charcoal and charred organic material from Madison Co, between Collinsville and E St Louis (38° 39' 39" N, 90° 04' 05" W). Coll 1971 by R J Salzer; subm by D W Lathrap.

**ISGS-276. DWL-13** **860  $\pm$  80**

From 63cm below present surface in garbage layer in fill of house basin.

**ISGS-280. Merrell Tract-14** **1050  $\pm$  80**

**ISGS-281. Merrell Tract-15** **1080  $\pm$  80**

**ISGS-283. Merrell Tract-16** **1220  $\pm$  80**

From concentration of organic material on floor of old house (Feature 319).

*General Comments* (RJS): date on ISGS-276 is concordant with Fairmount phase house; ISGS-281 and -283, however, seem too old. (DWL): ISGS-280, -281, and -283 agree perfectly with ISGS-163: 1170  $\pm$  80 BP, R, 1974, v 16, p 115, which dates identical pottery and architecture on Powell Tract. Cluster of three dates, ISGS-138, -140, and -141: 950  $\pm$  80 BP, 1000  $\pm$  80 BP, 780  $\pm$  150 BP, respectively, R, 1974, v 16, p 115 indicate that Fairmount phase had terminated by 1000 BP. Thus, date of ISGS-276 is too young for Fairmount phase, but may indicate later episode in refilling of Fairmount phase house pit.

#### Titus site series

Carbonized wood and nutshell from Greene Co, 7.2km NE of Hardin (39° 11' 24" N, 90° 32' 44" W). Coll 1973 by S R Noble; subm by J A Brown, Northwestern Univ.

**ISGS-290. Titus #2** **7990 ± 80**

From prehistoric pit in Horizon 3, 4.63m below surface.

**ISGS-300. Titus #3** **8070 ± 100**

From upper 10cm level in prehistoric pit, ca 4.4m below surface.

**ISGS-317. Titus #1** **9170 ± 110**

From log underlying Horizon 3 in sterile soil, 3.93 to 4.3m below surface.

*General Comment (JAB):* ISGS-290 and -300 are sufficiently close in age for same horizon. ISGS-317 is older than overlying occupation (Horizon 3) by unexpected amount (ca 1000 yr), but is compatible with its stratigraphic position.

#### **Koster site series**

Carbonized wood and nutshell from Greene Co, 8km NE of Hardin (39° 12' 30" N, 90° 33' 00" W). Coll 1970 to 1974 by G L Houart and R B McMillan; subm by C A Bebrich and J A Brown, Northwestern Univ.

**ISGS-329. KOSN #90** **3950 ± 80**

From Feature 286a, Horizon 4, 0.1 to 0.5m below primary ref datum.

**ISGS-414. KOSN #555** **5820 ± 80**

From Feature 1740a, Horizon 7A, 2.74 to 3.04m below primary ref datum.

**ISGS-338. KOSN #610** **7020 ± 120**

From Horizon 8C, upper component, Sq 362, Level 11, 4.16 to 4.24m below datum.

**ISGS-303. KOSN #700, #701** **7670 ± 110**

From Feature 2010a in Horizon 8F, 4.84 to 4.92m below datum.

**ISGS-316. KOSN #702** **7800 ± 160**

From Feature 2007b in Horizon 9A, 5.10 to 5.11m below datum.

**ISGS-336. KOSN #75** **8220 ± 80**

From Feature 262b, c, Horizon 9D, 5.94 to 6.03m below datum.

**ISGS-337. KOSN #81** **8130 ± 80**

From Feature 288c, Horizon 10B, 6.71 to 7.01m below datum.

**ISGS-292. KOSN #705** **8440 ± 80**

From Feature 2025a in Horizon 11, 7.11 to 7.19m below datum.

**ISGS-328. KOSN #709** **8730 ± 90**

From Feature 2062a, b, Horizon 12, 7.55 to 7.65m below datum.

**ISGS-415. KOSN #717** **12,320 ± 80**

From dewatering well shaft #2, ca 10m below datum and 3m below Horizon 12 in sterile sand.

*General Comment* (JAB): highly satisfactory set of dates agree with depositional sequence for Early, Middle, and Late Archaic occupations at Koster. ISGS-337 is anomalously young (Butzer, 1977, p 32), but lies within proper range. Sequence of these and other Koster dates is illustrated graphically in Brown and Vierra (1983, p 180).

**Pabst site series**

Wood charcoal from De Witt Co, 8km ENE of Clinton (40° 10' 16" N, 88° 50' 07" W). Coll 1975 and subm by R B Lewis, Univ Illinois.

**ISGS-376. F1-75** **3860 ± 80**

From Middle/Late Archaic refuse pit.

**ISGS-377. F2-75** **4300 ± 80**

From A horizon of intra-Holocene soil overlain by Middle/Late Archaic midden.

*General Comment* (RBL): dates provide estimate for beginning of Late Archaic midden deposits at Pabst site. Chronology established by these two dates is consistent with that inferred from comparison of tool forms in strata to similar tool forms from other dated archaeological contexts.

**Reed Walker site series**

Wood charcoal from Coles Co, 9.5km S of Charleston (39° 23' 46" N, 88° 10' 02" W). Coll 1973 and 1974 and subm by R J Barth, Univ Illinois.

**ISGS-404. RB-1** **520 ± 80**

From fire pit assoc with shell-tempered pottery, chipping debris, and bone. *Comment* (RJB): date is first for Vincennes culture in Embarras R Valley, and extends span of Vincennes culture by ca 300 yr.

**ISGS-406. RB-2** **1210 ± 80**

From fire pit in floor of semi-subterranean pit house. *Comment* (RJB): date is first for Lamotte culture in Embarras Valley, and probably falls close to beginning of Lamotte occupation of site.

**Fingerhut site series**

Charcoal from St Clair Co, 6.4km SW of Collinsville (38° 39' 23" N, 90° 05' 23" W). Coll 1962 by Jon Winston and C J Bareis; subm by C J Bareis.

**ISGS-418. R 6** **1200 ± 140**

From fill of Burial 20.

**ISGS-419. R 1 & R 3** **930 ± 150**

From fill of bell-shaped refuse pit, F-1.

*General Comment* (CJB): ISGS-418 is inconsistent with temporal range of

Late Woodland ceramics at Fingerhut site. ISGS-419 is slightly younger than expected but may well represent later occupation at site.

**ISGS-420. Weitzer site #11** **2150 ± 150**

Wood charcoal from Greene Co, 11.5km NNE of Eldred (39° 21' 52" N, 90° 35' 13" W), from basal 2cm of fill in Feature 1051 E. Coll 1973 by T Simon and J P Nicholas; subm by J A Brown. *Comment* (JAB): date is younger than expected but consistent with stratigraphic loc of sample beneath Late Woodland occupation at this site.

**Birch Creek series**

Mastodon(?) tusk from Greene Co, 5.3km ENE of Roodhouse (39° 30' 15" N, 90° 16' 30" W), embedded in sand at edge of creek. Coll 1976 by Joyce and James Kesinger; subm by Merle Leman and Patrick Sugent, N Greene Jr High School, Roodhouse, Illinois.

**ISGS-428 A. Apatite fraction** **9820 ± 150**

**ISGS-428 B. Organic fraction** **11,040 ± 110**

*General Comment* (DDC): disagreement of dates indicates that sample was contaminated; we do not know which date, if any, is correct.

**Kohler site series**

Wood charcoal from Alexander Co, 1km SSE of Millcreek (37° 20' N, 89° 15' W), from charcoal concentration at depth 70 to 90cm below surface. Coll 1976 and subm by W D Ganzer, Pulaski/Alexander Co Soil and Water Conservation Dist, Mounds, Illinois.

**ISGS-434. MCC-1-4, 70–80cm depth** **570 ± 80**

**ISGS-440. MCC-1-5, 85–90cm depth** **610 ± 90**

*General Comment* (WDG): dates correspond to late-middle period of occupation.

**Becker Borrow pit (CT-95) series**

Charred wood from Clinton Co, 4km NE of Breese (38° 37' N, 89° 29' W). Coll 1974 by Jorge Marcos and Sue Russel; subm by C J Bareis and A W Wilson.

**ISGS-398. CJB-2** **1160 ± 80**

From fill of Feature 92. *Comment* (AWW): date fits very well with assoc materials and other dates on similar materials.

**ISGS-399. CJB-1** **2500 ± 80**

From fill in depression in floor of Feature 87. *Comment* (AWW): date does not fit with Late Woodland ceramics from fill of this feature.

