

QUEENS COLLEGE RADIOCARBON MEASUREMENTS II

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This list contains all analysis completed since the first list (R, 1975, v 18, p 205).

Synthesis and counting are essentially the same as before except that the computer programs now employed reject sample counting intervals that fall $> 2.5\sigma$ from the mean.

Samples submitted for analysis are reviewed by a Committee consisting of W DeBoer, P Tolstoy, Anthropology, L Marcus, Biology, W S Newman, Earth and Environmental Sciences, and R Pardi, Radiocarbon Laboratory.

All results are based on the conventional half-life for ^{14}C , *ie*, 5568 ± 30 years. Results are reported in years before 1950. Errors are 1σ , based on the combined statistical counting error of the sample, background and standard. $^{13}\text{C}/^{12}\text{C}$ measurements and corrections have not been made for these samples.

ACKNOWLEDGMENTS

Sue Coughlin, Don Haarmann, and Linda Kaplan assisted in sample preparation and compiling this list. The continued support and encouragement of David H Speidel is greatly appreciated. I am indebted to L Marcus for his assistance with the computer programming.

I. GEOLOGIC SAMPLES

QC-122. USAF Montauk 1

12,290 $\pm$ 115

Peaty clay from modern bluff, US Air Force Stat, Montauk Point, New York ($41^{\circ} 03' \text{ N}$, $71^{\circ} 52' \text{ W}$), alt ca 1m MHW. Coll and subm by W S Newman, Queens Coll, CUNY, Flushing, New York. Date on acid-washed organic fragments of > 40 mesh. *Comment* (WSN): proglacial (?) lacustrine deposit above Montauk till and near base of overlying stratified drift. Top of sec includes some till lenses believed to be Late Wisconsin in age. Previous date on log from nearby locality, RL-318: $38,800 \pm 5600/-3200$.

Great Bear Swamp series

Peat from Great Bear swamp, central Albany Co, New York ($42^{\circ} 28' \text{ N}$, $74^{\circ} 03' \text{ W}$) alt ca 366m (*cf*, Connally and Sirkin, 1971). Coll and subm by R J Dineen, New York State Geol Survey, Albany, New York. HCl pretreatment only.

General Comment (RJD): upland swamp, dammed by glacial debris.

QC-148. 1, 150 to 170cm

4000 $\pm$ 100

Comment (RJD): dates middle or early Pine Zone development in this area. Sample was pooled from 2 cores at layer 150 to 170cm. Possible contamination by root penetration.

QC-149. 2, 316 to 340cm**11,590 ± 265**

Sample diluted with "dead" benzene. *Comment* (RJD): dates post-glacial lake that occupied Great Bear Swamp depression after ice retreated N to lowlands. Sample pooled from 2 cores at layer 326 to 340cm. Possible contamination by root penetration.

QC-153. Norfolk 5d**11,230 ± 200**

Shells of small pelycepod from glacial Champlain Sea, St Lawrence Lowland, Winnowed Till Sec, NE of Norfolk, New York (44° 51' N, 74° 52' W), alt 88m, depth 1.5m. Coll and subm by D R Coates, Dept Geol Sci, SUNY at Binghamton, New York. *Comment* (DRC): from beach and strandline-type deposits with sandy matrix. Previous dates on Champlain Sea samples from Brock: 10,340 ± 130, 11,000 ± 150 and 12,000 ± 200.

QC-154. Gay Head**23,900 ± 450**

Wood-charcoal from Gay Head—central S-side, mouth of Devil's den, Martha's Vineyard, Massachusetts (41° 21' N, 70° 51' W). Coll and subm by C Kaye, US Geol Survey, 80 Broad St, Boston, Massachusetts. *Comments* (CK): lignitized wood or fusain from shear plane in Cretaceous white clayey sand. (RRP): previous date on material from same locality coll by RRP, GX-3000: 23,900 +2200/-1700.

QC-159. Cape Cod 1**1) >44,000****2) >43,000**

Wood from just NE of Highland Light, N Thuro quad, Massachusetts (40° 2' 30" N, 70° 3' 40" W), approx alt 11m ASL, depth ca 26m below surface. Coll and subm by J H Hartshorn, Dept Geol/Geog, Univ Massachusetts, Amherst, Massachusetts. *Comments*: sample treated with 5% NaOH. (JHH): wood is not *in situ*. Estimated age at least 35,000 yr BP, based on previous dates in area and stratigraphic considerations.

