REVISITING THE ROUNDTOP SITE: TOWARD A MORE COMPLETE OCCUPATIONAL HISTORY

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*The Roundtop site was reported by William A. Ritchie in a chapter of his 1973 volume with Robert E. Funk, Aboriginal Settlement Patterns of the Northeast. Ritchie interpreted the site as an eleventh-century AD village with two overlapping longhouse patterns and macrobotanical remains of maize (*Zea mays *ssp.* mays*), common bean (*Phaseolus vulgaris*), and squash (*Cucurbita pepo*). Based on that report the site became established in the literature as having the earliest evidence for longhouses and maize-bean-squash agriculture in the Northeast. Ritchie's dating of the site was based on a single radiocarbon date on a large sample of wood charcoal and the pottery assemblage, which he associated primarily with the Carpenter Brook phase (AD 1000-1100) of his Owasco culture (AD 1000-1300). He considered other late pre-contact occupations of the site as transitory. New radiocarbon dates reported in 1999 and 2000 and recent Bayesian modeling of those radiocarbon dates suggest that the later occupations were more substantial than Ritchie suggested. Here I report four additional radiocarbon dates, new Bayesian modeling of all available Roundtop dates, and an analysis of the site's complete pottery assemblage. The results further clarify the site's history and substantiate the importance of post-1100 AD occupations at the site.*

INTRODUCTION

The Roundtop site on the north bank of Susquehanna River in Endicott, Broome County, New York (Figure 1), played an important role in archaeologically generated Indigenous history of northeastern North America (Ritchie 1969, 1973). The site was investigated by avocational archaeologists in the late 1950s and early 1960s (Laccetti 1965, 1974), the New York State Museum (NYSM) in 1964, and the State University of New York (SUNY) Binghamton (now Binghamton University) in 1965 and 1966 (Ritchie 1973). Based on Ritchie's (1973) summary of the site, that drew primarily on the NYSM's excavation, Roundtop became synonymous with Ritchie's Carpenter Brook phase (AD 1000-1100) of his Owasco culture (AD 1000-1300; e.g., Prezzano and Rieth 2001), early evidence for maize (*Zea mays* ssp. *mays*)-common bean (*Phaseolus vulgaris*) -squash (*Cucurbita pepo*) agriculture (e.g., Bendremer and Dewar 1994:381; Weinstein 1986, Winter 1971:8), early longhouses (e.g., Kuhn 1994: 77; Versaggi 2008), and the onset of Iroquoian subsistence-settlement traits (e.g., Snow 1995:65, 66). Ritchie's (1969, 1973) dating of the site was based primarily on the frequencies of pottery sherds from types associated with the three phases of his Owasco culture (Ritchie and MacNeish 1949) and a single radiocarbon date on a large sample of unidentified wood charcoal from a pit feature containing such pottery.

Ritchie's interpretation of the site was embedded in the archaeological literature (e.g., Funk 1993) until the end of the twentieth century when new radiocarbon dates on maize and common bean (Hart 1999) and on charcoal from pits associated with two longhouse postmold patterns (Hart 2000) were published. These new dates indicated evidence for maize-common bean-squash agriculture was not present at the site until the cal. fourteenth-century AD, although earlier maize was present, and that the longhouses most likely dated to the cal. fourteenth- and sixteenth-centuries AD rather than the eleventh-century AD. Recent Bayesian modeling of the radiocarbon dates (Birch et al. 2024) substantiate this latter interpretation. However, the full occupational history of Roundtop remains unclear. Did the primary occupation of the site fall in the eleventh

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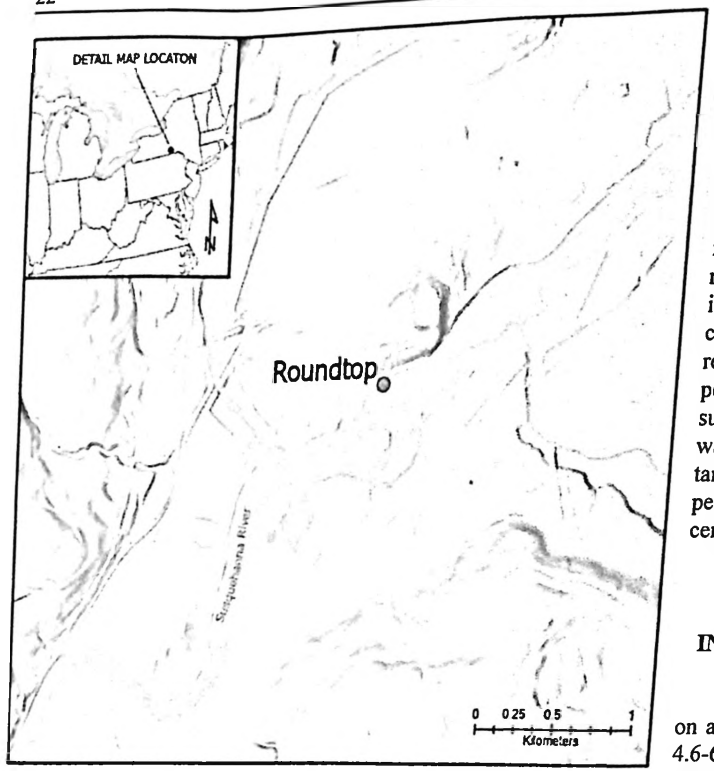

