Chicago Radiocarbon Dates, III[1]

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THE DATES OBTAINED since the publication of the first and second date lists (*1–3*) are presented below. This list covers the period September 1, 1951, to September 1, 1952. The dates quoted are based on 5568 ± 30 years as the half-life of radiocarbon (*3*). The number of runs is indicated by the number of dates listed, unless they were merely remeasurements of the carbon obtained from an earlier combustion, in which case brackets are placed around the set of dates involved. Remeasurement always involved rewashing the sample with acid for cleaning; otherwise, separate portions of the original samples were processed and measured. Counting time has been limited to 48 hours in most cases.

The numbering of samples and the file names we have used (which appear in parentheses when two names are given) are entirely our own and not those of the donors and collaborators. We prefix "C" to our numbers to distinguish them from the sample numbers from other laboratories.

RADIOCARBON DATES

I. *Mesopotamia and Western Asia*
(Principal collaborators: R. J. Braidwood, T. Jacobsen, Richard A. Parker, and Saul Weinberg)

Our No.	Sample	Age (years)
	A. Egypt	
C-753 and C-754	*Shaheinab near Khartoum, Sudan*: This ancient site may be the clue as to whether some elements in Egyptian civilization came from Africa northward. The site is about 1200 miles from the Egyptian Fayum (Samples 457, 550, 551—the Egyptian granaries, which dated 6240 years); and the archaeological connection with the Fayum Neolithic is close. Collected in 1949 by A. J. Arkell, Department of Egyptology, University College, London. Submitted by R. J. Braidwood, Oriental Institute, University of Chicago.	

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RADIOCARBON DATES—(*Continued*)

Our No.	Sample	Age (years)
C-753	*Shaheinab Charcoal*: Two lots, one marked "N80, 20–40" and the other "066(5)."	5060 ± 450
C-754	*Shaheinab Shell*: Bivalve shells from Shaheinab, apparently in fairly unaltered condition.	5446 ± 380
	C. Iraq	
C-742	*Jarmo, Iraq (Jarmo II)*: Jarmo is an early village site in the *liwa* of Kirkuk, Iraq, midway between the towns of Kirkuk and Sulimaniyah. This site is early Neolithic and exhibits the earliest traces of an established food-producing village economy in the "nuclear" Near East. Only the upper third of the site yielded portable pottery, but there was a well-established architectural manifestation throughout the 7.10 m of depth, and traces of about a dozen "floors," or building renovations. An excavation labeled I was made clear to virgin soil near one edge of the mound. Eight floors were found. A second excavation, labeled II, was made at the highest point. This went down 4 m through the sixth floor, which is still 3.2 m above virgin soil. The sixth floor of II is equivalent to the third floor of I, and the second floor of II is equivalent to the first floor of I. The earlier Jarmo sample (113), consisting of shell, came from the seventh floor of I. It dated at 6707 ± 320 years. The present sample, consisting of flecks of charcoal collected by the pickmen as they cleared the levels, came from the same spot as the earlier shell sample. Especially for the deep floors, such as the seventh, the character of the fine-grained *touf* debris and of the *touf* walls themselves was such as to give absolute confidence in the undisturbed nature of the locality. Collected and submitted by R. J. Braidwood.	6606 ± 330
C-743	*Jarmo, Iraq (Jarmo III)*: Charcoal from fifth floor of	6695 ± 360