**ISGS-456. R-121** **1460 ± 80**

From pit Feature 70, assoc with early Late Woodland vessels.

**ISGS-457. R-122** **1580 ± 100**

From loess clay fill of Feature 70. *Comment* (AWW): Feature 70 is oval pit with concave walls and flat floor with post mold. Pit is superimposed by Mississippian wall trenches. Similar features elsewhere have been dated in range, 1550 to 1350 BP.

**ISGS-469. R-123** **970 ± 80**

From floor of Feature 175. *Comment* (AWW): date confirms interpretation of structure as being transitional Late Woodland to Mississippian.

**ISGS-464. R-129** **850 ± 80**

From remainder of wall post of structural Feature 180. *Comment* (AWW): date helps to substantiate hypothesis of multiple Mississippian structural modes (wall trench and post mold) at this site.

**ISGS-470. R-126** **810 ± 80**

From floor of Feature 179. *Comment* (AWW): sample was immediately N of Structure F-180 (ISGS-464). Contemporaneity of dates on these structures further confirms hypothesis of multiple Mississippian construction modes at site.

**Judson College site series**

Charcoal from Kane Co, inside N city limit of Elgin, W side of Fox R (42° 03' 30" N, 88° 17' 30" W). Coll 1977 by Allan Holder, subm by E S Cassells, Judson Coll, Elgin, Illinois.

**ISGS-473. K-47/Feature 0** **330 ± 80**

From top of two large dolomite rocks that formed base of hearth (Feature 0). *Comment* (ESC): date indicates historic/proto-historic utilization much younger than some assoc projectile points would indicate. However, on basis of a few small triangular and notched projectile points found in this site, late occupation, as indicated by date, is not unreasonable.

**ISGS-474. K-47/Feature P** **310 ± 80**

From bottom of basin-shaped hearth, Feature P. *Comment* (ESC): date agrees with ISGS-473. Younger than expected dates may represent end of occupation at site.

**ISGS-522. K-47/Feature F** **2020 ± 80**

From poorly-defined pit assoc with bone fragments and chipped stone tools. *Comment* (ESC): date agrees with typologic evidence and helps establish Late Archaic-Early Woodland occupation at site.

**ISGS-481. Castellan Site NIU-110** **1340 ± 80**

Charcoal from Lee Co, 3km W of Dixon (41° 49' 24" N, 89° 32' 42" W), from mound fill assoc with Late Woodland pottery and stone tools. Coll 1976 and subm by J W Springer. *Comment* (JWS): date is very close to dates from comparable sites in Wisconsin.

**Medusa Mound Group series**

Human bone from Lee Co, 5km NE of Dixon (41° 54' N, 89° 28' W), from burial at 30cm depth in homogeneous clay mound fill. Coll 1977 by NIU field school; subm by J W Springer.

**ISGS-484A. B<sub>1</sub>MV, apatite fraction** **970 ± 100**

**ISGS-484B. B<sub>1</sub>MV, total organic fraction** **1130 ± 80**

*General Comment* (JWS): although there are no diagnostic artifacts, character of mounds suggests Late Woodland date. Dates are compatible with Late Woodland affiliation.

**NIU-89 series**

Human vertebrae from Ogle Co, 4.5km of Oregon, Illinois (42° 00' 10" N, 89° 22' 30" W), from grave in sand and gravel knoll. Coll 1976 by Philip Volkman; subm by J W Springer.

**ISGS-487A. Apatite fraction** **1340 ± 120**

**ISGS-487B. Total organic fraction** **640 ± 80**

*General Comment* (JWS): assoc artifacts are of Late Woodland stage. Either date is possibly correct, although 1340 BP is more likely.

**Cameron Road site series**

Charcoal from Warren Co, 8km W of Galesburg (44° 55' 51" N, 90° 30' 51" W). Coll 1978 by T East; subm by M R Beckes and J E King, Dickson Mound Mus, Lewistown, Illinois.

**ISGS-539. Lot 496** **97.97 ± .73% modern**

From Feature 8, 0 to 16cm from surface.

**ISGS-540. Lot 267** **200 ± 80**

From Feature 7, 0 to 16cm from ground surface.

**ISGS-591. Southend site, Mt-89** **680 ± 80**

Wood charcoal from Moultrie Co, 4.4km NE of Findley (39° 31' 40" N, 88° 42' 00" W), from lowest natural stratigraphic level of Feature 3. Coll 1978 by C R Moffat; subm by T J Riley, Univ Illinois. *Comment* (TJR): date is consistent with our estimated time of occupation of Mt-89 deduced from ceramic cross-dating with Cahokia area.

**ISGS-592. Doctor's Island site** **710 ± 80**

Wood charcoal from Moultrie Co, 4.5km NE of Findley (39° 32' 15" N, 88° 42' 05" W), from lower half of large Mississippian refuse pit. Coll 1978 by C R Moffat and J Yingst; subm by T J Riley. *Comment* (TJR): along with ISGS-591, date provides time range of Middle Mississippian occupation of Upper Kaskaskia area. Date also indicates that this occupation may have

begun earlier and lasted longer than previously supposed (Gardner, 1969).

**ISGS-606. Parking Lot site, SY-62** **560 ± 120**

Wood charcoal from Shelby Co, 6km N of Findley (39° 34' 36" N, 88° 45' 02" W), from 15 to 20cm below surface in yellowish brown silty-clay stratum. Coll 1978 by C R Moffat; subm by T J Riley. *Comment* (TJR): date largely overlaps dates previously obtained for Mississippian component at Jasper Newman site (Gardner, 1969), suggesting possible contemporaneity between Jasper Newman site and SY-62.

*The American Bottoms, Illinois* (fig 1)

**Range site (11-S-47) series**

Carbonized or uncarbonized wood from St Clair Co, 0.5km E of Dupo (38° 30' 59" N, 90° 12' 02" W). Coll 1977 to 1980 by Doug Jackson *et al*; subm by C J Bareis.

**ISGS-569. C-18** **950 ± 80**

From floor of burned Stirling phase wall trench structure, Feature 16.

**ISGS-570. C-192-1** **870 ± 80**

From open pit, Feature 17, within and assoc with burned Stirling phase wall trench structure, Feature 16.

**ISGS-577. C-728** **910 ± 80**

From fill unit with Stirling phase pit, Feature 297.

**ISGS-595. C-119** **790 ± 80**

From fill unit within Range phase pit, Feature 106.

**ISGS-596. C-747** **860 ± 130**

From burned post, Feature 40, within and assoc with burned Stirling phase structure, Feature 16.

**ISGS-619. C-2520** **1160 ± 80**

From Patrick phase, keyhole-shaped structure, Feature 902, superimposed by later Patrick phase, keyhole-shaped structure, Feature 906.

**ISGS-620. C-2512** **990 ± 80**

From Range phase pit, Feature 925.

**ISGS-623. C-1901** **880 ± 90**

From fill unit in Range phase structure, Feature 775.

**ISGS-626. C-2522** **1110 ± 90**

From Patrick phase keyhole-shaped structure, superimposed by later Patrick phase, keyhole-shaped structure, Feature 906.