Figure 1. Location of the Roundtop site in New York.

century AD as suggested by Ritchie (1973) and Laccetti (1965, 1974) with later artifacts representing transitory occupations, or were the later occupations more substantial? To resolve this issue, I present four new radiocarbon dates, Bayesian modeling of all radiocarbon dates, and a reanalysis of the site's pottery assemblage. Results suggest that the site was a periodically important locale for Indigenous people over a span of six centuries.

HISTORY OF INVESTIGATIONS

The Roundtop site is on a river terrace that is 4.6-6.1 m above normal stream level and occupies approximately two-thirds of an acre (Ritchie 1973: 179). Laminated soils suggest that the terrace was subjected to periodic flooding (Ritchie 1973:181). The site is located near a knoll of glacially eroded shale known as Roundtop, from which the site's name derives. The plot of land containing the Roundtop site was used for gardening by retired employees of the Endicott-Johnson Shoe Company, the owner of the property, for 25 years during the mid-twentieth century. As related by Laccetti (1965, 1974) the site was initially investigated by avocational archaeologists beginning in 1958 who excavated approximate 160 features exposed by plowing and though their own trenching and random test-pitting (Laccetti 1974).

When the Town of Endicott purchased the property in 1963 for a planned public park and began to prepare it by removing vegetation by bulldozing, Ritchie arranged for a pause in the preparations and Museum excavations in 1964. Ritchie and a crew of three graduate students investigated 464.5 square meters of the site by excavating the remaining plow zone after mechanical grading and mapping and excavating features and postmolds; 70 features and hundreds of postmolds were mapped. Most of the features had been previously excavated by avocational archaeologists. In his 1973 summary, Ritchie described 18 of the features, 15 of which had not been previously excavated, and defined two overlapping longhouse postmold patterns (Figure 2). The SUNY Binghamton archaeological field school did additional excavations under the direction of William Lipe in 1965 and 1966 adjacent to the Museum's excavations. The students excavated 427.4 square meters in which they documented and excavated 201 features. These included pit features and hearths (Figure 2). As documented in field notes, only two of the features had been previously excavated.

The New York State Museum holds collections from Ritchie's excavations (accession A1964.06), and those of SUNY Binghamton (accession A1970.01), and avocational archaeologists Murray Shapiro (accession A1964. 06) and Frank Laccetti (accession A2014. 33). Ritchie's notes on smaller avocational collections are in the Museum's archaeological archives (accession A1964.06).

In 1949, Ritchie and MacNeish published an influential pottery typology that has been in use since with or without revisions proposed by Lenig (1965). In the summary of his investigations Ritchie (1969, 1973), while acknowledging evidence for earlier and later occupations, ascribed the primary occupation of the Roundtop site to the Carpenter Brook stage (AD 1000-1100) of his Owasco culture (AD 1000-1300). This was based primarily on the assignment of the majority of the pottery sherd assemblage to early Owasco types as described by Ritchie and MacNeish (1949).

