

UNIVERSITY OF MICHIGAN RADIOCARBON DATES VII

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The following is a list of C¹⁴ dates obtained since the preparation of the manuscript for publication of Michigan Radiocarbon Dates VI in December 1960. The method of measurement and treatment of data are the same as described in the introduction to Michigan lists III and IV. Since the time of publication of list VI, a full description of the counting technique and equipment has been published (Crane, 1961a, b).

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SAMPLE DESCRIPTIONS

I. GEOLOGICAL SAMPLES

M-1149. Milan Buried Forest, Michigan 4080 ± 200

Red oak (id. by R. O. Kapp, Alma College, Alma, Michigan) from the Milan, Michigan, buried forest (42° 5' N Lat, 83° 41' W Long), Monroe County, Michigan. The forest horizon occurs at alt 676 ft ± 2 ft. The surface, an old terrace of the Saline River, is 684 ft above sealevel. The nature of the fossil vegetation and geologic setting suggest that the forest was in existence during or after the postglacial climatic optimum. Relation of the deposit to changes of the level of ancestral Lake Erie is uncertain. Coll. August 1960 by W. A. Kneller, then of Univ. of Michigan; subm. by M. L. Papworth, then of Mus. of Anthropol., Univ. of Michigan. *Comment*: R. O. Kapp's analysis of pollen from site suggests climate was warmer than present and shows grasses lower than expected.

Dixboro Botanical Garden series, Michigan

Wood and marl from Dixboro Botanical Garden (42° 19' N Lat, 83° 39' W Long), Dixboro, Washtenaw County, Michigan. Coll. summer 1958 by J. R. Reid, Univ. of Michigan, who discusses the geology of the locality (n.d.); subm. by Botanical Gardens, Univ. of Michigan.

M-1100. Fleming Creek, lower floodplain 2645 ± 150

Wood (sample no. 30) from 46 in. depth, E bank of Fleming Creek, in alluvium of the lower floodplain at alt ca. 780 ft above mean sealevel. Wood layer immediately above a contact with coarse sandy gravel, is overlain by medium fine sand, then by unoxidized clayey silt, then by organic clayey silt. *Comment*: dates the most deposition prior to present erosion cycle. Date should be same as M-1098.

* Descriptions and comments are essentially those of persons submitting samples, with modifications where necessary by Griffin, Armelagos, Parsons, and the editors.

M-1098. Fleming Creek 3000 ± 200

Wood (sample no. 23) from stump imbedded in alluvium at 35 in. depth, rooted in underlying coarse gravel at the normal water level of the creek. Overlying the wood layer is medium fine sand, then silty sand, then organic silt. *Comment*: dates the most recent deposition prior to the present erosion cycle. Date should be same as M-1100.

M-1099. Dixboro Botanical Gardens, dissected kettle 1660 ± 150

Wood (sample no. 29) from immediately below surface of silty peat in floor of now-dissected kettle, surface alt ca. 783 ft, SE corner between Gale and Dixboro Road.

M-1101. Fleming Creek, upper floodplain 7060 ± 300

Marl, 20 in. below surface in light-colored layer, 19 in. thick, overlain by organic silt, 7 in. thick, in upper floodplain terrace of Fleming Creek, surface alt ca. 800 ft. Light-colored layer is underlain, at depth, 26 to 45 in. below surface, by orange-brown and then by fine sand. *Comment*: probably represents a rise in level of Lake Erie subsequent to a low-water stage corresponding to Lakes Stanley and Chippewa in the Huron and Michigan basins.

M-1102. Fleming Creek, upper floodplain 12,660 ± 1000

Limonite-stained marl (sample 56b) 33 in. below surface, at same locality and in layer described in M-1101. *Comment*: probably represents lacustrine deposition immediately prior to a low-water stage of Two Creeks age, during which marl was exposed and oxidized.

M-998. Kelleys Island, Ohio 3270 ± 200

Wood (beech; id. by G. W. Burns, Ohio Wesleyan Univ.) with charred splotches, from section of 24-in. diam log from W edge of the S projection of Kelleys Island (ca. 41° 35' N Lat, 82° 42' W Long), 11 or 12 mi from Sandusky, Ohio. A 24-acre tract of a lagoon was excavated to a maximum depth of 16 ft below present level of Lake Erie. A narrow closed baymouth bar separates the lagoon from the lake. Sample is from log found at a depth 10 ft below present level of Lake Erie, at base of a bed of peat. (An unpub. specimen, M-999, id. as ash by Burns, is from the same depth, 10 ft away). Geology to be described by K. E. Boker and R. W. Goldthwait; gastropods and pelecypods, to be studied by Aurel LaRocque, were collected from all levels to a depth of 14 ft below level of Lake Erie. Coll. and subm. by K. E. Boker, Kelleys Island, Ohio. *Comment*: entire area at level from which sample was obtained showed evidence of burning, possibly by lightning. A large portion of a human mandible, which appears to have undergone burning, was excavated from an unknown depth within the lagoon area. A turtle carapace and plastron were found crushed beneath the log.

Wasaga Beach series, Ontario

Samples from gravel pit along Wasaga Beach (44° 32' N Lat, 80° 00' W Long), near Elmvale Road, 1.9 mi NE from bridge over Nottawasaga River,

Ontario, Canada. Coll. May 1959 and subm. by W. R. Farrand, Lamont Observatory, Palisades, New York.

M-1024. Wasaga Beach, 4-to-10-in. level 5840 ± 350

Marl with mollusc shells and some plant remains (sample Ont-59-2) from the first 6 in. of marl below the 3-to-4-in. plow zone, 4 to 10 in. below surface. Marl bed from which sample was taken is ca. 20 in. thick and overlies beach gravel ascribed by Stanley (1936) to the Payette lake stage. *Comment*: both inland and toward the lake from this pit are beach gravels at 633 to 634 ft above sealevel, ascribed to the Nipissing stage. These indicate that a shallow lagoon, which inundated the older Payette gravels, existed here at the Nipissing stage. This marl apparently was deposited in the Nipissing-stage lagoon and its age should be that of the Nipissing Great Lakes.

M-1025. Wasaga Beach, 10-to-14-in. level 5270 ± 350

Marl with mollusc shells and some plant remains (sample Ont-59-3) from the 6-to-10-in. level of the marl; 10 to 14 in. below the surface.

M-1026. Wasaga Beach, 21-to-24 in. level 5740 ± 250

Marl (sample Ont-59-4) from the basal 3 in. of the marl deposit; 21 to 24 in. below the surface. The marl deposit overlies 2 to 3 in. of light gray marly silt. Beneath this gray marly silt is 4 to 5 ft of gravel, topped by a thin bed of organic matter.

M-1027. Wasaga Beach, 24-to-27-in. level 12,250 ± 500

Gray marly silt (sample Ont-59-5) from between basal marl (locus of sample M-1026) and the overlying organic layer (locus of sample M-1028).