Our No.	Sample	Age (years)
	excavation II (*cf.* Samples 742 and 113). Submitted by R. J. Braidwood.	
II.	*Western Europe* (Principal collaborators: H. L. Movius, Jr., E. S. Deevey, Jr., and R. F. Flint)	
F.	*Netherlands*	
C-621–C-627	*Dutch Prehistoric*: Charcoal and wood samples covering a considerable range in the chronologic column of the Netherlands beginning in the Mesolithic (627). Submitted by A. E. van Giffen, director, Biological-Archaeological Institute, Groningen.	
C-627	*Dutch I*: Charcoal from Mesolithic site in the Netherlands. Donor's label: "Haule I Fr. Mesolithic, Netherlands, *ca.* 5000 B.C." Donor's sample No. A.	7965 ± 370
C-623	*Dutch Bronze Age*: Charcoal from Province of Drente, thought to be of Bronze Age. Donor's label: "Oudemolen, Comm. Vries, Prov. Drenthe, Tumulus 3. 2-period-barrow. Bronze Age." Donor's sample No. 15.	2523 ± 200 2602 ± 290 Av 2562 ± 175
C-621	*Groningen*: Wood from round church at St. Walburg in tower of Groningen. Piece of wooden post. Earliest ecclesiastical construction at St. Walburg can be dated at the third century A.D. at the latest. Possibly some buildings existed on this site as early as the second century; it is important to know whether such structural features are actually associated with early churches in the Netherlands.	2222 ± 200
G.	*Iceland*	
C-749	*History of the Geomagnetic Field, Reykjavik, Iceland (Iceland Peat)*: The direction of the earth's magnetic field is recorded by solidifying lavas, as of the time of solidification, by the permanent polarization of the lava. Near Ellidhaá Bridge near Reykjavik, a lava flow occurs with polarization roughly parallel to the present geomagnetic field. It happened to flow over postglacial peat, which constitutes the sample. Its date correlates directly with that of the flow. Submitted by B. C. Browne and J. Hospers, Department of Geodesy and Geophysics, Cambridge University, England.	5300 ± 340
III.	*United States and Canada* (Principal collaborators: E. S. Deevey, Jr., R. F. Flint, J. B. Griffin, R. F. Heizer, F. Johnson, F. H. H. Roberts, and W. S. Webb.)	
A.	*Canada*	
C-608	*Burley Site, Lake Huron*: Charcoal from Occupational Horizon No. 1 from the Burley Site, located on the northern terrace, formerly mouth of the Ausable River, about 1 mi from Lake Huron. This was an old Indian dwelling site. The profile is: (*a*) sand below the 12′ level above the lake; (*b*) Occupational Horizon No. 1, consisting of dark sand of the most ancient occupational level; the charcoal, which was taken from this level, lies between the 12′ and 14′ elevations; (*c*) stratified alluvial sand with shells of fresh-water snails up to 15′–17′; (*d*) second occupational level (No. 2), ½′–1′ thick; (*e*) light-gray sand ½′–1′ thick; (*f*) dark sand of the most recent occupational horizon (No. 3); (*g*) top cover of windblown sand, 1′–2′ thick, 18′–20′ above the present lake level. It is believed that this may date from the early one-outlet stage of the Nipissing Great Lakes. Collected by W. Jury, 1950. Submitted by A. Dreimanis, University of Western Ontario, London.	2619 ± 220
C.	*Illinois, Indiana, Iowa, Kentucky, Ohio, and Pennsylvania*	
C-674	*Lake Chicago Sands, Chicago (Tolleston)*: Wood from Lake Chicago sands on University of Chicago campus, corner 58th St. and Ellis Ave., surface elevation 592′. Found in horizontal position overlain by stratified sand at depth of 14′, according to workman who found it. The section at this locality is sand stratified with some silt layers, 0′–19′; blue clay (till) with some sand and gravel, 19′–57′. Professors Bretz and Horberg, of the University of Chicago, are of the opinion that this sand represents a Tolleston and post-Tolleston lake deposit and that at a depth of 14′ the sand is probably Tolleston. Low	8200 ± 480

Our No.	Sample	Age (years)
	beach ridges superposed on the sand at the location occupy the position of the Algoma stage of the lake. Submitted by Leland Horberg, Department of Geology, University of Chicago.	
C-684	*Wilson Hopewell Site, White Co., Illinois (Wilson Hopewell)*: Charcoal from a fire pit in the corner of a log tomb in Mound Wh °6 in White Co., Ill. (Wilson Site). This fire pit was in association with 7 burials, grave goods of positive Hopewellian affiliation. There was evidence in the stratigraphic profiles that there was no intrusion into the tomb in recent times and that the charcoal is therefore of definite Hopewellian origin. There were deposits of reworked limestone throughout the fill of the mound, and the log roofing rafters over the tomb were largely discernible because of this redeposited limestone. Collected by Melvin Fowler, Illinois State Museum, Springfield. Submitted by Fred Eggan, University of Chicago.	710 ± 310 736 ± 200 Av 723 ± 180
C-675	*Plum Creek, Dyer, Indiana (Calumet)*: Wood from alluvial fill along Plum Creek near Dyer (SW¼ SE¼ sec 32, T.35 N, R.15 E). The specimen was found at a depth of about 10′ in the alluvial fill and about 2′ above the base, which was in contact with glacial fill. Fill represents the Calumet and post-Calumet deposit (Bretz, *Illinois Geol. Survey Bull. 65*, 117 [1939]), and the wood from near the base of the fill is probably of Calumet age. Shells, a mammoth tooth, and numerous fragments of deer antlers are associated. The shells, identified by F. C. Baker, differ from those found in definitely dated Tolleston sediments. Collected by H. Bretz and L. Horberg. Submitted by L. Horberg.	1850 ± 480
C-664	*Skunk River, Iowa (Ames Top Drift)*: Wood from the Ames quarry (*cf.* Samples 596, 653, which dated 11,952 ± 500 and 12,200 ± 500). This wood, unlike the earlier samples, is not from the till but from a zone about 1′ thick of stratified sand and silt lying between the upper and lower tills at a depth of 28′ from the surface. The top of this stratified zone contains	14,042 ± 1000