QC-162. Mal 28-70**3400 ± 125**

Shell from esker resting on till, Malaspina glacier (59° 47' N, 140° 10' W), ca 23m ASL. *Comment* (JHH): in 1951 the esker was just beginning to emerge from beneath ice. Shells date from ice recession when sea was far N of present limits. Readvance incorporated shells first in till and then in meltwater stream gravels.

Deep sea core series

Carbonate fraction of deep sea cores V30-97 (41° 00' N, 32° 55.5' W), V22-82 (00° 32.5' S, 17° 16' W), subm by A McIntyre, Lamont-Doherty Geol Observatory, Palisades, New York. All samples were diluted with "dead" benzene.

QC-198. V30-97, 63.5 to 71.5cm**16,360 ± 220**Ca 53% CaCO₃.**QC-215. V22-182, 85 to 89cm****21,000 ± 770**Ca 95% CaCO₃.

QC-216. V22-182, 45 to 49cm **12,710 ± 190**
Ca 82% CaCO₃.

Pt Peron series

QC-191.A Pt Peron **4115 ± 105**

QC-191.C Pt Peron **3910 ± 125**

Mixed gastropods and fragments from Pt Peron, W Australia (32° S, 116° E), alt 4.5m above LWL. Coll and subm by R Fairbridge, Columbia Univ, New York. A: whole shell and fragments of whelk and cone gastropods, C: 3 large horn gastropods.

Leit's Beach, Victoria series

Shells from Leit's Beach, Victoria (38° S, 148° E). Coll by R Ward and R Fairbridge. Subm by R Fairbridge.

QC-192. Seacombe 2 **100.4 ± 1.0%**
Modern beach shells.

QC-193. Leit's Beach 3 **475 ± 90**
Pelycepod shells from midden 4.5 to 6m above beach.

QC-194. Dune Causeway 4 **1750 ± 130**
Shell midden from inner margin of fore dunes. Same pelycepod species as QC-192 & -193.

QC-195. Lagoon 6 **5980 ± 165**
Snail and clam shells from outcrop at high tide level.

Champlain Sea series

Shells from glacial Champlain Sea, NE New York State. Coll and subm by T M Cronin, Mus Comparative Zool, Harvard Univ, Cambridge, Massachusetts.

General Comment (TMC): both species could inhabit brackish water down to 5ppt.

QC-199. T C 92 **10,300 ± 180**

Mya arenaria shell, Beekmantown, New York (44° 47' N, 73° 6' W), alt 40m ASL. *Comment* (TMC): date indicates deposition near end of Late Pleistocene from sea (see Hillaire-Marcel, 1974, for a list of Canadian dates). Youngest date yet recorded for New York State (*cf*, W-1109: 10,560 ± 350, Ives *et al*, 1964) and 2nd youngest date from Champlain Valley (*cf* I-4695: 9620 ± 350, from West Bridgport, Vermont, Wasner, 1972). Most significantly, date demonstrates existence of *Mya arenaria* phase (Elson, 1969) of the sea of New York and also that *Mya* phase deposits are correlative, based on alt ASL and fauna, with deposits in Quebec that yield similar faunas and late Champlain Sea ages (*cf*, Elson, 1962, GrN-2032: 10,450 ± 80, GrN-2031: 10,870 ± 100, GrN-2034: 10,590 ± 100, all

Mya phase ages). Alt, in addition to shell date, indicates deposition at very end of Champlain Sea, just before water level regressed to present level of Lake Champlain (29m ASL). The foraminiferan, ostracode and molluscan faunas suggest brackish, subfrigid to cold temperate water conditions.