M-1028a. Wasaga Beach, 24-to-25-in. level, organic fraction 5120 ± 400

M-1028b. Wasaga Beach, 24-to-25-in. level, marl fraction 20,000 ± 2000

Charcoal and marl from deposit of organic origin (sample Ont-59-6), presumably a soil zone, $\frac{3}{4}$ in. thick, immediately above gravel, in a slightly different section from M-1026 and M-1027. Sample, 24 to 25 in. below surface, lies immediately below and includes part of basal layer of gray marly silt, sampled as M-1027. M-1028a is charcoal and other organic matter remaining after M-1028b, the marl fraction, was separated by acid extraction. *Comment* (W. R. F.): charcoal date (M-1028a) confirms suspicion that the upper three marl samples, M-1024, M-1025, M-1026, are 1000 to 1600 yr too old, some carbon from Paleozoic carbonates having been reprecipitated during lacustrine photosynthesis (Deevey, et al., 1954). The marly silt, M-1027, and the inorganic carbon of M-1028b, are so old as to indicate detrital as well as chemically precipitated limestone. Thus, all these dates are considered to be too old, except M-1028a (charcoal) which must record the pre-Nipissing rise of lake level, just prior to the Nipissing maximum. M-1028a was too small to fill the counter, and the error is correspondingly large.

M-997. Wilson Ford, Kansas 31,000 ± 6000

Shell (*Lasmigona complanata* Barnes) upstream from the Wilson river crossing (SE ¼, NE ¼, sec. 18, T29S, R14E), Wilson County, Kansas. Sample was in association with *Bison alleni* (late Pleistocene), at depth of ca. 16 ft at base of terrace exposed in E bank of Fall River, underlain by bedrock of Pennsylvanian age. Sample submitted in an attempt to determine age of *Bison alleni*. Coll. July 1947 by C. Carpenter and C. W. Hibbard; subm. by C. W. Hibbard, Mus. of Paleontology, Univ. of Michigan.

Albion Bog series, Colorado

Vegetable residues (natural bog deposit) from Albion Bog (40° 02' 30" N Lat, 105° 35' W Long), Boulder County, Colorado. The surface of the bog, at alt 10,650 ft, is ca. 1000 ft below local timberline. The organic deposit is ca. 135 cm deep, overlying silt, clay, and gravel. See Michigan VI for previously dated bog material. Coll. Sept. 1955 and subm. by R. W. Pennak, Dept. of Biology, Univ. of Colorado, Boulder.

M-1218. Albion Bog, 50 to 70 cm depth 1950 ± 150

Bog residue (no. AB-3) from a depth of 50 to 75 cm below present surface of bog.

M-1219. Albion Bog, 100 to 125 cm depth 2740 ± 200

Bog residue (no. AB-5) from a depth of 100 to 125 cm below present surface of bog.

II. ARCHAEOLOGICAL SAMPLES

*A. Upper Mississippi Valley and Great Lakes***M-1139. Feeheley Site, Michigan 3930 ± 300**

Twenty-two pieces of charcoal (9 id. as maple, 10 id. as oak, and 3 unid. by R. Yarnell, Univ. of Michigan, Ann Arbor) found associated with Feature 4 of the Feeheley Site (43° 20' N Lat, 87° 45' W Long), Saginaw County, Michigan. This is a Late Archaic site with considerable copper in the form of beads, awls, and celts, and with flexed burials in basswood bags. Basswood cordage was used to string the beads. Coll. May 21, 1960, by Lewis Binford, Univ. of Chicago; subm. by M. L. Papworth, Univ. of Colorado, Boulder. *Comment*: alt of site is 604.5 ft above mean sealevel. It shows no evidence of having been under water.

Kamp Mound Group series, Illinois

Wood and charcoal from burial crypt, Mound 9 in the Kamp Mound Group, NE ¼, sec. 27, T8S, R2W (39° 19' 50" N Lat, 90° 37' 05" W Long), 2 mi N of Kampsville, 48 mi N of St. Louis, Calhoun County, Illinois. Site described by Struever (1960), and earlier by Baker *et al.* (1941). Coll and subm. by Stuart Struever, Univ. of Chicago.

M-1038. Kamp Mound Group, Mound 9 1760 ± 200

Wood charcoal taken from inside a Pike plain rocker-stamped vessel, one of four in a shallow pit beneath SE corner of burial crypt in primary mound.

Comment: evidence is presented (Struever, 1960) for association of pit and contents with the burial feature.

M-1039. Kamp Mound Group, Mound 9 1940 ± 150

Wood charcoal from inside a second vessel in the above-described pit. Vessel is of Pike brushed type. *Comment:* charcoal is believed to have resulted from repeated fires in vessel.

M-1040. Kamp Mound Group, Mound 9 1980 ± 150

Wood charcoal from shallow pit beneath primary mound, 30 in. E of burial crypt. *Comment:* charcoal resulted from fire antedating construction of primary mound, though association with Mound 9 burial ceremonialism is considered likely.

M-1041. Kamp Mound Group, Mound 9 1810 ± 150

Fragments of log used to line E wall of burial crypt in primary mound. *Comment:* the Kamp group is regarded as Hopewellian in origin, but features of the burial complex that are atypical of Illinois River Valley Hopewell include 10 mounds arranged in a rectangular configuration, and great size of some of the mounds (one contains over a million cubic ft of earth).

M-714. Snyders Site, Illinois 1310 ± 150

Charred acorns (cat. no. 46557) from a Jersey Bluff Culture pit, Snyders Site (39° 04' 10" Lat, 90° 40' 19" W Long), Calhoun County, Illinois. Coll. 1953 by G. Perino, Thomas Gilcrease Foundation, Tulsa; subm. by J. B. Griffin. *Comment* (J.B.G.): the pottery and other material is clearly post-Hopewell.

M-745. Morse Site, Illinois 2270 ± 200

Human skeleton (Burial 3) from Mound 1, Unit 2, the Morse Site (40° 14' N Lat, 90° 13' W Long), a Late Archaic Red Ocher Focus site, Fulton County, Illinois. Burial 3 was id. as a male ca. 35 yr of age lying on his back in a semi-flexed position, a little more than three ft below the surface. Seven projectile points were associated with the skeleton. See Morse (1959) for discussion of the site. Coll. 1958, and subm. by D. F. Morse and Dr. Dan Morse, Peoria, Illinois. *Comment* (J.B.G.): the date is later than expected, for cultural material precedes Hopewell. Many bone samples date somewhat younger than charcoal samples.

M-1037. Aztalan Site, Wisconsin 1200 ± 150

Charcoal from a posthole belonging to one of the back wall supports of a rectangular house in the occupational area along riverbed, Aztalan Site (43° 04' N Lat, 88° 55' W Long), Jefferson County, Wisconsin. Coll. August 1959 and subm. by S. F. Borhegyi, Milwaukee Public Mus. *Comment* (J.B.G.): this date is somewhat more acceptable than that given from sample M-642 (330 ± 200, Michigan IV). Additional dates from Aztalan should be run.