Our No.	Sample	Age (years)
	occasional root fragments, seemingly in place. This sample probably came from the stump of a tree that grew where it was found. Collected by Wayne Williams and Bob Tench. Submitted by C. S. Gwynne, Iowa State College, Ames.	
C-653	*Skunk River, Iowa (Ames)*: Glacial wood from the same quarry as Sample No. 596. It consisted of about 12 pieces up to 6″ in length and 1″ or 2″ in diameter. They all came originally from one piece of wood situated in a small pocket of sand in the same till as sample No. 596. The sand pocket was about 3′ above and 12′ west of the position of the other piece of wood. Submitted by C. S. Gwynne.	12,161 ± 540 12,286 ± 800 Av 12,200 ± 500
C-596	*Skunk River, Iowa (Cary II)*: Glacial wood from quarry near Ames. Found in the center of NW¼ sec 24, T.84 N, R.24 W, Story Co., on east side of Skunk River about 90′ above the valley bottom. Desiccated swell and swale upland bordering the Skunk River; maximum relief of 120′ reached about ½ mi southeast of the river, now modified by quarrying operations (see USGS Topogr. Quadr., Ames, Iowa [1914]). The stratigraphy is Mankato till about 30′ thick above the Mississippian limestone bedrock. The sample, which consisted of wood, was found about 25′ below the surface in the unoxidized zone, which was gray, dry, and very hard, and had to be blasted to remove the sample. The layer consisted of fine clay, silt, and sand, most of it with some pebbles present. The oxidized to unoxidized gradational boundary occurred about 12′ below the surface, which was covered with timber. The sample was about 3″ in diameter and 2′ long before blasting to remove. Collected by Ronald E. Wilcox, Department of Geology, Iowa State College, Ames. Submitted by R. F. Flint, Yale University.	10,369 ± 700 12,798 ± 660 Av 11,952 ± 500
C-738 to C-741	*Archaic Kentucky Indian Sites*	
C-738	*Annis Shell Mound Butler Co.*	4289 ± 300