## American Bottom Chronology

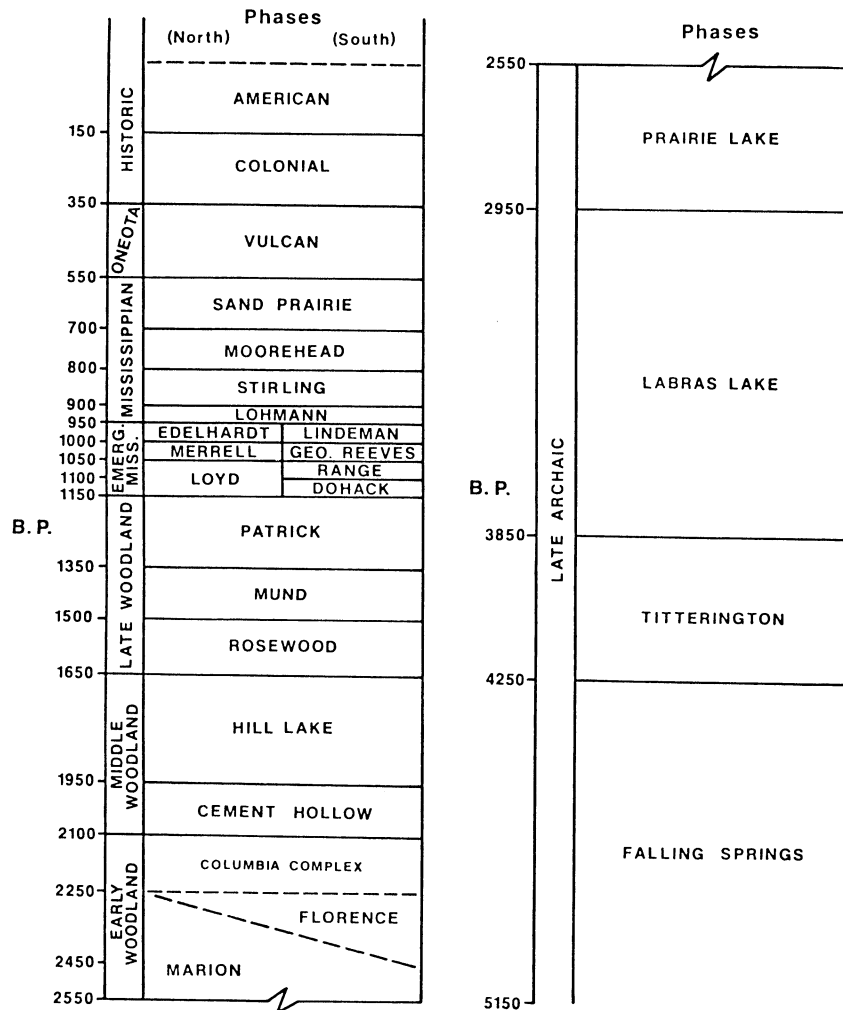


Fig 1. American Bottom chronology

- ISGS-627. C-1897** **880 ± 90**  
 From fill of Range phase pit, Feature 786.
- ISGS-642. C-2521** **1070 ± 100**  
 From fill of Patrick phase keyhole-shaped structure, Feature 902.
- ISGS-646A. C-119** **810 ± 80**  
 Repeat run of ISGS-595; sample was leached by acid and base.

- ISGS-646B. C-119** 810 ± 80  
Repeat run of ISGS-595; sample was pretreated in same manner as ISGS-595 (*ie*, acid leach only).
- ISGS-651. C-130** 1250 ± 130  
From base of fill, just above floor of Range phase structure, Feature 113, in same community as Feature 106 (ISGS-595).
- ISGS-776. C-687** 1170 ± 80  
From fill unit within Range phase rectangular pit, Feature 295, in same community as ISGS-595 and -651.
- ISGS-810. C-3177** 1010 ± 80  
From fill of Lindeman phase pit, Feature 501.
- ISGS-811. C-3426** 1040 ± 80  
From floor of Range phase burned structure, Feature 1256.
- ISGS-824. C-3183** 970 ± 80  
From floor of Lindeman phase burned structure, Feature 1179.
- ISGS-825. FL-1503** 890 ± 80  
From fill of Stirling phase structure, Feature 171.
- ISGS-853. C-7060** 1510 ± 80  
From fill of Patrick phase pit, Feature 4484.
- ISGS-893. C-7464** 1080 ± 80
- ISGS-901. C-7463** 1100 ± 70  
From fill of Patrick phase burned keyhole-shaped structure, Feature 5230.
- ISGS-905. C-6668** 1090 ± 70  
From fill of Range phase burned structure, Feature 3625.
- ISGS-913. C-6480** 960 ± 70
- ISGS-914. C-6504** 990 ± 70  
From fill of Dohack phase burned structure, Feature 3273.
- ISGS-954. C-7836** 990 ± 100  
From SW edge of Mississippian (Sand Prairie phase ?) burial pit, Feature 1477. Sample consisted of uncarbonized cedar fragments.
- ISGS-962. C-7023** 1120 ± 80  
From fill of Mississippian burial pit, Feature 4415. Sample was uncarbonized cedar log.

**ISGS-1011. C-7820, 21, and 23** **2870 ± 200**  
From fill of Prairie Lake phase, Feature 5723.

**ISGS-1012. C-4776** **1430 ± 70**  
From Patrick phase hearth, Feature 1584.

**ISGS-1019. C-4802** **220 ± 70**  
From portion of carbonized log in Patrick phase, Feature 1618.

**ISGS-1021. C-4805** **99.39 ± 0.54 % modern**  
 $\delta^{13}\text{C} = -27.7\text{‰}$   
From portion of carbonized log in Patrick phase hearth, Feature 1582.

*General Comment* (FAI-270 Staff): wherever possible, samples were taken from sizable logs from primary context; mixed contexts were avoided. Samples were selected from outer rings of logs. Dates exhibit usual range of variability assoc with large series of dates from single loc. Extreme variability of dates from Emergent Mississippian (Range & Dohack phases) contexts is consistent with variability noted at other Emergent Mississippian sites in area.

#### **Carbon Monoxide sites (11-Mo-593) series**

Samples from Monroe Co, 4.3km NW of Columbia (38° 28' 20" N, 90° 13' 42" W). Coll 1977 to 1979 by Caven Clark and Becky Schaefer; subm by L M Smith and C J Bareis.

**ISGS-571. C-1008** **2910 ± 80**  
Wood from geomorphologic context 13.4m below surface in Cahokia alluvium of Hill Lake Meander scar.

**ISGS-572. C-1009** **4390 ± 90**  
Wood from geomorphologic context 15.85m below surface in coarse sand.

**ISGS-573. C-985** **110.6 ± 0.8% modern**  
Wood from geomorphologic context 3.35m below surface in alluvial sequence of Hill Lake Meander Scar channel fill.

**ISGS-631. 79-178. 18G, A, B, & C** **2120 ± 100**  
 $\delta^{13}\text{C} = -24.8\text{‰}$   
Nutshell and wood charcoal from fill of Columbia complex shallow basin pit, Feature 19.

**ISGS-633. C-974, 976, 980 & 978** **1960 ± 110**  
 $\delta^{13}\text{C} = -24.8\text{‰}$   
Wood charcoal from fill of Columbia complex shallow basin pit, Feature 4.

*General Comment* (FAI-270 Staff): five samples from Carbon Monoxide site are from geomorphologic context or from Early Woodland, Columbia complex occupation of site. ISGS-572 is from context deposited while Hill Lake Meander was active channel of Mississippi R prior to its cutoff. ISGS-571 is from context deposited after Hill Lake Meander was cut off. ISGS-573 is from recent deposits in Hill Lake Meander scar.

#### Julien site (11-S-63) series

Carbonized wood from St Clair Co, within Cahokia (38° 33' 22" N, 90° 09' 07" W). Coll 1979 by Joyce William *et al*; subm by C J Bareis.

**ISGS-579. CS #107 (79-890) 600 ± 80**

From burned roof or wall members on floor of Sand Prairie phase wall trench structure, Feature 91.

**ISGS-581. CS #30 (79-183) 590 ± 80**

From burned roof or wall members on floor of Sand Prairie phase wall trench structure, Feature 82.

**ISGS-586. CS #65 (79-414) 830 ± 110**

From floor of Moorehead or Sand Prairie phase wall trench structure, Feature 85.

**ISGS-587. CS #42 (79-199) 710 ± 80**

From floor of Moorehead phase wall trench structure, Feature 3.

**ISGS-589. CS #1 (79-59) 630 ± 80**

From floor of Sand Prairie phase wall trench structure, Feature 2.

**ISGS-758. C-1283 990 ± 80**  
 $\delta^{13}C = -27.0\text{‰}$

From fill of burned Sand Prairie phase structure, Feature 2.

**ISGS-760. C-1535 560 ± 80**  
 $\delta^{13}C = -26.1\text{‰}$

From burned Sand Prairie phase structure, Feature 91.

*General Comment* (FAI-270 Staff): ISGS-586 dates earlier than expected for either Moorehead or Sand Prairie phases. This might be contamination problem since sample was small and found just below base of plowed zone. Although ISGS-758 dates earlier than expected for Sand Prairie phase, context was unambiguous and colln methods standard.

#### Missouri Pacific #2 site (11-S-46) series

Carbonized wood from St Clair Co, SE edge of Dupo (38° 30' 34" N, 90° 12' 24" W). Samples from fill of Prairie Lake phase pits. Coll 1978 by John Ducan, Mary Mruzik, and Jane Bouchard; subm by C J Bareis.