M-996. Madeline Island dugout canoe, Wisconsin 275 ± 150

Wood, partly charred, from dugout canoe found on NE end of Madeline

Island (ca. 46° 50' N Lat, 90° 35' W Long), Bayfield County, Wisconsin. Canoe remains are ca. 14 ft long and were in what appeared to be beach deposit exposed by erosion. Deposit was 4 to 5 ft above lake level of 1937. Coll. 1937 by R. P. Coffin, Prairie View, Illinois; subm. by G. I. Quimby, Chicago Nat. Hist. Mus. *Comment*: canoe is now on exhibit in Madeline Island Hist. Mus. at La Pointe, Wisconsin. On grounds of typology and geologic context canoe seemed likely to be old. In view of C¹⁴ measurement it may belong to one of the historic tribes in the area in 17th century: Winnebago, Menomini, Huron, and others that were in the immediate region of Chaquamegon and La Pointe. It seems less likely to be a Chippewa or Ottawa canoe, for, although these people were in the area, they ordinarily used birchbark canoes. So far none of the dugout canoes from eastern North America measured by C¹⁴ have any great antiquity.

M-831. Pleasant Hill Site, Ohio

470 ± 150

Charcoal from Fort Ancient culture site (fortified site, ca. one acre), near Troy, Ohio, located one mi W of Pleasant Hill on W side of Stillwater River, ½ mi S of bridge (40° 3' N Lat, 84° 22' W Long). Sample collected from base of badly crushed, semi-flexed, child burial, at a depth of 18 in. below the surface. The barklined burial pit, 2.5 ft deep, became apparent at depth of ca. one ft beneath grass roots on uncultivated land, but was not clearly sealed by a soil zone. Pit earth, very much reddened from fire but with no evidence of ocher, contained fine ash and blackened potsherds. Burial topped by three granite rocks of ca. 15 lbs each. Fragmentary pot (scalloped rims, conoidal base, grit temper) containing some charred corn and a badly decomposed shell spoon or gorget of roughly rectangular shape, was found near center of skeleton. Coll. June 1958 and subm. by Roger Leatherman, Univ. of Michigan, Ann Arbor. *Comment*: this is the northernmost reported site of the Fort Ancient archaeological culture, and is an interesting mixture of Fort Ancient and Woodland characteristics. A collection of pottery from the grave fill and elsewhere in the village site indicates a basic Woodland pattern with Fort Ancient admixture, and hence a possible relationship to early Madisonville Focus of the Fort Ancient Aspect (Griffin, 1943). Date seems to be in keeping with the general character of the site and is reasonable in the opinion of the investigator.

M-465. Ash Cave, Ohio

1170 ± 200

Bundle of grass id. as *Andropogon furcatus* Muhl by M. R. Gilmore, Ethnobot. Lab., Univ. of Michigan, Ann Arbor, from Ash Cave, NW ¼ sec. 26, Benton Twp., Hocking County, Ohio (39° 24' N Lat, 84° 32' 40" W Long). Sample taken from refuse layer ca. 2 to 3 in. below surface in ash bed, 2 to 3 ft deep. Associated material in the refuse layer included a pocket of ca. 100 pieces of broken pottery, grass, an assortment of gourd rinds, one piece of pumpkin, two sticks wrapped with grass fibre, and remnants of a sandal. Coll. April 1928 by R. M. Goslin, Ohio State Mus., Columbus; subm. by R. S. Baby, Ohio State Mus. Site described and discussed by Moorehead (1895a,b) and Andrews (1877). *Comment*: material found appears to represent only one cultural level.

*B. Lower Mississippi Valley and SE***M-1075. Gaines Mound (Be 23), Kentucky 1560 ± 200**

Charcoal from Gaines Mound (39° 8' 2" N Lat, 84° 45' 33" W Long), a late Adena site, 5 mi W of Taylorsport at the end of Kentucky Road no. 8, Boone County, Kentucky. Sample was taken from Tomb 4, containing extended burials nos. 11 and 12 and cremation burial no. 13, on outer extremity of elliptical mound. Tube pipe and copper beads were associated in tomb. Coll. 1958 and subm. by E. Crawford, Behringer Mus., Covington, Kentucky. *Comment*: another sample from this site was dated at 1975 ± 200 (M-908, Michigan V). Dimensions and shape of the tube pipe are identical with the one found in the Adena Mound excavation by W. C. Mills (1902, p. 461). The Gaines Mound pipe has mica inlaid in natural asphaltum around the larger opening.

M-940. Brown's Mount (5Bi:10), Georgia 970 ± 150

Wood charcoal (apparently remnant of burned roof timbers) from Brown's Mount (32° 46' 18" N Lat, 83° 34' 12" W Long), S of Macon, Bibb County, Georgia. Sample taken at 8 to 10 in. below ground surface from the interior of a circular, baked clay hearth, 36 in. in diam and 12 in. deep. Hearth occurred in center of a prepared red-clay floor, 2 to 4 in. thick, which overlay a layer of dark humus earth containing charcoal flecks and a few flint chips. Post-mold pattern on floor indicates a structure roughly 12 ft sq with a tunnel-like entrance way, ca. 13 ft long and 30 to 36 in. wide. A few sherds of pottery, id. as Bibb Plain, were found on the red-clay floor, where one sherd of Etowah Complicated Stamped was also found. Coll. 1959 by R. T. Bray, J. W. Walker, and R. A. Marshall; subm. by Marshall, then Director of the Macon Youth Mus., Macon. *Comment* (R.A.M.): site is considered a component of the Macon Plateau Period of central Georgia. Preliminary estimated dates were from A.D. 900 to 1500.

Etowah series, Georgia

Charcoal, burnt vegetable material, and charred wood from the Etowah Site (34° 05' N Lat, 84° 50' W Long), 3 mi S of Cartersville, Bartow County, Georgia. This large Mississippi culture center in NW Georgia is particularly important in determining the climax period of SE ceremonial activities (Kelly and Larson, 1957). Coll. summer 1958 and subm. by L. H. Larson, Jr. for the Georgia Hist. Comm. See Michigan IV and VI for additional dates from this site. This completes the series of dates from site.

M-1060. Etowah, Mantle no. 2 225 ± 150

Burnt vegetable material (cat. no. 748) from surface of Mantle no. 2 directly beneath the final mantle at Mound C, Etowah Mounds. This should date the construction of the final mantle.

M-1061. Etowah, Burial no. 155 670 ± 200

Charcoal from Burial no. 155, Mound C, Etowah. This should date Mantle no. 2 (next to last mantle).

M-1062. Etowah, Burial no. 164 450 ± 200

Charred wood (cat. no. 2025) from Burial no. 164, Mound C, Etowah. This should date mantle no. 3 (3rd from last mantle). *Comment* (E.S.D.): out of order with M-1061, and apparently significantly younger than M-542 (910 ± 200, Michigan IV) the oldest date obtained, and accepted as the best estimate of the age of Mantle no. 2. Note, however, that single measurements can easily be in error by 500 yr, as a result of variation of atmospheric C¹⁴ by 3% (Willis, et al., 1960). C¹⁴ dating should probably not be applied to sites as recent as Etowah, but the whole series suggests a date (or time span) of 11th to 15th centuries A.D., in close agreement with estimates made before C¹⁴ dating.