Our No.	Sample	Age (years)
	(*Kentucky Archaic I*): Deer antler from the 1.5′, 2.0′ and 2.5′ levels at Site Bt 5, the Annis shell mound. This sample was taken entirely from a band 1.5′ thick, the top of which was within 1′ of the mound surface. It is to be correlated with Samples 116, 180, and 251 from the same mound, which gave 5149 ± 300, 7374 ± 500, and 4900 ± 250, respectively. However, 116 and 180 consisted of rather powdery shell, which was somewhat dubious; 251 was deer antler from the 6.5′ level. Submitted by W. S. Webb, University of Kentucky.	
C-739	*Annis Shell Mound, Butler Co.* (*Kentucky Archaic II*): Deer antler from the 5.5′, 6.0′, 6.5′, and 7.0′ levels. This sample came from a band 2′ thick at the bottom of the mound. Again this sample should correlate with Samples 116, 180, and 251, as well as with Sample 738. Sample 251 was from the same level. Submitted by W. S. Webb.	4333 ± 450
C-740	*Indian Knoll Shell Mound, Ohio Co.* (*Kentucky Archaic III*): Deer antler from a band ½′ thick at the 1′ level. This material is similar to Sample 254, which gave 5302 ± 300. Submitted by W. S. Webb.	4282 ± 250
C-741	*Indian Knoll Shell Mound, Ohio Co.* (*Kentucky Archaic IV*): Deer antler from the 4.5′ level, from a band ½′ thick near the bottom of the mound. The total depth of the mound is 7′. This is the same site as Samples 254 and 740. Submitted by W. S. Webb.	3963 ± 350
	D. Alabama, North Carolina, South Carolina, and West Virginia	
C-755 and C-756	*Perry Site Shell Mound, Lu°25, Tennessee River, Alabama* (*Alabama Archaic*): Deer antler from the 4′ level (Sample 755) and the 3.5′ level (Sample 756), mixed about equally to afford sufficient carbon for measurement. The Perry Site, Lu°25, Unit 1 (*cf.* Bull. 129, Bur. Am. Ethnol. [1942], by W. S. Webb and D. L. DeJarnette) was an ancient shell mound about 500 yards from the upper end of Seven Mile Island, which lies between the Wilson and Pickwick dams on the Tennessee River in Alabama. It was 200′ by 300′ and about 10′ thick at its thickest point. The archaeological stratigraphy indicates that the Alabama shell mounds began earlier than those in Kentucky (Annis and Indian Knoll; Samples 116, 180, 251, 254, 738, 739, 740, and 741). These samples, together with those from the Archaic Kentucky mounds, indicate when archaic man ceased to build shell mounds in the Southeastern U. S. Presumably this occurred when he had developed an economy independent of shellfish as a staple food supply. Submitted by W. S. Webb.	4764 ± 250
	E. Louisiana, Mississippi, Missouri, Nebraska, and Texas	
C-645, C-647, and C-649	*Soil, Red Cloud, Nebraska*; Buried soils from Schultz' Terraces Nos. 1 and 2, south of Red Cloud. Terrace 1 is thought to be 2000–3000 years old, although several buried soils of rather weak profile development exist here, and there could be a fairly wide range of age. The soil actually taken on Terrace 1 was the lower part of a sort of double profile with a very thin horizon of light-colored material separating the layers. The Terrace 2 material should correlate very closely to the charcoal date—i.e., 9000–10,000 years. A serious effort was made at all points to exclude rootlets from the sample. Samples collected in 1949 by E. C. Reed, C. B. Schultz, H. Waite, and James Thorp. The organic matter in the soils analyzed: No. 645, 0.66% C; No. 647, 0.45% C; No. 649, 0.47% C. J. W. Borland, of the Beltsville Laboratories, Division of Soil Survey, U. S. Department of Agriculture, extracted these small amounts of carbon from the soil samples, preparing barium carbonate which was submitted for analysis by James Thorp, Department of Botany. Earlham College, Richmond, Ind.	
C-645	*Soil Terrace II*: Soil sample from Terrace 2. Taken from a level about 30′ below the top of Terrace 2. Buried by loess, it came from a dark grayish-brown and rust-mottled buried soil about 18″–2′ thick. It lay	7809 ± 400

Our No.	Sample	Age (years)
	about 100 yards from sample No. 647.	
C-647	*Nebraska Soil*: Soil sample from Terrace 2. Taken from a level about 30′ below the top of Terrace 2 from a dark grayish-brown and rust-mottled buried soil about 18″–2″ thick. It lay about 100 yards from sample No. 645.	7426 ± 600
C-649	*Soil Terrace I*: Soil sample from Terrace 1. Following is a cross section from the surface down: 0″–18″, dark grayish-brown, crumb-structured, calcareous silt loam; 18″–24″, calcareous loess; 24″–36″, black, granular, calcareous silt loam (a buried soil); 36″–48″, pale-brown, calcareous loess with white line threads; 48″–84″, pale-brown calcareous laminated silt and silty clay loam; 84″–92″, light grayish-brown. calcareous silt loam with prismatic structure (a weakly developed buried soil representing a short period of slow accumulation); 92″–110″, black granular calcareous silty clay loam (black when wet; a buried soil); 110″–120″, light grayish-brown calcareous silt loam, either loess or alluvial silt; 120″–134″, dark-gray granular calcareous silty clay loam. This is the A horizon of the buried soil that was sampled (sample No. 649) (the buried soils above this level have many modern grass and tree roots); 134″–156″, prismatic calcareous heavy silt loam; 156″–216″, coarse prismatic calcareous loesslike silt loam. The flood plain of Louisa Creek lies 27′ below the top of Terrace 1 at this point.	4150 ± 350
C-698	*Kincaid Shelter, Edwards Plateau, Texas (Kincaid)*: Charcoal from the Kincaid Cave, Edwards Plateau, Texas. The cave yielded a remarkably complete sequence of archaeological and faunal stages, ranging from early man levels at the bottom to late prehistoric Indian horizons at the top. This sample is from near the top, the deeper samples having had too little charcoal to measure. This sample is from 20″ below the surface in a fire pit, Bed #6, dark-grey zone of burned rock; Square G-H: B-9 (Square	1212 ± 300

Our No.	Sample	Age (years)
	#4 near). Collected in 1951. Donor's sample No. 4. Submitted by Glen L. Evans, Texas Memorial Museum, Austin.	