**ISGS-588. C-340 & 342, Feature 53 2800 ± 80**

**ISGS-599. C-361, 368 & 369, Feature 42 2540 ± 80**

**ISGS-601. C-309 & 310, Feature 122** **2860 ± 80**

**ISGS-605. C-304, Feature 122** **2760 ± 80**

**Truck #7 site (11-Mo-200) series**

Carbonized wood and nutshell from Monroe Co, 2km NW of Columbia (38° 28' 51" N, 90° 13' 29" W). Coll 1978 to 1979 by Helen Deluga, Sharon Taube, and Becky Schaefer; subm by C J Bareis.

**ISGS-600. C-1104** **1860 ± 80**

From fill of Hill Lake phase pit, Feature 14.

**ISGS-703. Fl 195-207** **1720 ± 80**  
 $\delta^{13}C = -25.6\text{‰}$

From fill of Hill Lake phase pit, Feature 18.

**ISGS-634. C-1112** **1790 ± 80**  
 $\delta^{13}C = -25.5\text{‰}$

From burned internal post within Hill Lake phase post structure, Feature 1.

**ISGS-636. C-1683** **1510 ± 80**  
 $\delta^{13}C = -25.5\text{‰}$

From burned internal post within Hill Lake phase post structure, Feature 1.

**Carbon Dioxide site (11-Mo-594) series**

Carbonized wood and nutshell from Monroe Co, 2km NW of Columbia (38° 28' 36" N, 90° 13' 36" W). Coll 1978 by Don Reinhold *et al*; subm by C.J Bareis.

**ISGS-603. C-482** **1700 ± 80**

From fill of Rosewood phase pit, Feature 21.

**ISGS-689. Fl 871-874** **1630 ± 80**  
 $\delta^{13}C = -24.8\text{‰}$

From fill of Rosewood phase pit, Feature 36.

**ISGS-683. C-489** **880 ± 80**  
 $\delta^{13}C = -25.4\text{‰}$

From burned area near floor of Lohmann phase wall trench structure.

**ISGS-699. Fl 46 52, 387 & 395** **970 ± 80**  
 $\delta^{13}C = -25.5\text{‰}$

From fill of Fairmount phase pit, Feature 17.

**Florence Street site (11-S-458) series**

Carbonized wood from St Clair Co, within city limit of Cahokia (38° 33' 28" N, 90° 08' 57" W). Coll 1979 by Joyce William *et al*; subm by C J Bareis.

**ISGS-616. C-2458 & C-2460** **2400 ± 80**  
 $\delta^{13}C = -24.6\text{‰}$

From burned area in Florence phase activity area, Feature 72, buried under silty sand, ca 65cm thick.

**ISGS-632. C-2467, 2473, & 2476** **2130 ± 110**  
 $\delta^{13}C = -25.4\text{‰}$

From reduced and oxidized zone in Florence phase, Feature 95.

**ISGS-775. FL-1782** **2290 ± 80**  
 $\delta^{13}C = -26.2\text{‰}$

From silty sand in burned zone of Florence phase activity area, Feature 72.

*General Comment* (FAI-270 Staff): dates were used to establish expected range of 2450 to 2250 BP for Florence phase.

**Go Kart North site (11-Mo-552N) series**

Carbonized wood and nutshell from Monroe Co, 2.5km NW of Columbia (38° 29' 04" N, 90° 13' 13" W). Coll 1978 to 1979 by Helen Deluga *et al*; sub by C J Bareis.

**ISGS-628. C-1912** **4020 ± 100**

**ISGS-629. C-1913** **4060 ± 100**

**ISGS-630. C-1915** **4110 ± 100**

From fill of Titterington phase pit, Feature 61.

**ISGS-693. Fl 389, 450 & 451** **4100 ± 130**  
 $\delta^{13}C = -25.0\text{‰}$

From fill of Titterington phase pit, Feature 70.

**ISGS-695. C-1925** **4060 ± 80**  
 $\delta^{13}C = -25.5\text{‰}$

From fill of Titterington phase pit, Feature 89.

**ISGS-697. Fl 79-140, 163 & 173** **4130 ± 80**  
 $\delta^{13}C = -25.6\text{‰}$

From fill of Titterington phase pit, Feature 32.

**ISGS-698. Fl 233, 260 & 275** **4100 ± 80**  
 $\delta^{13}C = -25.6\text{‰}$

From fill of Titterington phase pit, Feature 13.

*General Comment* (FAI-270 Staff): Late Archaic Titterington phase component of Go Kart N site incorporated 209 pit features arranged in linear pattern along bank of Hill Lake Meander scar. Tight clustering of dates supports conclusion that site was intensive, short-term, multi-family occupation.

#### **George Reeves site (11-S-650) series**

Carbonized wood from St Clair Co, 1km SE of Dupo (38° 28' 08" N, 90° 12' 31" W). Coll 1979 to 1980 by Chuck Bentz *et al*; subm by C J Bareis.

**ISGS-635. C-2640** **810 ± 80**  
 $\delta^{13}C = -25.1\text{‰}$

From support post of Lohmann phase structure, Feature 19.

**ISGS-685. C-2629** **950 ± 130**  
 $\delta^{13}C = -25.0\text{‰}$

From fill of Lohmann phase pit, Feature 17.

**ISGS-694. C-3780** **950 ± 80**  
 $\delta^{13}C = -25.8\text{‰}$

From support post of Lohmann phase structure, Feature 157.

**ISGS-687. C-3813** **3710 ± 120**  
 $\delta^{13}C = -25.0\text{‰}$

From fill of Titterington phase pit, Feature 25.

**ISGS-884. 80-194 & 204** **1510 ± 70**  
 $\delta^{13}C = -25.8\text{‰}$

From Mund phase pit, Feature 310.

**ISGS-892. 80-274, 272** **1480 ± 70**  
 $\delta^{13}C = -26.2\text{‰}$

From Mund phase pit, Feature 300.

**ISGS-885. 80-236** **1620 ± 70**  
 $\delta^{13}C = -25.5\text{‰}$

From Mund phase pit, Feature 319.

*General Comment.* (FAI-270 Staff): two Mund phase dates, 1510 BP and 1480 BP, suggest contemporaneity of two separate clusters of Mund phase pit features at site. Two Lohmann phase dates of 950 BP suggest contemporaneity of two other separate feature clusters at site.

#### **BBB Motor site (11-Ms-595) series**

Wood charcoal from Madison Co, 1.2km W of Collinsville (38° 40' 28" N, 90° 01' 13" W). Coll 1979 to 1980 by T Emerson and C Witty; subm by C J Bareis.

<b>ISGS-637. C-4463 &amp; C-4465</b>	<b>750 ± 80</b> $\delta^{13}C = -25.5\text{‰}$
From Stirling phase pit, Feature 38.	
<b>ISGS-705. C-4510</b>	<b>880 ± 120</b> $\delta^{13}C = -25.9\text{‰}$
From Zone E of Stirling phase pit, Feature 125.	
<b>ISGS-708. C-4503</b>	<b>930 ± 80</b> $\delta^{13}C = -25.1\text{‰}$
From Zone D of Stirling phase, Feature 125.	
<b>ISGS-787. C-4473</b>	<b>1040 ± 80</b> $\delta^{13}C = -26.9\text{‰}$
From W half of Edelhardt phase pit, Feature 65.	
<b>ISGS-788. C-4551</b>	<b>930 ± 80</b> $\delta^{13}C = -27.0\text{‰}$
From NE half of Edelhardt phase pit, Feature 266.	
<b>ISGS-801. C-4544</b>	<b>950 ± 80</b> $\delta^{13}C = -26.5\text{‰}$
From SW half of Edelhardt phase pit, Feature 21.	
<b>ISGS-802. C-4489</b>	<b>1060 ± 80</b> $\delta^{13}C = -26.1\text{‰}$
From S half of Edelhardt phase pit, Feature 97.	

*General Comment* (FAI-270 Staff): Edelhardt phase dates represent single occupation community of relatively short duration. Stirling phase dates represent area spatially isolated from earlier Edelhardt phase occupation of site. Feature 38 contained lower portion of Keller figurine, while Feature 125 was assoc with structure that contained upper portion of Keller figurine.

#### **Prairie Lake Meander Scar series**

Organic debris from St Clair Co, 1.35km NE of Dupo (38° 31' 48" N, 90° 11' 45" W), from Cahokia alluvium of Prairie Lake Meander scar. Coll 1978 by John Mathes Engineering Co; subm by L M Smith.