M-1046. Halloca Creek Site, 9 CE 4, Georgia 2020 ± 150

Charcoal from Pit 3, H-2, Halloca Creek Site (32° 20' 55" N Lat, 84° 47' W Long), Fort Benning Mil. Reservation, Georgia. Associated with Early Swift Creek pottery. Coll. 1957 and subm. by A. R. Kelley, Univ. of Georgia, Athens.

Mandeville Site series, 9 CLA 1, Georgia

Charcoal from Mound A, Mandeville Site (31° 40' 06" N Lat, 85° 05' 28" W Long), Clay County, Georgia. This is a multiple occupation site beginning with Swift Creek and ending with a Late Mississippi culture. Coll. summer of 1959 and subm. by A. R. Kelly.

M-1043. Mandeville Site, Layer 1, Feature I 1030 ± 150

Charcoal (sample no. 7789) from Mound A, 90 R-90; Feature no. 1, Layer no. 1. *Comment*: (J.B.G.): this is attributed to the terminal or peripheral lenses of the south profile of Mandeville I.

M-1042. Mandeville Site, Layer 1, Feature 3 1960 ± 150

Charcoal (sample no. 7787) from Mound A, 140 LO, Feature no. 3, Layer 1. *Comment* (J.B.G.): this is attributed to the pre mound village of the North profile and is regarded as a Late Deptford occupation.

M-1044. Mandeville Site, Layer 3 1420 ± 150

Charcoal (sample no. 7795) from Mound A, 40-50 LO, 6 to 12 in. depth, Layer 3. *Comment*: Swift Creek occupation or Mandeville II.

M-1045. Mandeville Site, Layer 4 1460 ± 150

Charcoal (sample no. 7797) from Mound A, Block 60 LO, NE corner, Layer 4. *Comment*: Swift Creek occupation or Mandeville II.

Russell Cave series, IJAL81, Alabama

Charcoal from Russell Cave (34° 58' 37" N Lat, 85° 48' 32" W Long), Doran Cove, Jackson County, Alabama. The cave, as described by Broyles (1958) and Miller (1958), has been partially tested, and will be described by Miller. Samples dated in this series cover a range from the earliest cultural manifestation so far uncovered to a Middle Woodland occupation (see Michigan, III, IV, VI). Coll. and subm. by C. F. Miller, Smithsonian Inst., Washington, D. C.

M-849. Russell Cave, 14 ft level (?) 1220 ± 150

Sample from Square 5a-6a at a depth of 14 ft, from a large fire basin out of which 5 qts. of charcoal were obtained. Date should agree approximately with M-848, 1 ft deeper in the same square. *Comment* (C.F.M.): date is much too young and sample appears to have been mislabeled. If this sample is exchanged with M-845 (8750 ± 500 , Michigan VI), attributed to the 2 ft level in Square 10 and associated with Middle Woodland material, the whole series is in correct relation.

M-848. Russell Cave, 15 ft level 8430 ± 550

Charcoal recovered from Square 5a-6a at a depth of 15 ft, from a large fire basin. Should date the terminal stage of early man and/or the transitional phase leading to early Archaic. *Comment* (E.S.D.): culturally and chronologically between M-766 (9020 ± 350 , Michigan IV) and M-847 (8350 ± 500 , Michigan VI).

Bryant's Landing series, Alabama

Shell from Bryant's Landing Shell Mound no. 4 ($31^{\circ} 2' 54''$ N Lat, $87^{\circ} 53' 30''$ W Long), on E side of floodplain of Tensaw River near Stockton, Baldwin County, Alabama. The shell (occupation) levels shown at Bryant's Landing are sharply separated by flood deposits. Each shell layer contains distinctly different pottery types except for the bottom one (Level IV) which did not contain pottery. Coll. and subm. in 1958 by E. B. Trickey, Chickasaw, Alabama, except M-1108 which was received April, 1960.

M-821. Shell Mound no. 4, Level I 1080 ± 150

Shell (*Rangia cuneata* Gray, id. by Barry Miller, Univ. of Mich., Ann Arbor) from Level I. This level contains abundant pottery, all of the West Florida Cord Marked type, related to the widespread Mulberry Creek Cord Marked type of Alabama and the adjacent Mississippi region.

M-822. Shell Mound no. 4, Level II 2040 ± 150

Shell (*Rangia cuneata* Gray; id. by B. Miller) from Level II. This level contains abundant plain sand-tempered pottery and small amounts of a rocker-stamped type, Alligator Bayou Stamped.

M-823. Shell Mound no. 4, Level III 3090 ± 200

Shell (*Rangia cuneata* Gray, id. by B. Miller) from Level III. This level contained a few sherds of Bayou la Batre Stamped and one of Bayou la Batre Scallop Impressed.

M-824. Shell Mound no. 4, Level IV 4100 ± 250

Shell (*Rangia cuneata* Gray, id. by B. Miller) from Level IV. This level contained no pottery, and represents an early pre-pottery occupation.

M-1108. Shell Mound no. 4, Modern 550 ± 150

Shells (*Plectomerus dombeyanus* Valenciennes and *Glebula rotundata* Lamarck, id. by B. Miller) from Tensaw River near shell mounds. *Comment* (J.B.G.): date from modern shell was to be used as a control (See Michigan I,

p. 664 for a discussion of isotopic fractionation). Trickey was requested to submit modern shell of same species from the river near the shell mound. This date may perhaps be subtracted from other samples to get correct date. *Comment* (E.S.D.): single control is not necessarily valid. Modern freshwater shells from Ohio and Pennsylvania averaged ca. 4000 yr old (L-448, $\Delta C^{14} = -328\text{‰}$, Lamont VI). The dated *Rangia* shells were estuarine, however, and their C^{14} content when alive is impossible to predict.

M-1014. Summer Haven Site (SJ-46), Florida 3330 ± 200

Marine shells from Test Pit I, Square B, 18-to-24-in. level, Summer Haven Site (29° 42' N Lat, 81° 13' W Long), St. Johns County, Florida. Steatite sherds were found above and below. Many Orange Incised sherds with flat decorated lips occurred in the 36-to-42 in. level. Coll. July 1959 and subm. by R. P. Bullen, Florida State Mus., Gainesville.

C. Northeastern United States and Canada

M-1076. Sackett Site, New York 820 ± 150

Charcoal from Sackett or Canandaigua Site (42° 53' 03" N Lat, 77° 18' 05" W Long), an Owasco (Late Woodland) site, Ontario County, New York. Sample from an area ca. 2 ft in diam in gray ash bed ca. 1 in. thick under dark refuse soil mantle at depth of 10 to 14 in. below surface in section W 90 N 90. Coll. 1959 and subm. by W. A. Ritchie, New York State Mus., Albany, who has discussed prior excavation of this site (1936). *Comment*: date agrees fairly well with previous dates for Owasco material from Bates Site (M-762, 660 ± 200, Michigan IV). Early Owasco material has been dated from the Snell Site (M-178, 1170 ± 200, Michigan II), White Site (M-176, 1050 ± 250, Michigan I), and Maxon-Derby Site (M-1077, 860 ± 150, this date list).