Decorated pottery assigned to Ritchie's Owasco culture was identified chronologically mostly on the basis of surface treatment, with cord-marked exterior surfaces combined with cord-impressed decorations (Carpenter Brook Cord-on-Cord) being early in the 300-year sequence and smooth exterior surfaces combined with cord impressed decorations (Owasco Herringbone, Owasco Corded Oblique, Owasco Horizontal, Owasco Platted) generally being later in the sequence. These latter types are often referred to as the Sackett Series (Lenig 1965). Pots with thin, cord-marked, vertically cord-impressed collars (Levanna Corded Collar), were thought to be very early in the sequence, while pots having channeled collars with smooth exterior surfaces and 3-6 horizontal cord impressions sometimes broken by vertical or oblique cord impressions (Owasco Corded Collar) being

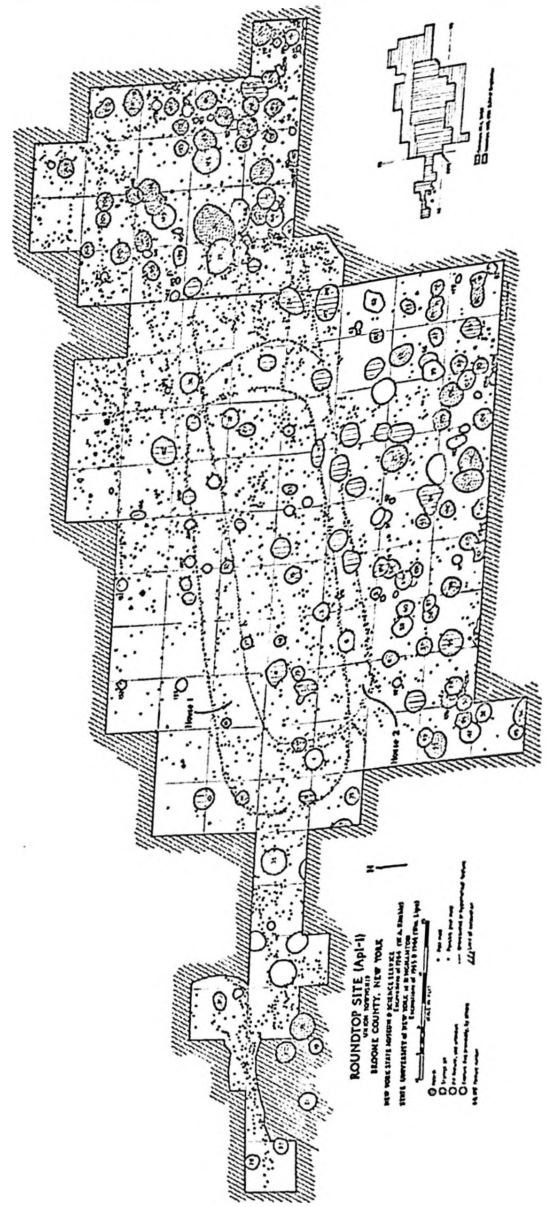

Figure 2. Plan map of the New York State Museum and SUNY Binghamton Roundtop site excavations (from Ritchie 1973:180). Courtesy, New York State Museum.

primarily late in the sequence. Pots with cord-marked exterior surfaces but lacking cord-impressed decorations (Levanna Cord-on-Cord) were thought to have occurred through the first two centuries of the Owasco culture and into the beginning of the third. These inferred sequences formed the basis for Ritchie's (1973), as well as Laccetti's (1965, 1974), interpretations of the site's occupational history. As stated by Ritchie:

> More than half of the pottery series pertains to the Carpenter Brook Cord-on-Cord type, with herringbone, plat, and linear corded punctate designs executed with corded stick or paddle edge over a completely cord-malleated surface... As elsewhere discussed, this is the prevailing ceramic treatment in the Carpenter Brook phase. Levanna Cord-on-Cord, another early Owasco type, accounts for some thirty per cent [sic] of the remainder, with other early Owasco varieties present in minor amounts.... In some of the pits, typical sherds of the Clemson's Island culture of the Susquehanna Valley in Pennsylvania were intermixed with Owasco types.... (Ritchie 1969:xxv).

> The variety and quantity of artifacts found by all workers at the Roundtop site present a picture normal in most respects for a component of the Early or Carpenter Brook stage of Owasco culture, insofar as it is currently known .... The only aberrant features are the inclusion of a small proportion of pottery referable to the Clemson's Island complex, and an unusual paucity of bone and antler implements, probably due to the prevailing poor soil conditions for bone preservation.... The Iroquois stone maskette found by a collector, the six Madison type arrowpoints, two pipe fragments, and the few sherds of Late Iroquois pottery types, probably pertain to the small, nearby Iroquois campsite on the river bank, reported to have been dug out prior to our work.... There is also some small evidence in the pottery series at the site to indicate its minor use by people of later Owasco times....(1973:186-187)

Ritchie's (1973:187) subsequent description of the pottery assemblage in the Artifacts section of the report focused on so-called Clemson's Island pottery that is typified by round punctations on the exterior surface below the lip with opposing nodes on the interior surface. While the pottery tradition and culture-historic taxon were not well-known at the time of Ritchie's report, it is now known to be most prevalent in the Susquehanna River basin of northeastern Pennsylvania with an assumed chronology of AD 900-1300 (Stewart 1990; Wall 2022).