F. Arizona, California, Colorado, and New Mexico

C-631	*California Crude I*: Crude oil taken from depth of 1100′ in the Tulare formation of Upper Pliocene age at the South Belridge field in Kern Co., Calif. This oil, together with that of Sample 632, is from the youngest productive horizons known to the Shell Oil Co. Submitted by M. E. Spaght, Shell Development Co., Emeryville, Calif.	Older than 24,000
C-632	*California Crude II*: Crude oil from the Upper or Middle Pico formation of Upper Pliocene age, from the Padre Canyon field in Ventura Co., Calif. The actual well was Hobson B 47-1 of the Chanslor-Canfield Midway Oil Co. This, together with Sample 631, constitute the youngest crude oil samples measured. Submitted by M. E. Spaght.	Older than 27,780
C-617	*Deep Peat Bed, San Joaquin Valley, California (San Joaquin)*: Peat from well dug by Bureau of Reclamation near Tranquillity, Calif., in studying ground water conditions of the San Joaquin Valley in connection with Central Valley Project. Peat found at depth of about 550′. A silty clay overlaid the peat, and a clay stone lay beneath it. The bed itself was about 1′ thick. The flecks of wood were not replaced. The condition described prevails over an area of three townships in this vicinity, and the clay stone underlying the peat can be traced for at least 50 miles along the central part of the San Joaquin Valley. Age was desired to fix rate of deposition of the 500′ of alluvial sediments on the valley floor. Donor's sample No. 15-16-12B. Submitted by E. F. Sullivan and Phil Dickinson, acting district managers, Bureau of Reclamation, Region 2, Fresno, Calif.	Older than 17,800
C-673	*Medicine Lake Highlands, California (Medicine Lake)*: A variety of hard pine found buried under the youngest pumice deposits of the Medicine Lake Highlands of northern California. This wood dates	[1660 ± 300 1107 ± 380] Av 1360 ± 240

Our No.	Sample	Age (years)
	the final volcanic eruptions in this country and gives a maximum age for the huge flows of obsidian found in the vicinity of Medicine Lake. Submitted by Howel Williams, Department of Geology, University of California, Berkeley.	
C-695	*Big Sur, Monterey Co., California (Big Sur II)*: Charcoal from shell midden on California coast at mouth of Willow Creek about 30 mi south of Big Sur, Monterey Co. Midden overlain by 10′ of gravels. Present beach gravels submerge 4.5′ of midden, indicating shore subsidence (*cf.* Sample 628 for another sample of charcoal from this midden. This date was 1879 ± 250). The charcoal in this sample came from the base of the midden. Submitted by R. F. Heizer, University of California, Berkeley.	1840 ± 400
C-659	*Indian Midden Shell, Lower California (Lower California Shell)*: Shell from Indian middens at Punta Clara and vicinity in Lower California. Shells were cryptochiton. Harold C. Urey measured their temperature of formation to be 15° C and concluded no oxygen exchange of importance had occurred. Submitted by Carl L. Hubbs, Scripps Institution of Oceanography, La Jolla, Calif.	1063 ± 160 716 ± 130 Av 889 ± 100
C-451	*Lindenmeier Site, Colorado (Lindenmeier)*: Charcoal obtained from a hearth in the fill of a secondary channel. Geologic evidence indicated that the age of the hearth should be approximately half that of the occupational level from which the Folsom material was taken. Submitted by Frank H. H. Roberts, Smithsonian Institution.	5020 ± 300
	G. Nevada, Oregon, and Utah	
C-657	*Newberry Crater, Oregon (Newberry)*: Charcoal from Newberry Crater, Ore. Dates the final eruption of the volcano. The pumice covering the Fort Rock Cave (sandals, sample No. 428) came from one or the other of the Newberry Crater cones. This shows whether the Fort Rock pumice is coeval with Big Pumice Cone and whether Newberry continued active after the great Mount Mazama eruption, which made Crater Lake. Charcoal from branches of wood up to 1′ in diameter lying prostrate under a cover of 3′–4′ of rhyolytic pumice from the last pumice explosion within Newberry Crater. Found at new road cut between Paulina and East Lakes, 2.5 mi west of East Lakes Forest Camp and approximately 1.5 mi southwest of the vent of the Big Pumice Cone between the lakes. The exact spot was 0.1 mi west of the turnoff to Paulina Lake Summer Homes and the same distance east of the turnoff to the IOOF Camp. Submitted by Howel Williams.	2054 ± 230
C-611, C-635, C-636, and C-640	*Danger (Lamus) Cave, Utah*: Samples from Danger Cave near Wendover, Utah. Floor of cave has beach sand 2′ thick from Lake Stansbury. This was dated at 11,453 ± 600 and 11,151 ± 570 by sheep dung and wood fragments, respectively, which were found in the sand (Samples 609 and 610). Submitted by Jesse D. Jennings, University of Utah.	
C-611	*Danger Cave III*: Charcoal from just above the sand in the lowest layers of the 15′ deposit of garbage and debris found at the cave mouth. Donor's sample No. F97FS515.	9789 ± 630
C-640	*Danger Cave VI*: Charred rat dung found on the sand. A thin layer of charred rat dung and ash was found at this level. Donor's sample No. FS619 (Feature 18 or 19).	8960 ± 340
C-635	*Danger Cave VII*: Charred bat guano, plant stems, and twigs from 18″–24″ below the current surface of the pile of debris. Donor's sample No. FS614 (Feature 17).	1930 ± 240
C-636	*Danger Cave VIII*: Charred bat guano, twigs, and plant fragments from 48″–52″ below the surface of the debris pile. Donor's sample No. FS615 (Feature 5).	3819 ± 160
	H. Minnesota, Wisconsin, and Wyoming	
C-630	*Kimberly, Wisconsin (Neenah)*: Glacial wood from Kimberly, Wis. This consisted of a tree stump approx 9″ × 5″, found about 12 years ago in an excavation at the Kimberly-	10,676 ± 750