M-1077. Maxon-Derby Site, New York 860 ± 150

Charcoal associated with hearths from Maxon-Derby Site (43° 03' 42" N Lat, 76° 26' 46" W Long), an Owasco station, Onondaga County, New York. Specimen is composite sample from five small hearths (Features 12, 13, 15, 16, and 17) in what is apparently a rectangular house floor in sections E 20 N 10, E 10 N 10, and E 20 N 0. Coll. 1959 and subm. by W. A. Ritchie. *Comment*: date falls within the expected range for this early Owasco station. The large oblong houses at this site are the earliest of their type known in the area, and represent a possible change in social organization. Such oblong houses may be prototypical to the Iroquois longhouse.

M-1078. Barren Island Site, New York 3370 ± 200

Charcoal associated with hearth from Barren Island Site (42° 28' 05" N Lat, 73° 47' 13" W Long), Albany County, New York. Sample from hearth in subsoil, extending from 21 to 29 in. below surface, under three soil horizons. Lowest soil horizon from which hearth pit in subsoil was evidently dug, extended from 11 to 21 in. below the surface of the site and yielded stone artifacts of Laurentian type. Coll. 1959 by E. B. Christman; subm. by W. A. Ritchie. *Comment*: an early Laurentian component in the mid-Hudson Valley dated 4480 ± 300 (M-287, Michigan II).

M-1083. Mill River Site, Massachusetts **1900 ± 200**

Wood charcoal from the Mill River Site (42° 5' N Lat, 71° 31' W Long), Mendon, Massachusetts. Sample from bottom of a refuse pit at depth of ca. 4 ft in association with a projectile point. Coll. 1959 and subm. by S. M. Roop, Bellingham, Mass. *Comment:* this Archaic site has yielded ca. 800 artifacts, including eared projectile points, pestle, plummet, gouge, drills, and one steatite sherd. No ceramic sherds were found.

M-1085. Manico Point, Canada **2225 ± 200**

Kelp peat from a depth of 1.6 to 2.0 m below surface in an exposure of Pleistocene glacial and marine sediments in a wave-cut cliff at Manico Point (63° 33' N Lat, 85° 39' W Long), Southampton Island, Hudson Bay, Canada. The peat bed, 2 to 5 cm thick, overlies a thick bed of well-rounded gravel, apparently outwash, but underlies sand and coarse slabby gravel containing shells of *Mytilus edulis* that in turn are overlain by beach ridges of the 15-m (50 ft) terrace. Coll. August 1957 and subm. by W. J. Wayne, Indiana Geol. Survey. *Comment:* peat bed probably was underneath the sea, and the 15-m terrace was formed, at the time Paleo-Eskimos of the Dorset Culture were present on the Island (cf. Bird, 1953, p. 69). The Sadlermiut Culture remains are on a lower, 7.5 m (25 ft) terrace, one abandoned Sadlermiut village site being only a mile away. The peat bed antedates and should provide a maximum date for Sadlermiut Culture on Southampton Island as well as minimum date for Dorset Culture.

D. United States Plains

Samples from Nebraska and S. Dakota were submitted as part of Missouri Basin chronology program by R. L. Stephenson, Smithsonian Inst., Washington, D. C.

Walker Gilmore Site series, 25CC28, Nebraska

Charcoal from Walker Gilmore Site (40° 54' N Lat, 95° 50' W Long), Cass County, Nebraska. Coll. 1956 by Franklin Fenenga for the Lab. of Anthropol., Univ. of Nebraska; subm. by J. L. Champe, Univ. of Nebraska, Lincoln, who has summarized the site (1946).

M-1130. Walker Gilmore Site, terrace **6090 ± 500**

From F1250, a fireplace in the T1 terrace-fill. This specimen dates the oldest known occupation, as well as the deposition of T1 terrace-fill at this site.

M-1129. Walker Gilmore Site **1030 ± 150**

From F1661, an ash lens (W. D. Strong's no. X10). This specimen provides a date for Sterns Creek component, which underlies Nebraska Culture remains at this stratified site (Strong, 1935).

Arzberger Site series, 39HV6, South Dakota

Charcoal and bone from the Arzberger Site (44° 20' N Lat, 100° 12' W Long), Hughes County, South Dakota; a large fortified site in the Missouri Valley, described by Spaulding (1956). Coll. and subm. 1959, by J. L. Champe.

M-1126. Arzberger Site, X28 500 ± 150

Charcoal from X28, a fireplace in the center of larger circular depression in the NE quarter of site. Many fine hairline rootlets in sample. Remains including architecture indicate cultural influences from both the northern and the central Plains. *Comment*: this is the preferred specimen; M-1126a was less certainly related to the construction of the fort.

M-1126a. Arzberger Site, X26 and X25 430 ± 200

Charred and uncharred bone, and charcoal. Charcoal had many fine rootlets and these were removed by hand as much as possible. Total sample after acid treatment weighed 5 g. From X26, a large circular depression supposedly part of a bastion, S of X28 and X25. *Comment*: despite suspicion of reoccupation, virtual identity of the two dates suggests that a single component is represented as Spaulding (1956) thought.

Lynch Site series, 25BD1, Nebraska

Charcoal from the Lynch Site (42° 50' N Lat, 98° 28' 30" W Long), Boyd County, Nebraska. A large ceramic sample was obtained from this site. Much of the material is like that reported from the Arzberger Site (Spaulding, 1956) in South Dakota, but there is a small amount of Oneota pottery. Specimen M-842 (250 ± 150, Michigan V) probably represents the Oneota occupation of the site. Site is discussed by Freed (1954). Coll. 1959 by T. A. Witty for the Lab. of Anthropol., Univ. of Nebraska; subm. by J. S. Champe.

M-1127. Lynch Site, X65 540 ± 200

From X65, House 3 (cat. no. 11757, 11759, 11760). *Comment*: should date the occupation of this circular house.

M-1128. Lynch Site, X52 820 ± 200

From X52, House 1 (cat. no. 11767).

M-1079a. Crow Creek Site (39BF11), South Dakota 560 ± 150

Charcoal, Lot no. 1 (cat. no. 39BF11-30996) from a single post (post 46) in house, Feature 100, Crow Creek Site (43° 59' 50" N Lat, 99° 19' 54" W Long), Fort Randall Reservoir, Buffalo County, South Dakota. Sample is from Wolfe Creek Component. Coll. August 1955 and subm. by M. F. Kivett, Nebraska State Hist. Soc., Lincoln. *Comment*: the Wolfe Creek Component at this site, possibly attributable to the Campbell Creek Focus, may be one of the earliest of the occupation in this area that followed the long-rectangular house period. An earlier component at this site (Over Focus), characterized by a long-rectangular house, has been dated at 900 ± 200 (M-836, Michigan IV).