QC-200. T C 26

11,665 ± 175

Shell *Macoma balthica*, Plattsburgh, New York (44° 40' N, 73° 26' W), alt 78 to 81m ASL. *Comment* (TMC): oldest date yet obtained for Champlain Sea in USA and indicates deposition early in marine episode. Other US Champlain Sea dates are QC-153: 11,225 ± 200, Wasner, 1972, W-2311: 11,420 ± 350, I-3647: 11,230 ± 170. These date early stages of sea. Older shell dates from Canada are Gadd *et al*, 1972, GSC-1533: 12,400 ± 160, MacDonald, 1968, GSC-936: 12,000 ± 200, Lowdon *et al*, 1967, GSC-505: 11,880 ± 180. This date, along with 2 others from New York, suggest the following history for sea in Champlain Valley: rapid inundation almost immediately reaching maximum extent, gradual regression due to isostatic crustal rebound, eventual termination of marine episode as connection to marine water source closed. Three dates, all from samples located only a few km from one another but at different alts, document this history: QC-200: 11,665 ± 175, alt 79m ASL, W-1109: 10,560 ± 350, alt 55m ASL, QC-199: 10,300 ± 180, alt 40m ASL.

II. ARCHAEOLOGIC SAMPLES

Hudson River series

Charcoals from Hudson River Archaic sites, subm by L A Brennan, Briarcliff College, Ossining, New York.

QC-111. #11

5325 ± 110

3375 BC

Firepit #4, Pear tree loc, Haverstraw quad (41° 10' N, 73° 52' W), alt ca 12m, depth ca 90cm. Coll by LAB. *Comment* (LAB): dates early use of this loc where middens are extensive (*cf*, QC-109-110, R, 1976, 18, p 205-209).

QC-115. Kemey's Cove

4425 ± 110

2475 BC

Hearth, Kemey's Cove, Haverstraw quad (41° 08' N, 73° 52' W), alt ca 3m, depth ca 55cm. Coll by R Wingerson. *Comment* (LAB): sample from salvage dig, hearth was below shell midden, Taconic points were found at this level.

QC-132. Shantok Cove site

605 ± 90

AD 1395

Charcoal from hearth-pit (41° 28' 50" N, 72° 04' 38" W), alt ca 6m, depth 51 to 69cm below surface. Coll and subm by J Vetter, Dept Anthropol, Adelphi Univ, Garden City, New York. *Comment* (JV): hearth-pit was located in a "living area" adjacent to a small midden. Previous

dates from site from Isotopes, 845 ± 125 , 1035 ± 150 , 1110 ± 95 , 1190 ± 115 .

Indian Canyon 35WHB(IC-2) series

Wood charcoal and scorched wood from Indian Canyon, NW Wheeler Co., Oregon ($44^{\circ} 56' 12''$ N, $120^{\circ} 24' 05''$ W). Coll and subm by B L Gannon, Portland State Univ, Dept Earth Sci, Portland, Oregon.

General Comment (BLG): samples from fluvial terrace of E-facing canyon cliff. Should date occupational horizon of a "campsite" (food and tool preparation site) as well as truncation of fluvial strata.

QC-135. /rc-3

1460 $\pm$ 100

AD 490

Alt ca 7m, depth 1.1m. *Comment* (BLG): sample was expected to be older than IC-2/rc-2 from adjacent occupational area with vague stratigraphic relations dated Gak-3866: 570 ± 80 .

QC-137. /rc-4

1545 $\pm$ 100

AD 405

Alt ca 6.9 to 7m, depth 1.6 to 1.75m. *Comment* (BLG): age should approx IC-2/rc-3.

Jones Canyon 35WH21(IC-2) series

Wood charcoal from Jones Canyon, NW Wheeler Co, Oregon ($44^{\circ} 55' 10''$ N, $120^{\circ} 14' 30''$ W). Coll and subm by B L Gannon. *Comment* (BLG): samples define limits of occupational horizon in House Pits #1 and 2 in alluvial fan truncated by a now-ephemeral stream.

QC-134. /rc-2 House Pit #2

875 $\pm$ 115

AD 1075

Comment (BLG): previous date from neighboring House Pit #1 Gak-3867: 360 ± 80 . Artifact difference suggests different age.