<b>ISGS-638. S-6, S-22</b>	<b>6550 ± 80</b> $\delta^{13}C = -25.5\text{‰}$
From lower channel fill at depth 16.5m below surface.	
<b>ISGS-644. S-4, S-19</b>	<b>9850 ± 300</b>
From lower channel fill at depth 14.4m below surface.	

*General Comment* (FAI-270 Staff): depth from surface of ISGS-638 suggests that channel was abandoned short time before deposition of sampled sedi-



ments. Expected date was 4500 BP; expected range of dates for ISGS-644 sample was 5500 to 3000 BP. Sample must have been contaminated during retrieval.

#### Mund site (11-S-435) series

Carbonized wood and nutshells from St Clair Co, 1km S of Dupo (38° 29' 14" N, 90° 12' 54" W). Coll 1979 and 1980 by Gereth Lewis *et al*; subm by C J Bareis.

**ISGS-643. C-2552, 2557 & 2558** **1380 ± 80**  
 $\delta^{13}C = -24.4\text{‰}$

From pit fill of Mund phase pit, Feature 85.

**ISGS-645. C-2253 & C-2262** **2070 ± 110**

From fill of Cement Hollow phase trash pit, Feature 18.

**ISGS-700. C-3619 C** **3130 ± 80**  
 $\delta^{13}C = -27.0\text{‰}$

**ISGS-701. C-3619 D** **3240 ± 80**  
 $\delta^{13}C = -25.9\text{‰}$

**ISGS-702. C-3619 A** **3400 ± 80**  
 $\delta^{13}C = -28.0\text{‰}$

Uncarbonized wood from Hill Lake Meander Channel fill, 9.1 to 10.7m below surface.

**ISGS-711. C-3569** **2180 ± 90**  
 $\delta^{13}C = -23.8\text{‰}$

From buried soil horizon 10 to 15cm above Marion phase feature.

**ISGS-847. C-2996** **1270 ± 80**  
 $\delta^{13}C = -25.4\text{‰}$

From excavation unit in alluvial fan, 1.75m below surface.

**ISGS-865. C-2906 & 2908** **1470 ± 80**  
 $\delta^{13}C = -24.8\text{‰}$

From pit fill of Mund phase pit, Feature 123.

**ISGS-866. C-2281 & 2282** **2080 ± 80**  
 $\delta^{13}C = -26.0\text{‰}$

From pit fill of Cement Hollow phase, Feature 9.

*General Comment* (FAI-270 Staff): samples dating abandonment of Hill Lake Meander scar (ISGS-700 to -702) were assoc with moist, dark gray, sandy silt channel fill that rested immediately above bedrock bench at bottom of E cut bank of abandoned channel. Dates are specific for channel abandonment. Expected range was 3800 to 3200 BP. Marion phase occupation at site could not be directly sampled although ISGS-711 was obtained

from burned layer stratigraphically positioned 10 to 15cm above Marion phase feature. Date, 2180 BP agrees with expected range of 2550 to 2250 BP for Marion phase. Two dates for ISGS-645 and -866 were used to establish expected range of 2100 to 1950 BP for Cement Hollow phase. ISGS-847 is from erosional gully in Cement Hollow alluvial fan which truncated Mund phase occupational surface. Presence of this gully indicates that alluvial fan was still active several centuries after end of Mund phase occupation.

#### Alpha #1 site (11-S-632) series

Carbonized wood from St Clair Co, 6.8km NW of Belleville (38° 33' 11" N, 90° 04' 38" W). Coll 1978 by Mark Mehrer *et al*; subm by C J Bareis.

**ISGS-663. C-937** **1580 ± 80**  
 $\delta^{13}C = -25.6\text{‰}$   
From fill of S half of Rosewood phase pit, Feature 39.

**ISGS-709. C-920** **1830 ± 90**  
 $\delta^{13}C = -26.7\text{‰}$   
From fill of NE half of Rosewood phase pit, Feature 33.

**ISGS-710. C-914** **1710 ± 80**  
 $\delta^{13}C = -27.6\text{‰}$   
From fill of N half of Rosewood phase pit, Feature 10.

**ISGS-713. C-912** **150 ± 80**  
 $\delta^{13}C = -26.4\text{‰}$   
From fill of W half of Rosewood phase pit, Feature 25.

**ISGS-715. C-938 & 939** **1390 ± 80**  
 $\delta^{13}C = -26.2\text{‰}$   
From fill of E half of Rosewood phase pit, Feature 45.

#### Dohack site (11-S-642) series

Carbonized wood and nutshell from St Clair Co, 5km S of Dupo (30° 29' 00" N, 90° 12' 50" W). Coll 1979 and 1980 by Becky Schaefer; subm by C.J Bareis.

**ISGS-664. C-2768** **830 ± 80**  
 $\delta^{13}C = -24.9\text{‰}$   
From burned lens in Dohack phase pit, Feature 81.

**ISGS-665. C-2784** **970 ± 80**  
 $\delta^{13}C = -26.1\text{‰}$   
From fill of Dohack phase pit. Feature 55.

**ISGS-691. C-2782** **940 ± 100**  
 $\delta^{13}C = -25.0\text{‰}$   
From fill of Dohack phase pit, Feature 55.

**ISGS-696. FI 2259** **1130 ± 80**  
 $\delta^{13}C = -24.4\text{‰}$   
From fill of Patrick phase pit, Feature 51.

**ISGS-704. C-4979** **1230 ± 80**  
 $\delta^{13}C = -26.4\text{‰}$   
From fill of Patrick phase pit, Feature 171.

**ISGS-706. C-5275** **1100 ± 80**  
 $\delta^{13}C = -26.0\text{‰}$   
From fill of Patrick phase pit, Feature 183.

*General Comment* (FAI-270 Staff): Dohack site is type site for Dohack phase. Four samples (ISGS-664, -665, -678, and -691) presently provide only known  $^{14}C$  dates from Dohack phase context.

#### **Leingang site (11-Mo-722) series**

Carbonized wood from Monroe Co, 3.2km S of Dupo (38° 28' 52" N, 90° 12' 55" W). Coll 1979 by Robert Young *et al*; subm by C J Bareis.

**ISGS-668. C-2598** **1580 ± 80**  
 $\delta^{13}C = -25.1\text{‰}$   
From fill of Rosewood phase pit, Feature 1.

**ISGS-734. C-3051 & C-3054** **1480 ± 80**  
 $\delta^{13}C = -25.5\text{‰}$   
From fill of W half of Rosewood phase pit, Feature 96.

**ISGS-771. C-3038 & C-3039** **1670 ± 80**  
 $\delta^{13}C = -26.0\text{‰}$   
From N and S halves of Rosewood phase pit, Feature 6.

**ISGS-769. C-3052 & C-3053** **5290 ± 90**  
 $\delta^{13}C = -25.3\text{‰}$   
From fill of E half of Late Archaic pit, Feature 58.

*General Comment* (FAI-270 Staff): date, 5290 BP for ISGS-769 from Late Archaic pit feature implies Falling Springs phase affiliation. Although earliest expected date for Falling Springs phase is 5150 BP. diagnostic materi-

**ISGS-670. C-2615** **1390 ± 80**  
 $\delta^{13}C = -25.3\text{‰}$   
From fill of NE half of Rosewood phase pit, Feature 14.

**ISGS-735. C-2613 & C-2618** **1390 ± 100**  
 $\delta^{13}C = -25.2\text{‰}$   
From E half of Rosewood phase pit, Feature 7.

*General Comment* (FAI-270 Staff): two dates of 1390 BP are considered late for Rosewood phase, which has expected range of 1650 to 1500 BP. Diagnostic artifacts from site firmly establish site as Rosewood phase occupation.

#### **Rosewood site (11-S-639) series**

Carbonized wood from St Clair Co, 2.5km N of Belleville (38° 32' 31" N, 89° 59' 21" W). Coll 1978 and 1979 by G Prentice *et al*; subm by C J Bareis.

**ISGS-728. C-4** **1530 ± 80**  
 $\delta^{13}C = -25.2\text{‰}$   
From fill of W half of Rosewood phase pit, Feature 87.

**ISGS-743. C-7** **1630 ± 80**  
 $\delta^{13}C = -25.6\text{‰}$   
From fill of SW half of Rosewood phase pit, Feature 121.

**ISGS-754. C-3** **1670 ± 80**  
 $\delta^{13}C = -26.3\text{‰}$   
From fill of S half of Rosewood phase pit, Feature 62.