M-1080a. Good Soldier Site (39LM238), South Dakota 2380 ± 150

Charcoal, Lot no. 1, (cat. no. 39LM238-24) from the Good Soldier Site (44° 02' 30" N Lat, 99° 27' W Long), Lyman County, South Dakota. Sample from Feature 4, an oval pit in the third soil stratum below present surface of Square N 125 W 50, at 2.0 ft below present ground surface. This is a Plains

Woodland complex. Coll. 1958 by R. W. Neuman, Missouri Basin Proj., Smithsonian Inst.; subm. by R. L. Stephenson. *Comment* (R.W.N.): archaeological specimens associated with this sample suggested a later date.

M-1082. Fay Tolton Site (39ST11-88), South Dakota 860 ± 150

Wood (cat. no. 39ST11-88) from the Fay Tolton Site (44° 45' N Lat, 100° 41' W Long), Stanley County, South Dakota. Sample from house post in a small, long-rectangular house (Feature 2). Coll. 1957 by D. D. Hartle, Missouri Basin Proj., Smithsonian Inst.; subm. by R. L. Stephenson. *Comment*: Specimen dates the unusually small house type characteristic of this fortified site and also the cord-paddled pottery complex associated with it.

M-1081. Logan Creek Site (25BT3), Nebraska 7250 ± 300

Charcoal (cat. no. 1938) from Logan Creek Site (41° 49' N Lat, 96° 28' W Long), Burt County, Nebraska. Sample from section N 40 E 5 in Zone 0 at the site. This zone is the lowest of four zones which have produced lithic material tentatively designated as the Logan Creek complex. Sample should provide an initial date for the complex. Coll. July 1959 by M. F. Kivett and D. Gradwohl, Nebraska State Hist. Soc.; subm. by Kivett, who has described the site (1959). *Comment*: sample from Level B, the second-lowest lithic culture stratum, has been dated at 6633 ± 300 (M-837, Michigan V).

M-1065. Wittrock Site (130B 4), Iowa 525 ± 150

Charcoal from Post Mold no. 2, Wittrock Site (42° 58' 08" N Lat, 95° 25' 05" W Long), O'Brien County, Iowa. Post Mold no. 2 is from Square W 20B, 30 to 32 in. level. Coll. July 1959 and subm. by R. J. Ruppé, State Univ. of Iowa, Iowa City, who mentions site (1959). *Comment* (R.J.R.): the Mill Creek occupation at this site should be quite late, perhaps A.D. 1500 or later.

M-984. Hill Site (13ML 62), Iowa 7250 ± 400

Plant material, apparently wood charcoal from hearth, Hill Site (41° 10' N Lat, 95° 47' W Long), Mills County, Iowa. Sample from hearth, Feature no. 2, Square SW-1B. It occurred 17 ft below the original surface of the alluvial terrace in which the culture horizon was exposed as the result of channel straightening on Pony Creek. The overburden had been stripped away by dozers; depth was determined by leveling to undisturbed terrace remnants on either side. Coll. August 1958 by D. Henning; subm. by W. D. Frankforter, Sanford Mus., Cherokee, Iowa. Frankforter (1959a, 1959b) and G. A. Agogino and Frankforter (1960) have discussed the site. *Comment*: cultural material similar to lower levels at Modoc Shelter and to lower levels at the Logan Creek Site. Sample M-837 (Michigan V) from Level B, Logan Creek dated 6633 ± 300. See Fowler (1959, p. 17-20) for dates from Modoc Shelter.

Wilson Butte Cave series, Idaho

Charcoal and wood from Wilson Butte Cave (42° 46' N Lat, 114° 13' W Long), Jerome County, Idaho. Subm. by Ruth Gruhn, Idaho State College, Pocatello, who reported on the site (1961).

M-1143. Wilson Butte Cave, T8 S6 2940 ± 200

Charcoal from Square T8S6, 67 cm W and 94 cm S of Stake T7S6, 37 cm below Stake T7S6 in Stratum B. Dates an occupation level in the middle part of Stratum B at the rear of the cave. Coll. by Ruth Gruhn.

M-1144. Wilson Butte Cave, T8 S1 940 ± 150

Charcoal from Square T8S1, 40 cm S and 58 cm W of Stake T8S1 at a depth of 41 cm below Stake T8S1 in Stratum B. Dates a hearth in upper part of Stratum B at mouth of cave. Coll. by Ruth Gruhn.

M-1087. Wilson Butte Cave, Stratum C 6850 ± 300

Charcoal, from silt in upper part of Stratum C, whose center is located 235 cm W and 142 cm N of Stake T10S1 at a depth of 135 cm below stake T10S1, near front of cave. Coll. by A. M. Byrd. *Comment*: associated with Assemblage III.

M-1088. Wilson Butte Cave, Dietrich Phase 425 ± 150

Wood from middle part of Stratum B, 25 to 70 cm N and 190 to 225 cm W of Stake T9S5, at depth of 40 to 45 cm below stake T9S5, at rear of cave. Coll. by Catherine Williams. *Comment*: latest cultural period in cave, Dietrich Phase.

LoDaiska Site series, Colorado

LoDaiska Site (40° 25' N Lat, 105° 20' W Long), in the foothills near Denver, Colorado is stratified and exceptionally interesting because of its perishable materials. The occupation is quite complex, representing a succession of cultural influences from the Great Basin and Plains areas. The earliest evidence of man consists of the base of a parallel-flaked point and associated chips in Late Wisconsin outwash gravels. The next occupation is of Great Basin origin, including some traits strikingly similar to Danger Cave and various Oregon materials. Following this the site was inhabited by people using Duncan points and a variant of the McKean point and with an assemblage of traits similar to the McKean Site and Signal Butte I. Next came a period of occupation by people with a "Woodland" affiliation, evidently a semi-agricultural phase of Late Plains Woodland. Closest resemblances of the potsherds are to Harlan Cord-Roughened types. The final occupation by the Fremont culture of western Utah and northern Colorado, began during the latter half of the preceding phase and continued after its end. Coll. 1957 and subm. by Henry and Cynthia Irwin, Peabody Mus., Harvard Univ., Cambridge (Irwin and Irwin, 1959; 1961).

M-1002. LoDaiska Site, 40-to-50-in. level 1260 ± 150

Charcoal (sample no. 1) from Square J8, depth 40 to 50 in., from Hearth H, a rather deeply excavated feature. Probably represents the period of occupation ca. 40 in. below datum.

M-1003. LoDaiska Site, 43-to-52-in. level 970 ± 150

Charcoal (sample no. 3) from Square 08-9, depth 46 to 50 in., in a small

ash-charcoal lens, unassociated with a hearth and probably a remnant of a single brief fire; combined with sample no. 4 from Square L10, depth 43 to 47 in., in a small lens of charcoal unassociated with a hearth; and with sample no. 5 from Square J9, depth 48 to 52 in., the remains of a former fire but not definitely a hearth. *Comment*: these combined samples come from the lower level of Complex A or top of B suggesting an end date for Plains Woodland culture (Ash Hollow Focus?) in the area.

M-1004. LoDaiska Site, 62-to-64-in. level 3400 ± 200

Charcoal (sample no. 7) from Square K10, depth 62 to 64 in., occurred scattered and is perhaps the remains of a fire, or, more probably, of a charred log. Artifacts at this depth are so-called "Middle Period" (Mulloy, 1952) culture with apparent McKean and Signal Butte I affiliations.