QC-138. /rc-3 House Pit #2

390 $\pm$ 65

AD 1560

QC-136. /rc-4 House Pit #1

300 $\pm$ 75

AD 1650

QC-163. 15

2920 $\pm$ 115

970 BC

Charcoal from Feature Pit 23 site of Coapexco, Edo de Mexico, Mexico ($19^{\circ} 7' 32''$ N, $98^{\circ} 46' 45''$ W) alt 2600m, depth 0.85m below surface. Coll and subm by P Tolstoy. *Comment* (PT): estimated age ca 1150 BC, date later within Ixtapalucas phase (1200 BC-950 BC radiocarbon age) than expected. Date acceptable and interpretable as occupation of Coapexco lasted beyond time interval defined, EH-2 (Tolstoy, in press; 1975). EH-2 contemporaneous with Ayotla sub-phase at site Ayotla-Tlapacoya (Tolstoy & Paradis, 1970). Samples between 2nd and 3rd trampled floors near F Pit 23 were dated 1180 ± 160 BC in 1972 within EH-2.

West Northumberland Canyon series

Charcoal from Triple T Shelter, W Northumberland Canyon, Nye Co, Nevada (39° 00' N, 116° 55' W) alt 2073m. Coll and subm by D H Thomas, Am Mus Nat Hist, Dept Anthropol, New York, New York.
General Comment (DHT): similar silt/living floor sequence as Gatecliff Shelter, central Nevada.

920 ± 105
AD 1030

QC-167. 427

Unit D5, depth 10 to 20cm. *Comment* (DHT): estimated age later than AD 1300, based on cultural assoc.

1) 4320 ± 90
2370 BC
2) 4880 ± 120
2930 BC

QC-168. 432

Unit C5, depth 170 to 180cm. *Comment* (DHT): estimated age older than 1500 BC, based on cultural assoc.

5000 ± 170
3050 BC

QC-169. 415

Unit B4, depth 200 to 210cm. *Comment* (DHT): estimated age older than 1500 BC, based on cultural assoc.

6340 ± 160
4390 BC

QC-170. 443

Unit B5, depth 360 to 370cm. Sample diluted with "dead" benzene. *Comment* (DHT): estimated age should be oldest date in series based on stratigraphy.

3720 ± 95
1770 BC

QC-171. 422

Unit C5, depth 110 to 120cm. *Comment* (DHT): estimated age ca 1500 BC, based on cultural assoc.

1) 2700 ± 105
750 BC
2) 3030 ± 110
1080 BC

QC-172. 431

Unit C4, depth 100 to 110cm. *Comment* (DHT): estimated age 100 BC to AD 500, based on cultural assoc.

180 ± 130
AD 1770

QC-173. Calvary Cemetery

Shell fragments (*Ostrea virginica* and *Venus mercenaria*) from Woodside, New York (40° 44' N, 74° 56' W). Coll and subm by S Coughlin, Dept Earth & Environmental Sci, Queens Coll, Flushing, New York. *Comment* (SPC): sample possibly from a Colonial period midden exposed during excavation.

Ostego County series

Hearth charcoal from Russ site, Ostego Co, New York (42° 21' 57" N, 75° 15' 7" W), alt 319m, depth 25cm. Coll and subm by R E Funk, New York State Mus & Sci Service, Albany, New York.

General Comment (REF): flood plain of upper Susquehanna R, base of plow zone, intrusive into silt.

QC-176. B**4350 ± 170****2400 BC**

From Feature 30, Sec Eos39, Loc 2. *Comment* (REF): estimated age 1800 to 1900 BC, based on assoc on other upper Susquehanna sites.

QC-177. C**4050 ± 190****2100 BC**

From Feature 1, Sec E953, Loc 1. Sample diluted with "dead" benzene. *Comment* (REF): estimated age 3000 to 4000 BC.

Hansanlu Tepe series

Charcoal from Iron age site (37° 01' N, 45° 28' E), Azerbaigan, NW Iran, near town of Nazadeh. Samples from roofbeam of collapsed Iron age buildings of Period IVB. Coll and subm by L Winter, Dept Art, Queens Coll.

QC-183. 18A**2965 ± 165****1015 BC**

Bldg IVE

1) 2965 ± 105**1015 BC****2) 2950 ± 90****1000 BC****QC-184. 44A**

Bldg IVV

QC-185. 60A**3050 ± 110****1100 BC**

Bldg V

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