*General Comment* (FAI-270 Staff): Rosewood site is type site for Rosewood phase. Dates for ISGS-728, -743, and -754 were used to establish expected range of 1650 to 1500 BP for Rosewood phase.

#### **McLean site (11-S-640) series**

Carbonized wood from St Clair Co, 2.2km S of Centreville (38° 32' 55" N, 90° 10' 14" W). Coll 1979 by G Lewis and R Appel; subm by C J Bareis.

**ISGS-730. C-4032** **4360 ± 120**  
 $\delta^{13}C = -26.3\text{‰}$   
From fill of N half of Falling Springs phase pit, Feature 28.

**ISGS-736. C-4040** **4600 ± 80**  
 $\delta^{13}C = -25.6\text{‰}$   
From fill of N and S halves of Falling Springs phase pit, Feature 82.

#### **Holdener site (11-S-685) series**

Carbonized wood from St Clair Co, 1.5km ESE of Edgemont (38° 35' 31" N, 90° 02' 25" W). Coll 1980 by W L Wittry; subm by C J Bareis.

**ISGS-731. C-5737** **850 ± 80**  
 $\delta^{13}C = -25.9\text{‰}$   
From fill of pit, Feature 11.

**ISGS-836. C-5780** **1230 ± 80**  
 $\delta^{13}C = -26.1\text{‰}$   
From fill of pit, Feature 64.

**ISGS-837. C-5837** **1310 ± 80**  
 $\delta^{13}C = -25.6\text{‰}$   
From fill of Feature 89.

**ISGS-846. C-5829, C-5836, & C-5838** **1300 ± 80**  
 $\delta^{13}C = -26.1\text{‰}$   
From fill of Feature 49.

#### Turner site (11-S-50) series

Carbonized wood from St Clair Co (38° 34' 57" N, 90° 06' 03" W). Coll 1979 and 1980 by R Ord and J Duncan; subm by C J Bareis.

**ISGS-732. C-3993** **1050 ± 80**  
 $\delta^{13}C = -26.1\text{‰}$   
From fill of Stirling phase hearth, Feature 83.

**ISGS-733. C-4953** **1060 ± 80**  
 $\delta^{13}C = -25.0\text{‰}$   
From burned fill along SE basin wall of Stirling phase, Feature 5.

#### Columbia Quarry site (11-S-629) series

Carbonized wood from St Clair Co, 1km E of Dupo (38° 31' 05" N, 90° 10' 55" W). Coll 1979 and 1981 by R T William; subm by C J Bareis.

**ISGS-739. C-3706** **1560 ± 90**  
 $\delta^{13}C = -26.2\text{‰}$   
From fill of Mund phase pit, Feature 24.

**ISGS-741. C-3657 & C-3660** **1570 ± 80**  
 $\delta^{13}C = -26.5\text{‰}$   
From fill of Mund phase pit, Feature 12.

**ISGS-745. C-3712 & C-3713** **1570 ± 80**  
 $\delta^{13}C = -26.6\text{‰}$   
From fill of NE half of Mund phase pit, Feature 31.

**ISGS-755. C-3708 & C-3709** **1660 ± 80**  
 $\delta^{13}C = -26.2\text{‰}$   
From fill of Mund phase pit, Feature 27.

**ISGS-756. C-3670 & C-3686** **1440 ± 90**  
 $\delta^{13}C = -26.6\text{‰}$   
From fill of NE and SE halves of Mund phase pit, Feature 2.

**ISGS-889. #1** **1330 ± 70**  
 $\delta^{13}C = -27.4\text{‰}$   
From fill of Patrick phase feature.

*General Comment (FAI-270 Staff):* 5 Mund phase dates represent 5 different Mund phase pit clusters. Patrick phase date is from area of site separate from area of Mund phase occupation.

#### Hofstetter site (11-S-693) series

Carbonized wood from St Clair Co, 3km SW of Centreville (38° 32' 34" N, 90° 08' 37" W). Coll 1980 and 1981 by Walt Babich and Mark Essary; subm by Allan Westover; Illinois State Univ, Normal.

**ISGS-887. #1** **890 ± 70**  
 $\delta^{13}C = -25.2\text{‰}$

From tree post remnant, 30cm below present surface on floor of Emergent Mississippian Structure 4.

**ISGS-908. #2** **1090 ± 90**  
 $\delta^{13}C = -25.8\text{‰}$

From Emergent Mississippian Structure 2, 21cm below surface.

**ISGS-921. #3** **1610 ± 90**  
 $\delta^{13}C = -25.0\text{‰}$

From fill of Late Woodland Feature 7, with concentration between 20 to 30cm below surface.

#### Mund House site (11-S-695) series

Carbonized wood and nutshell from St Clair Co, 2km S of Dupo (38° 29' 30" N, 90° 12' 45" W). Coll 1981 by Roger Williamson and Mike Morelock; subm by C.J. Bareis.

**ISGS-925. 80-126** **730 ± 90**  
 $\delta^{13}C = -26.0\text{‰}$

From fill within large Sand Prairie phase structure, Feature 27.

**ISGS-926. 80-66B** **5360 ± 100**  
 $\delta^{13}C = -25.3\text{‰}$

From float sample of fill of Falling Springs phase pit, Feature 22.

#### East St Louis Stone Quarry site (11-S-468) series

Carbonized wood from St Clair Co, NE edge of N Dupo (38° 32' 17" N, 90° 11' 03" W). Coll 1980 by Robert Ord; subm by C.J. Bareis.

**ISGS-902.** **790 ± 70**

From Moorehead or Sand Prairie phase structure, Feature 3, in area separate from cemetery area.

**ISGS-944. C-5973** **910 ± 90**  
 $\delta^{13}C = -25.9\text{‰}$

From beneath group of sherds near cranium in S portion of Sand Prairie phase grave, Feature 57.

**ISGS-946. C-5975** **760 ± 90**  
 $\delta^{13}C = -25.3\text{‰}$

From SW corner of Sand Prairie phase grave, Feature 75, near extended skeleton's cranium.

*General Comment* (FAI-270 Staff): cemetery is attributed to Sand Prairie phase which has expected range of 700 to 550 BP. Early dates of 910 and 760 BP may reflect dating of carbonized wood from earlier component elsewhere in site area (wood is adventitious inclusion in features).

#### **Joan Carrie site (11-Mo-663) series**

Carbonized wood from Monroe Co, at NW edge of Columbia (38° 27' 30" N, 90° 13' 15" W). Coll 1978 by Susan Jelly and Steve Forman; subm by L A Conrad, Western Illinois Univ, Macomb.

**ISGS-984. L-320** **940 ± 70**  
 $\delta^{13}C = -27.0\text{‰}$

**ISGS-986. L-472 & 473** **1000 ± 70**  
 $\delta^{13}C = -26.1\text{‰}$

From bottom of pit feature which contains Dohack phase ceramics.

*General Comment* (LAC): both dates seem too young for Dohack phase assoc of samples. Compelling strat evidence and anomalous dates for other sites indicate that expected date of 1150 to 1200 yr BP is more likely.

#### **Fish Lake site (11-Mo-608) series**

Carbonized wood from Monroe Co, 8km NW of Columbia (38° 28' 35" N, 90° 14' 51" W). Coll 1982 by Roger Williamson *et al*; subm by C J Bar-eis.

**ISGS-1044. C-7627** **1390 ± 70**  
 $\delta^{13}C = -25.7\text{‰}$

From Patrick phase pit, Feature 126, in burned zone near base of refuse pit, 65cm deep.

**ISGS-1046. C-7871** **1030 ± 100**  
 $\delta^{13}C = -25.5\text{‰}$

From floor of Patrick phase keyhole-shaped structure, Feature 116.

- ISGS-1047. C-7526** **1170 ± 100**  
 $\delta^{13}C = -25.5\text{‰}$   
From fill of Patrick phase keyhole-shaped structure, Feature 9.
- ISGS-1060. C-7880** **1170 ± 110**  
 $\delta^{13}C = -26.7\text{‰}$   
From fill of Patrick phase pit, Feature 80.
- ISGS-1062. C-7602** **1360 ± 130**  
 $\delta^{13}C = -26.4\text{‰}$   
From pit fill of Patrick phase pit, Feature 123.