Our No.	Sample	Age (years)
	Clark Paper Mill by workmen of the Lampert Co., of Oshkosh. Mr. Lampert gave pieces of the wood to the Oshkosh Museum. The mill is almost in a direct line with the Pointe Beach site of Two Creeks, and it is thought that it should be of Mankato age (*cf.* Samples 308, 365, 366, 536, 537, 444 355, 356, and 337). James A. Lundsted, of the Oshkosh Public Museum, and Clifford Allen, of Kimberly-Clark, described the sample. W. F. Read, of the Department of Geology, Lawrence College, examined the site on May 2, 1952. He found that the wood occurred at a depth of about 10′ in a section of varved clays 25′ thick, which extends from the surface down to the limestone bedrock. He stated that the clay is "the youngest glacial deposit of the area" and "was almost certainly deposited in a temporarily ice-dammed lake formed against the front of the retreating Valders Ice (Lake Oshkosh)." According to Leland Horberg, of the University of Chicago, this strongly indicates that the wood is of Mankato age and that it was deposited as drift-wood in the Lake Oshkosh clays. Submitted by James A. Lundsted.	
C-668	*Keyhole Reservoir, Wyoming (Keyhole Reservoir II)*: Charcoal found in a small rock shelter (Site 48CK204) that occupies the sloping shelf of the south side of the sandstone bluff west of Mule Creek and south of the Belle Fourche River. The rock shelter is known as Excavation Unit 2 (XU2). The sample was composed of 7 small lumps of charcoal (Cat. Nos. 48CK204-120, -298, -327, -338, -430, -432, -462) and one lump of charred wood (Cat. No. 48CK204-429), taken from 4 basin-shaped, rock-filled hearths and from the sand matrix enveloping these hearths, and 4 similar hearths in squares N100E20 and L110E40 (XU2). A preliminary study of the data indicates that three components —two lithic and one ceramic ("Woodland") — are represented in XU2. Segregation of these components is difficult because the "floor" of the shelf is uneven, and the overlying	2790 ± 350