M-1005. LoDaiska Site, 58-to-60-in. level 1150 ± 150

Charcoal (sample no. 28) from Square J9, depth 58 to 60 in., occurred as a concentration but not in connection with a hearth. *Comment*: date appears to pertain to Complex B (Plains Woodland), the lower limit of which was arbitrarily established at 53 in. below datum. This limit can and probably should be set deeper in view of this date.

M-1006. LoDaiska Site, 68-to-76-in. level 3150 ± 200

Charcoal (sample no. 8) from Square 08-9, depth 70 to 74 in., found directly below Hearth F but did not appear to have been associated with it; combined with sample no. 9 from Square J9, depth 68 to 72 in.; with sample no. 12 from Square K9, depth 74 to 76 in.; and with sample no. 13 from Square K9, depth 72 to 74 in., which was scattered but may represent remnants of a fire. *Comment* (J.B.G.): these combined samples were all from the same "level" attributed to "Middle Period" Culture with elements similar to Signal Butte I. There are some artifact types in this level which persist from the earlier occupation.

M-1008. LoDaiska Site, 70-to-74-in. level 1150 ± 150

Charcoal (sample no. 14) from Square K11, depth 70 to 74 in., in a concentration of charcoal with no indication of a hearth. *Comment*: sample belongs to the time of Complex B and its stratigraphic displacement must have been due to aboriginal disturbance.

M-1009. LoDaiska Site, 90-to-94-in. level 4840 ± 250

Charcoal (sample no. 19) from Square K11, depth 90 to 94 in., with no apparent hearth; combined with sample no. 22 from same location. Both samples came from the middle of the layer containing artifacts of Great Basin-like culture. *Comment*: typological comparison suggests close parallels with Level III of Danger Cave, for which a wide time range is possible. Several fragmentary remains of a primitive type of Chapalote maize were recovered from this layer; preliminary analysis confirms the presence of maize pollen below the first macrofossil.

Santa Rosa Island series, California

Charcoal and Red Abalone shells from Santa Rosa Island (34° 00' 30" N Lat, 120° 10' 02" W Long), 45 mi off the coast of California. This has been the site of extensive archaeological and paleontological excavation. Wormington (1957) and Orr (1956) mention additional C¹⁴ dates from the island.

M-1132. Santa Rosa Island, Site 131.5, Survey Point >25,000

Charcoal from Survey Point, NW of Santa Rosa Island. Sample from ca. 45 ft above datum at Survey Point, ca. 11 ft above remains of dwarf mammoth (S.B.M.N.H. no. 240) which was dated at 29,750 ± 2500 (L-290r, Lamont IV). Coll. June 1960 by J. B. Griffin, P. C. Orr, Santa Barbara Mus. of Nat. History, L. S. Cressman, Univ. of Oregon, K. O. Emery, Univ. of S. Calif., and W. A. Davis, W. Speleological Inst.; subm. by P. C. Orr. *Comment* (P.C.O.): should date lower black soil band, containing some cultural material in the Tecolote member of the Santa Rosa Island formation as discussed by Orr (1960).

M-1133. Santa Rosa Island, Site 131.173, "Jennings Pit"**7350 ± 350**

Red Abalone from 130 in. below surface in "Jennings Pit," Arlington Springs, Arlington Canyon, NW coast Santa Rosa Island. Shell was impressed into the top of lower black soil, with its outer surface down and the nacreous surface filled with gray sand. Coll. June 1960 by J. B. Griffin; subm. by P. C. Orr. *Comment* (P.C.O.): Red Abalone shell is an indication of cultural occupation at the time of the completion of the deposition of the black humus at the top of Tecolote member (Orr, 1960).

M-1134. Modern shell, San Nicolas Island, California**275 ± 150**

Fresh Red Abalone (RC no. 242) from offshore, San Nicolas Island, California (ca. 33° 20' N Lat, 119° 30' W Long). Collected by a commercial fisherman, Pierce Brothers Fisheries, and obtained by W. A. Davis; subm. by P. C. Orr. *Comment*: collected at the request of J. B. Griffin for control purposes. This is the modern living shell of same species as M-1133.

M-885. Hollister Site, California**250 ± 150**

Charred wood and textile (UCMA no. L17480) from the Hollister Site (38° 18' N Lat, 121° 28' 30" W Long), Sacramento County, California. Sample from grave-pit-burnings of Burials 24 and 28 (mixed) found at depths of 37 and 42 in., respectively, in deposit built up by more than one culture. The burial offerings were homogeneous, however, and represent middle Phase 1 of the Late Horizon Culture (Beardsley, 1948). Coll. 1937 by Franklin Fenenga and J. B. Lillard, Sacramento Junior College; subm. by J. A. Bennyhoff, Univ. of California, Berkeley. *Comment* (J.A.B.): sample M-866 from this site and phase dated 510 ± 150 (Michigan V). There has been disagreement with this

and other dates obtained from middle Phase. The preferred dates are M-865 from Hotchkiss Site, dated at 925 ± 150 (Michigan V); C-689 from Hotchkiss Site, dated at 1229 ± 200 (Chicago V); and M-886 from Glen Cove Site, dated at 1080 ± 200 (Michigan V). In the light of these, I believe burials from Hollister Site are at least 850 yr old, and so suggest the sample was probably contaminated.

Wildcat Canyon Site series, 35 GM9, Oregon

Charcoal from the Wildcat Canyon Site ($45^{\circ} 41' 20''$ N Lat, $120^{\circ} 29' 42''$ W Long), on the Oregon side of the Columbia River ca. 12 mi upstream from the John Day Dam, Gilliam County, Oregon. Several sections of this extensive site were excavated, including a fairly deep stratified occupation area (Area 2) and a cemetery (Area 3). Independent grid controls were used for each area, but all elevations are calculated from the same arbitrary bench mark (95 m = 263 ft above sealevel). Field evidence indicates that different parts of the site were occupied at successive periods, with probable later reuse of previously abandoned areas. The C^{14} dates support this conclusion. The results from these tests show strikingly the danger of sampling errors inherent in limited excavation of an extensive site. Coll. August 1959 by D. L. Cole, Univ. of Oregon, Eugene; subm. by D. L. Cole and L. S. Cressman.

M-1120. Wildcat Canyon Site 2025 ± 150

From Feature 101, Area 2, 25 to 26X and 37 to 39Y, elevation 76.4 m, from a fireplace associated with a complex of artifacts common in neighboring area, but differing from other materials from this site. *Comment*: sample came from the third-lowest of nine cultural levels encountered; artifact assemblage is predominantly of the Intermontane culture.

M-1119. Wildcat Canyon Site 525 ± 150

From one of many fire lenses situated 1 m below the surface, in Area 2, 23 to 25X and 33 to 35Y, elevation from 77.6 to 77.4 m. *Comment*: sample was associated with the sixth cultural level from the bottom, of the Late Columbia River culture type.