**Other Sites**

- ISGS-712. Alpha #7 (11-Mo-638) C-963** **420 ± 80**  
 $\delta^{13}C = -26.0\text{‰}$   
Carbonized wood from St Clair Co, 3km SE of Centreville (38° 35' 37" N, 90° 04' 37" W), from fill of W half of Rosewood phase pit, Feature 4. Coll 1978 by F Finney; subm by C J Bareis.
- ISGS-719. Alpha #3 (11-S-634) C-945** **1290 ± 80**  
 $\delta^{13}C = -25.8\text{‰}$   
Carbonized wood from St Clair Co, 6.5km NW of Belleville (38° 33' 10" N, 90° 04' 36" W), from soil matrix fill of Patrick phase pit, Feature 6. Coll 1978 by Doug Jackson; subm by C J Bareis.
- ISGS-938. Tep site (11-Mo-154), L-451 & 452** **5150 ± 100**  
 $\delta^{13}C = -25.6\text{‰}$   
Carbonized nutshell and wood from Monroe Co, at NW edge of Columbia (38° 27' 30" N, 90° 13' 15" W), from fill of Feature 21, in cluster of Marion phase features characterized by Kramer points, but no Marion ceramics. Coll 1978 by Susan Gardner; subm by L A Conrad. *Comment* (LAC): two Brannon sidenotched points recovered from plowed surface of site seem to support likelihood that this date accurately reflects age of Feature 21, which antedates Marion occupation. Unfortunately, this assoc is too tentative to be useful.

*Indiana***Prairie Creek site series**

Wood from Daviess Co, 5km N of Washington (38° 42' 51" N, 87° 10' 16" W), from ca 0.6m depth in Stratum 7, assoc with artifacts. Coll 1973 and subm by Curtis Tomak, Indiana Univ at Bloomington.

- ISGS-269. #C-7** **2540 ± 80**
- ISGS-270. #B-7** **3540 ± 90**

*General Comment* (CT): dates are much younger than expected. Disagreement between these two samples from same stratum, presence of extinct



animals, and complicated nature of stream deposits together indicate that Stratum 7 is mixed deposit in this area of site.

*Texas*

**ISGS-593. Lewisville 41DN72** **26,610 ± 310**

Charred material from Denton Co (33° 04' 05" N, 96° 59' 23" W), from hearth covered by river deposits, assoc with artifacts. Coll 1979 by Dennis Stamford; subm by D L Johnson. *Comment* (DLJ): date, like other Lewisville dates, is inconsistent with Clovis point, which has narrow chronologic limits, between 11,000 to 11,500 BP. This date and others can be explained if part of Lewisville charcoal was derived from Cretaceous lignite that outcrops upstream from hearth.

*Other Localities*

*Philippines*

**Mustang Cave series**

Shell from Cagayan Prov, 1km E of Agugadan (17° 43' N, 121° 50' E). Coll and subm by Barbara Thiel, Univ Illinois.

**ISGS-496. BT-1** **11,450 ± 170**

From near base of cultural levels, 125cm below surface, assoc with flake tools and animal bones.

**ISGS-497. BT-2** **10,750 ± 150**

From base of pottery-bearing levels, 75cm below surface.

**ISGS-495. Arku Cave** **2460 ± 80**

Charcoal from Cagayan Prov, 2km SE of Agugadan (17° 42' N, 121° 50' E), from 77cm below surface assoc with human bone and pottery. Coll 1976 and subm by Barbara Thiel.

*Mexico*

**Chalcatzingo-Morelos series**

Charcoal from Morelos, 1.6km SE of Village of Chalcatzingo (18° 40' 47" N, 99° 46' 00" W), from Tetla excavations. Coll 1974 and subm by D C Grove, Univ Illinois.

**ISGS-508. Tetla-1** **700 ± 80**

From house floor.

**ISGS-509. Tetla-2** **600 ± 80**

From stratigraphic Level IV, 30 to 50cm depth, oven or kiln.

*General Comment* (DCG): first dates for early post classic period in this region of Mexico; they confirm estimated age for early post-classic in central Mexico.

*Italy***ISGS-554. Morgantina, Sicily** **2430 ± 80**

Charcoal from Enna prov, 6km NE of Aidone (37° 25' 50" N, 02° 01' 37" E), from hollow in lower floor of Archaic Habitation I. Coll 1969 and subm by H L Allan, Univ Illinois.

*Honduras***Copan series**

Charcoal, 3km from village of Copan (14° 51' 11" N, 89° 09' 07" W), from fill under Valhalla platform floor near N end of "the cut" at ruins of Copan. Coll 1979 by R Smither and M Baker; subm by R Smither, Argonne Natl Lab.

**ISGS-576. CO-1** **1620 ± 80**

**ISGS-625. CO-2** **1430 ± 100**  
 $\delta^{13}C = -25.4\text{‰}$

*Tanzania***Nasera Rockshelter series**

Bone fragments from Serengeti Plains, 26.5km N of Olduvai Gorge (02° 44' 30" S, 35° 19' 08" E). Coll 1975 by Andrew Kilonzo; subm by M J Mehlman, Univ Illinois.

**ISGS-438A. MJM-4, apatite** **2060 ± 100**

**ISGS-438B. MJM-4, organic** **2180 ± 200**

From silty tuffaceous sands in strat Unit 3A, assoc with faunal remains, stone artifacts, and several Late Stone age potsherds. *Comment* (MJM): agrees with other dates with Ahira-Ware assoc at Serenera, Tanzania (Bower, 1973) and in Nakuru/Naivasha basin of Kenya.

**ISGS-444A. MJM-5, apatite** **5400 ± 150**

**ISGS-444B. MJM-5, organic** **4720 ± 150**

From very silty tuffaceous sands in Unit 3AA, assoc with several Late Stone age potsherds attributable to Kansyore Ware. *Comment* (MJM): both dates seem too old for Kansyore sherds at Nasera (Soper & Golden, 1969). Disagreement between two fractions indicates that neither may be reliable.

**ISGS-427A. MJM-3, apatite** **8100 ± 120**

**ISGS-427C. MJM-3, apatite** **8060 ± 100**

**ISGS-427B. MJM-3, organic** **7100 ± 80**

**ISGS-427D. MJM-3, organic** **7160 ± 100**

From strat Unit 3B. *Comment* (MJM): not unreasonable to believe that this horizon of artifacts encompasses 1000 yr or more. Dates, 7000 to 8000 BP are consistent with earlier dates for other microlith-rich assemblages in Tanzania at Kisese II (Inskeep, 1962; Deacon, 1966) and in Uganda at Munyama Cave (VanNoten, 1971).

**ISGS-449A. MJM-11, apatite** **22,460 ± 500**

**ISGS-449B. MJM-11, organic** **14,780 ± 250**

From strat Unit 4, assoc with faunal remains and stone artifacts of Late Stone age type. *Comment* (MJM): disagreement between two fractions indicates that one or both fractions have undergone postdepositional contamination. Aspartic acid age of 18,000 yr was obtained for bone from this horizon by J L Bada (pers commun).

**ISGS-445A. MJM-6, apatite** **21,700 ± 600**

**ISGS-445B. MJM-6, organic** **21,600 ± 400**

From strat Unit 5A. *Comment* (MJM): dates are not unreasonable for early Late Stone age assemblage in E Africa. Further, dates are consistent with ISGS-425A: 22,350 ± 380 BP and ISGS-425B: 22,910 ± 400 BP, which date underlying Level 6 containing assemblage transitional from Middle to Late Stone age.

**ISGS-425A. MJM-1, apatite** **22,350 ± 380**

**ISGS-425B. MJM-1, organic** **22,910 ± 400**

From strat Unit 6, assoc with faunal remains and artifacts of late Middle Stone age (transitional?). *Comment* (MJM): dates are consistent with expectations based on nature of archaeol occurrence (Deacon, 1966), but 5000 to 10,000 yr younger than might have been expected on basis of strat correlation (Leakey *et al*, 1972). It is suggested that ISGS-425 be provisionally accepted as min age for Ndutu sediments.

#### **Mumba Rockshelter series**

Samples from Mbulu Dist, 4.3km WSW of Mangola Chini Guard Post (Barrazani) (03° 32' 18" S, 35° 17' 48" E). Coll 1977 by Faustin John; subm by M J Mehlman.

**ISGS-498. MJM-20** **31,070 ± 500**

Snail shell from red-gray silty sand unit, 280 to 290cm below datum. *Comment* (MJM): date is assoc not only with interesting lithic assemblage but also with beginning of snail midden deposits at Mumba shelter.