Our No.	Sample	Age (years)
	deposits of fine windblown sand have been subject to inflation as well as deflation, and have been profoundly disturbed by rodent action. Tentatively, two hearth levels representing the earlier and later lithic components have been recognized. The charcoal and charred wood comprising this sample came from hearths and matrices of the "earlier" level. Four "McKean lancelate" fragments found below the level of these hearths and probably associated with them suggest that the earlier lithic components, XU2, may be contemporaneous with Level 1 in Site 48CK4 (Sample 667). Estimated age of the earlier lithic component, XU2, about 4000 years. Collected by Richard P. Wheeler and submitted by Paul L. Cooper, field director, River Basin Surveys, Lincoln, Neb.	
C-667	*Keyhole Reservoir, Wyoming (Keyhole Reservior I)*: Charcoal from a small rock shelter on the north side of the Belle Fourche River, about ¼ mi east of the Keyhole Dam. Sample was obtained from the matrix of Level 1, which was the lowest occupational stratum and lay directly on bedrock. It consisted of three small lots of charcoal (Cat. Nos. 48CK4-81, -103, -111), which were taken from squares numbered N100E15, N100E20, N100E25. The number of the site is 48CK4. Together with the charcoal, fragments of small basally notched lancelate points (the "McKean lancelate" point) and other artifacts were found. These mostly resemble some material from Signal Butte IA. Collected by Richard P. Wheeler and submitted by Paul L. Cooper.	[1660 ± 250 1295 ± 400] Av 1478 ± 200 1813 ± 300 Grand Av 1646 ± 200
	J. Alaska	
C-696	*Uyak Bay, Kodiak Island, Alaska (Kodiak Island)*: Wood from refuse midden excavated by A. Hrdlicka in 1935 on Uyak Bay, Kodiak Island. Came from the permafrost ground in the midden. Submitted by R. F. Heizer, University of California, Berkeley.	333 ± 280
	IV. *Mexico*	
C-687	*Tamaulipas, Mexico (Le Perra)*: Vegetable material	4445 ± 280

Our No.	Sample	Age (years)
	from Cave Tm.c.174. This is from the same site as Sample 207, which gave 651 ± 150 years, but this sample is well below the earlier charcoal sample. It was associated with artifacts of the Le Perra culture—the pre-pottery horizon—and should be uncontaminated culturally and physically. It was taken from 16″–22″ below the surface in Square N10W5 at Level 6 by R. S. MacNeish, National Museum, Ottawa, Canada. Submitted by Mr. MacNeish.	
V.	*South America*	
C-658	*Nazca Valley, Peru (Nazca Wool)*: Dyed wool in the form of a turban bandeau. Taken from Grave 13, Cahuachi, Nazca Valley, Peru, by A. L. Kroeber. It was at Location A and in Section Aj (*cf.* sample No. 521). Submitted by D. Collier, Chicago Natural History Museum.	1679 ± 200
VII.	*Other Areas*	
C-660	*Lonze Forest, Barotseland, N. Rhodesia (Lonze Forest)*: Charcoal from newly developed pit in the Lonze Forest, Barotseland, taken at the 5′ level (4′10″–5′3″). There was no evidence of tree roots, and it is believed the charcoal was free from root contamination. Collected by Desmond Clark, curator, Rhodes-Livingstone Museum, Livingstone, Northern Rhodesia. Submitted by H. L. Movius, Jr., Harvard University.	3585 ± 260
C-697	*Lonze Forest, Barotseland, N. Rhodesia (Kalahari)*: Charcoal from depth of 12′ in the Kalahari Sand in a pit 8′ in diameter in the Lonze Forest. The sides of the pit were scraped at 12′ to expose the charcoal. It is not a continuous horizon. The charcoal was found in 7 places. Variation in depth between the lowest and highest samples did not exceed 8″. Collected by Desmond Clark. Submitted by H. L. Movius, Jr.	6098 ± 300
C-662	*Situmpa Forest, Machili, Northern Rhodesia (Situmpa Forest)*: Charcoal from pits dug in the Situmpa Forest, taken at the 5′ level, which is tied with an archaeological locality that represents the first definitely dated archaeological horizon in this region. This should prove a clue as to the age of the Bantu penetration of Barotseland. Collected by Desmond Clark. Submitted by H. L. Movius, Jr.	4078 ± 300
C-663	*Chifubwa Stream Shelter, Solwezi, Northern Rhodesia (Rhodesian Nachikufan I)*: Charcoal from Chifubwa Stream Shelter in Solwezi. From the lowest 18″ of an orange sand and the top 4″–6″ of a Late Stone Age occupation layer containing an industry known as Nachikufan I. The sample is of considerable importance for establishing the absolute chronology for prehistoric man in Southern Africa. Collected by Desmond Clark. Submitted by H. L. Movius, Jr.	6310 ± 250
C-613	*Zimbabwe, Southern Rhodesia: (Zimbabwe)*: Large log from the famous prehistoric site of Zimbabwe in Southern Rhodesia. Zimbabwe is a rather elaborate town built by the ancestors of the modern Bantu peoples of South Africa. Generally thought to date from the fourteenth or fifteenth centuries A.D.; it may date as early as the ninth century A.D., however. It was to settle this controversy that this sample was submitted by H. L. Movius, Jr.	1415 ± 160 [1344 ± 160 1271 ± 260] Av 1361 ± 120
C-669	*Chalan Piao Site, Saipan Island (Saipan)*: Oyster shell found 1.5′ below the surface at the Chalan Piao Site, about ½ mi inland from the shore line in the undisturbed, indurated sand beds that lie along the west coast of Saipan Island. Potsherds occurred at this level, and the deposition of the sherds and shell appears to have taken place previous to a 6′ eustatic fall in sea level. Guess date, based on Godwin's dating of this fall on the south English coast, is 3000–4000 years. The outer, slightly powdery surface of the shell was removed to leave a translucent interior. H. C. Urey measured the temperature of deposition to be 27.5° C by the oxygen 18 content, which is identical with present ocean temperatures in this area. Since the shell would have been washed by fresh water, alteration would have drastically	3479 ± 200