M-1122. Wildcat Canyon Site 2030 ± 150

From Feature 15, Area 3, 100.2X and 7.75Y, elevation 92.03 m, from the lowest level of the cemetery in a section producing elaborate grave goods. *Comment*: associated artifacts show Late Columbia River character but without evidence of European contact.

M-1121. Wildcat Canyon Site 4340 ± 250

From Feature 13, Area 3, 98 to 100X and 14 to 16Y, elevation 92.75 m, from a fire lens above a layer of boulders that covered the cemetery. Specimen came from a section of the cemetery that contained badly deteriorated remains and very little grave goods. *Comment*: grave goods are of a generalized type widespread throughout the region.

M-1089. Aeyerado Cave, Mexico **5560 ± 250**

Charcoal (pine wood) from Aeyerado Cave (18° 24' N Lat, 95° 20' W Long), Municipio Coxcatlan, Puebla, Mexico; from Level 8, Floor 3, Zone J of Square 1, N Sec., 1.24 m from the surface. Specimen is from a burned floor which contained crude stone artifacts of the Coxcatlan pre-ceramic complex, squash seed, and cobs of wild or incipiently domesticated maize. Coll. 1960 and subm. by R. S. MacNeish, Natl. Mus. of Canada, Ottawa. *Comment*: in later (1961) excavations, 16 corncobs were found in a layer (Zone K) under the one dated. This sample, therefore, dates a later stage in the domestication of maize, which began before this date, though probably after 5000 B.C.

M-1068. Muaco Site, Venezuela **14,300 ± 500**

Fossil bone from Muaco site (ca. 11° 45' N Lat, 69° 15' W Long), Falcón, Venezuela. Sample from E-N Sec., Trench PFCX-4, at depth of 1.85 m in a clay bed containing bones (some burned) of extinct animals from which 27 species have been id. by R. Gomez. Specimen associated with a stone scraper. Coll. 1959 and subm. by J. M. Cruxent, Mus. de Cienc. Nat., Caracas, Venezuela. See Cruxent (1961) for discussion. *Comment*: Creole Petroleum Co. of Venezuela reported to Cruxent that bone from a portion of the site that was thought to be possibly younger was dated at 16,375 ± 444.

M-737. Salla, Bolivia **410 ± 150**

Wood (sample no. 1) a fragment of a "kero" goblet, from Salla (ca. 16° 45' S Lat, 68° 01' W Long), Province Loayza, Dept. La Paz, Bolivia. Specimen recovered from an adobe grave-house. Coll. and subm. by C. P. Sangines, Bolivian Foreign Service, La Paz, Bolivia.

M-740. Site no. 1, Kanasa, Bolivia **175 ± 150**

Wood (sample no. 4) fragment of an implement, from Site no. 1 (ca. 18° 01' S Lat, 67° 01' W Long), Kanasa, Province Carangas, Dept. Oruro, Bolivia. Sample recovered from adobe grave-house no. 6. Coll. and subm. by C. P. Sangines.

*G. Far East and Pacific***M-1029. Gua Sirih, British Borneo** **425 ± 150**

Charcoal from Pit c/10, depth 6 in., Gua Sirih Site (1° 12' N Lat, 110° 32' E Long), near Serian, Sarawak, British Borneo. Coll. 1959 by W. Solheim, Univ. of Hawaii, and T. Harrison, Sarawak Mus., Sarawak; subm. by Harrison. *Comment*: sample was expected to give a reliable date for the top of a rich stone-age habitation layer, but it was very close to the surface and is probably contaminated by very recent material.

M-1183. Kalani Shelter (Mo. 2) Molokai, Hawaii **425 ± 150**

Charcoal from Square F12, 24 to 30 in. deep, Kalani Shelter (21° 10' 20" N Lat, 157° 10' 45" W Long), W. Molokai, Hawaii. Found at the bottom of heavy midden deposit of shells and fishbone. Coll. in 1952 and subm. by K. P.

Emory, Bishop Mus., Honolulu. Emory, Bank and Sinoto (1959) mention site. *Comment* (K.P.E.): disappointingly late, but quite within what we could have expected. Another sample, M-767 (550 ± 300 , Michigan IV) was from this island.

M-1184. Analuahine Shelter (Ma. 1), Maui, Hawaii 200 ± 150

Charcoal from Square J-11, 24-in. level, Analuahine Shelter ($21^{\circ} 01' 18''$ N Lat, $157^{\circ} 10' 45''$ W Long), Keawalua, Honokohau Dist., W. Maui, Hawaii. From bottom of a midden deposit of sea shells and fishbones. Coll. 1957 and subm. by K. P. Emory. *Comment* (K.P.E.): disappointingly late but quite within what we could expect.

H. Africa

Nsongezi Rock Shelter series, Africa

Bone and charcoal from the Nsongezi Rock Shelter ($0^{\circ} 59'$ S Lat, $30^{\circ} 45'$ E Long), immediately above the left bank of the Kagera River, where the river emerges from the Kigagati-Nsongezi gorge, Nsongezi, Isingiro County, Ankole Dist., SW Uganda (Geol. Survey Uganda, 1933). The site was found and first excavated by E. J. Wayland in 1932. In 1935 T. P. O'Brien excavated another part of it, and in 1937 C. van Riet Lowe excavated a small portion as a check on earlier results. The site was reexcavated by M. Posnansky and S. V. Pearce in 1961. Human occupation deposits are 7 to 8 ft deep. The industry is clearly Late Wilton, in quartz, of the usual sort. O'Brien (1939) believed that two stages of Wilton-Neolithic A occur in the shelter since the tool types, varying in number, are the same throughout the deposit, whereas he found pottery to be abundant in the top 4 ft and absent below. C. van Riet Lowe stated (1952) that excavation revealed a homogeneous industry from top to bottom and that potsherds were recovered at all levels. O'Brien found an iron arrowhead and an iron spear-butt in the upper 2 ft, and C. van Riet Lowe uncovered a corroded wrought iron needle at 3 ft. Posnansky and Pearce agree in general with the stratigraphy of O'Brien and found a succession of recent pottery (Bigo culture and later) in the top 3 ft, partly underlain by Dimple-based Ware at 2 to 4 ft (Posnansky, 1961a,b). Coll. by E. J. Wayland and K. Marshall; subm. by F. C. Howell, Univ. of Chicago.

M-1113. Nsongezi Rock Shelter, hearth 925 ± 150

From a hearth overlain by brown cave earth much riddled by roots and burrowing animals, 3.5 to 4 ft thick, underlain by rich occupation layers, with shells, bones and stone artifacts, 1.5 ft thick. Hearth not more than 6 in. in thickness at its maximum. *Comment*: provides a date for the Dimple-based pottery of East Africa and corresponds well with estimates arrived at from Uganda and Ruanda. The Ware is the earliest Iron Age pottery of East Africa and immediately post-dates or is associated with the Late Wilton of this area.

M-1114. Nsongezi Rock Shelter, level P 2 to 4 125 ± 150

From the 2-to-4-ft level at the Nsongezi Rock Shelter. Upper cave earth containing pottery with roulette decoration. *Comment*: no significance. Sample liable to contamination.

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