**ISGS-499. MJM-21** **36,900 ± 800**

Snail shell from yellow-white coarse-sand beach "lag" deposit, 270 to 280cm below datum. *Comment* (MJM): snail shell incorporated in this beach sand must have been reworked from earlier strata.

**ISGS-565. MJM-25** **1780 ± 80**

Charcoal from reddish-gray sandy silt, 40 to 55cm below surface, assoc with Late Stone age accumulation. *Comment* (MJM): although age appears rather recent for accompanying archaeol assemblage, date is believed to be correct because charcoal sample was definitely *in situ*.

**ISGS-566. MJM-43** **26,960 ± 760**

Ostrich eggshell from reddish sandy silt, 170 to 180cm below surface. *Comment* (MJM): this date, together with ISGS-498: 31,070 ± 500 BP and ISGS-499: 36,900 ± 800 BP indicates that beach deposit at Mumba (Bed IV) is ca 28,000 BP, in agreement with data from Ngorongoro Crater (Hay, 1968) and Lake Manyara in N Tanzania.

*Ecuador*

**Elmuerto Rockshelter series**

Carbonized wood from Guayas, 1.5km WSW of El Morro, 5.5km E of Playas (02° 38' S, 80° 20' W). Coll 1975 and subm by C D Spath, Univ Illinois.

**ISGS-472. Em b-4** **5220 ± 80**

From uppermost level with large quantities of shells from mangrove environment.

**ISGS-471. Em b-9** **7180 ± 80**

From lowest level with shells from mangrove environment.

*General Comment* (CDS): dates bracket aceramic mangrove-oriented deposition at site. Open sites of this type have been assigned to Jambeli culture (500 BC to AD 500) (Estrada, Meggers, & Evans, 1964), but their locations relative to ancient distribution of mangrove vegetation suggest both earlier and longer period of specialization in these resources. Dates support this interpretation.

**Valdivia series**

Charcoal from Morona, on S side of mouth of Valdivia R, at San Pedro (02° 30' S, 77° 15' W), from aceramic levels at base of excavation in Valdivia Midden. Coll 1971 by Henning Bischof; subm by D W Lathrap, Univ Illinois.

**ISGS-274. DWL-11** **4580 ± 80**

**ISGS-275. DWL-12** **4700 ± 80**

*General Comment* (HB): extension of 1971 excavation was made in January, 1975. A few San Pedro sherds were found in several layers that had not yielded sherds in 1971. Consequently, thickness of supposedly preceramic deposit, as shown in pub profile (Bischof, 1973), was significantly reduced. There are still no sherds from Level 20, which is dated by these samples, so technically, this level still could be called aceramic. In view of very low,

though constant, density of sherds in San Pedro levels, now extended to include Level 19, it is also possible that absence of sherds in Level 20 is fortuitous.

#### Pastaza site series

Charcoal from Morona-Santiago, near Husanga in valley of Rio Pastaza R (02° 30' S, 77° 15' W). Coll 1969 by P I Porras; subm by D W Lathrap.

**ISGS-384. #463** **600 ± 80**

From 10 to 20cm level of Cut 10.

**ISGS-385. #444** **4160 ± 80**

From 70 to 80cm level of Cut 10.

*General Comment* (DWL): date of upper level (ISGS-384) is consistent with pottery, which exhibits features (such as corrugation) that are widespread in protohistoric and historic time in upper Amazon. Date of lower zone (ISGS-385) agrees well with stylistic dating of Pastaza phase ceramics. Both dates agree with alignment between Valdivia VI on Ecuador Coast and Pastaza phase, as now known. Complexity of Pastaza pottery supports contention concerning ultimate origins of Valdivia culture and alignments between Amazon Basin and upper Amazon (Lathrap, 1970, 1971).

#### Real Alto series

Wood charcoal from Guayas (02° 23' 40" S, 80° 42' 27" W). Coll 1975 and subm by D L Lathrap.

**ISGS-439. #3438** **4110 ± 80**

**ISGS-446. #1269** **4270 ± 80**

**ISGS-452. #3450** **4700 ± 300**

Samples from within small Valdivia II mound.

**ISGS-467. #2431** **4140 ± 190**

From 70 to 80cm below surface, 10cm above first appearance of Valdivia II ceramics in Unit C-5 of Tr C.

**ISGS-466. #1178** **4390 ± 80**

From 70 to 80cm below surface, assoc with appearance of Valdivia II ceramics in Unit C-15 of Tr C.

**ISGS-468. #3569** **4760 ± 120**

From 80 to 90cm below surface, assoc with first appearance of Valdivia ceramics.

**ISGS-448. #2778** **5620 ± 250**

From 90 to 100cm below surface, assoc with aceramic level underlying earliest Valdivia 1.5 to 2 occupation in N Unit C-1 of Tr C.

*General Comment* (DWL): ISGS-439, -446, and -452 relate to sequence of deliberate mound construction at W side of inner plaza of Real Alto. ISGS-467, -466, and -448 relate to continuous strat profile of Tr C in NW corner of rectangular Valdivia community (Lathrap, Marcas, & Zeidler, 1977). All seven dates are compatible with their mutual strat relationships and with all other acceptable dates of Valdivia culture.

**ISGS-478A. Split 1, Perinao site** **4510 ± 100**

**ISGS-478B. Split 2, Perinao site** **4460 ± 100**

Wood charcoal from Balzar, Guayas, 5km N of Colimes (01° 30' 00" S, 80° 00' 00" W), from bottom of oven pit 7.95m below surface. Coll 1977 by J G Marcas; subm by D W Lathrap. *Comment* (DWL): dates suggest that rate of alluvial deposition in inner flood plain of Daule R was relatively slow up to 5000 BP and increased rapidly from that time on. Acceleration of alluvial deposition was possibly result of intensification of farming along upper Daule ca 5000 BP.

*Peru*

#### Upper Amazon series

Carbonized palm nuts and charcoal from Loreto prov, NE of Pucallpa, on bank of Rio Calleria R (07° 50' S, 74° 15' W to 07° 55' S, 74° 20' W). Coll 1973 by R A Braun; subm by D W Lathrap.

**ISGS-272. Contamanilla site, L-10** **670 ± 120**

From excavation Unit #5 at depth 50 to 60cm in direct assoc with ceramic remains.

**ISGS-273. Piyuya site PIY-1, L-9** **500 ± 80**

From midden 19cm below surface.

*General Comment* (RAB): dates suggest that during early phase of domination of Central Ucayali by Tupian speakers, represented by Caimito complex, one refuge area for people they displaced (descendants of Panoan speakers assoc with Cumancaya complex) was backwoods area drained by right-bank tributaries of Ucayali. Furthermore, ceramic remains of CAL-7 and PIU-1 unequivocally represent direct antecedent to Remo, described for 17th and 19th centuries as comprising as many as 3000 people at headwaters of Rio Callaria (Steward, 1948). Presence of rare Caimito trade (?) sherds at these two sites are consistent with these dates.

#### Chavin de Huanter series

Wood charcoal from Ancash (09° 25' S, 77° 30' W). Coll 1976 by Richard Burger; subm by D W Lathrap.

**ISGS-486. #1162** **2770 ± 80**

From lower level of fill within circular structure later buried by Ura-barriu period platform.

**ISGS-493. #1159** **2900 ± 150**

From fill of earliest platform construction at Chavin de Huanter site.

**ISGS-510. #468** **2190 ± 210**

From depth 180cm in yellow to brown clay on top of platform of cobbles.

**ISGS-506. #455** **2520 ± 100**

From depth 300 to 310cm in layer of brown soil above floor of lowest Janabarriu construction assoc with abundant Janabarriu ceramics.

**ISGS-507. #472** **2400 ± 100**

From depth 350 to 365cm within stratum of clay and disintegrated gravel in direct assoc with Chakinani ceramics.

*General Comment (RB):* dates span three phase ceramic sequence defined for early ceremonial center and its assoc settlement. ISGS-486, -493, and -510 belong to Urabarriu phase, whereas ISGS-507 and -506 fall in Chakinani and Janabarriu phases, respectively. Judging from these dates and similar series of samples tested at Univ California-Riverside, Chavin temple appears to have begun ca 2800 BP and lasted for ca 6 centuries.

**ISGS-545. Qata Casallaqta site** **370 ± 80**

Charcoal from ca 3km S of center of Cuzco (13° 32' S, 71° 59' W), from floor of Rm 03, Pit II, in direct assoc with floor of Inca structure. Coll 1973 by D E Arnold; subm by D W Lathrap.

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