Our No.	Sample	Age (years)
	changed this apparent temperature by changing the oxygen 18 content. Dr. Urey therefore concludes that the oxygen had not been replaced in the shell. Consequently, we believe that the carbon has not been replaced, since each carbon atom is surrounded by oxygens in the carbonate ions. Submitted by Alexander Spoehr, Chicago Natural History Museum.	
C-721	*Blue Site, Tinian Island (Tinian Blue Site)*: Shell (*Tridacna*) from the Blue Site on Tinian in the Marianas Islands, from Test A at a depth of 1.9′. At this site a skeleton was found that exhibited yaws, according to T. Dale Stewart, of the U. S. National Museum. Yaws and syphilis probably are manifestations of related forms of spirochete. The Marianas skeleton, as bearing on the existence of yaws in the Pacific prior to the historic period, is thus relevant to the larger problem of the development and spread of both yaws and syphilis. In addition, the Blue Site is representative of the major prehistoric cultural manifestation, the *latte culture*, which persisted up to the sixteenth and seventeenth centuries. How far back it goes is not known. Dating the Blue Site should furnish evidence. The excavation was conducted under the direction of Alexander Spoehr as part of the Chicago Natural History Museum Expedition in 1949–50. Submitted by him for dating.	1098 ± 145

RADIOCARBON DATES—(*Continued*)

References

1. Arnold, J. R., and Libby, W. F. *Science*, **113**, 111 (1951).
2. Libby, W. F. *Ibid.*, **114**, 291.
3. ———. *Radiocarbon Dating*. Chicago, Ill.: Univ. Chicago Press (1952).

News and Notes

American Congress on Surveying and Mapping

Official functioning of the Education Division for the first time since its creation last year featured the 12th annual meeting of the American Congress on Surveying and Mapping in Washington, D. C., June 11–13. The new division was formed in an effort to improve curricula in colleges and universities, which now offer few courses that are at all useful in training students to enter the increasingly specialized fields of surveying and mapping, where the study of such subjects as cartography, geography, geodesy, interpretation of aerial photographs, and other particularized subjects not found in civil engineering courses are required.

Education Division papers were read on such topics as the application of graphic arts to field and office surveying, U. S. Engineers' training of surveyors and mappers, surveying techniques, and a discussion of the three years of training required by the Virginia Department of Highways before it allows its new employes to supervise road projects.

The congress this year sponsored the most extensive exhibit of surveying and mapping equipment and reproduction devices ever held. Exhibitors were present not only from the United States, but also from Canada and several European countries.

A panel discussion on "Map Appreciation and Use" was highlighted in a paper read by Phil M. Miles, Kentucky State Agricultural and Industrial Development Board, who described his state's extensive cooperative mapping project with the aid of the U. S. Geological Survey. He added a note of humor by characterizing Kentucky as the only state that gives maps to visitors "so they can find their way to the Kentucky Derby between drinks."

Other speakers were Fowler W. Barker, of the Association of Professional Photogrammetrists; John W. Cain, of the U. S. Naval Photo Interpretation Center; Floyd Brinkley, of the U. S. Renegotiation Board; George C. Northrop, of the Joint Chiefs of Staff, Department of Defense; and Robert H. Lyddan, of the U. S. Geological Survey.

Maps containing false topographic information have been issued by some nations in the past, according to Col. Northrop, who added that the U. S. has found by experience that the economic advantages of giving correct data outweigh the military disadvantages. He cited several instances during World War II in which false maps very nearly resulted in tragedy for Allied troops that were trying to help the friendly nations that had provided the maps.

The great advantages and serious problems encountered in graduating the precise circle for use in