In his description of Feature 35, a large, stratified pit, Ritchie (1973:183-184) focused on a sherd of Carpenter Brook Cord-on-Cord type found on a bark lining along with charred maize, common bean, and squash macrobotanical remains. He correlated this with pottery assigned to the same type found in Feature 30, another large pit, from which he obtained a radiocarbon date of 880 ± 60 BP (Y-1534) on a large sample of unidentified wood charcoal. He used this evidence to date the crop remains (no crop remains were recovered from Feature 30). Following practice at the time, he subtracted the radiocarbon age from 1950 to obtain a date of AD 1070, that was consistent with his interpretation of the pottery assemblage (Ritchie 1973:186). According to Ritchie (1973:183):

> Most of the sherds of Carpenter Brook Cord-on-Cord [in Feature 30] were intermingled with a good quantity of clean charcoal which was carefully collected and provided the dated sample for this site .... As this ceramic type (Carpenter Brook Cord-on-Cord, herringbone design) occurred in direct association in Feature 35 with the vegetable remains ... the C-14 determination for Feature 30 is considered a reliable date for the agricultural vestiges at this site.

In his report, Ritchie (1973) attributed rim sherds from his and MacNeish's later Owasco Corded Collar type, associated with his late Owasco (AD 1200-1300) period, to a higher stratum in Feature 35. This contradicted both field and laboratory notes that associated these rim sherds with the bark lining containing the cultigen remains (see Hart 1999 for a fuller discussion).

Ritchie's interpretation was accepted in the archaeological literature (e.g., Crawford and Smith 1996; Snow 1995). However, direct accelerator mass spectrometry (AMS) dates on maize kernels and a common bean cotyledon from Feature 35 published 26 years later (Hart 1999), placed them in the cal. fourteenth-century AD, confirming the association with the later pottery. In a subsequent article, a series of AMS and beta-count dates on small samples of unidentified wood charcoal from several features indicated the two longhouse patterns assigned by Ritchie to his early Owasco component likely dated to the cal. fourteenth and sixteenth centuries AD (Hart 2000). Most recently, the suite of radiocarbon dates obtained for these two studies and Ritchie's original date were used for Bayesian modeling (Birch et al. 2024). Based on the analyses by Hart (1999, 2000) the dates were grouped in three Phases (Early, House 1, and House 2), resulting in occupational estimates of A.D. 1179–1272 (68.3% hpd: highest posterior density), A.D. 1360–1396 (62.2% hpd), and A.D. 1469–1554 (68.3% hpd), respectively. Given Ritchie's emphasis on the early component's pottery and the seeming contradictory radiocarbon dates, the need for a reanalysis of the pottery assemblage was evident (Hart 1999:62). The acquisition of the Laccetti collection in 2014 by the New York State Museum, combined with the other collections in the Museum's holdings, presented an opportunity to analyze the site's complete pottery assemblage in a single analysis for the first time. To more fully assess the chronological history of the site, additional AMS dates were obtained on four bone samples in feature contexts from which pottery with specific decorative attributes was recovered. The resulting radiocarbon ages were used to revise the Bayesian modeling reported in Birch et al. (2024).

METHODS AND MATERIALS

All rim sherds in the New York State Museum's collections larger than 3-4 cm in length and depth were examined and assigned to vessels based on surface treatment, decoration, and in some cases refits. In most cases vessels were represented by single rim sherds, but in a few cases by two or more. Notes on presence or absence of collar; exterior, lip, and interior surface treatments (cord-marking, partially smoothed cord-marking, fabric impression, or smooth); exterior, lip, and interior decoration technique (cord impressions, dentate stamping, incising, punctations); and decoration design (exterior, lip, interior), were then recorded and entered into a spreadsheet. Each vessel rim was then re-examined on two separate occasions weeks apart to confirm the original surface treatment category. Finally, rims from all identified vessels were digitally photographed, and exterior surface treatment and decoration were compared against the data entered in the spreadsheet. Photographs were enlarged on computer screen adjusting exposure as needed to resolve any ambiguity in surface treatment. In each iteration any discrepancies noted were corrected in the spreadsheet. This spreadsheet is now part of the NYSM's archaeological collections database.

Four bone samples were selected for dating, one each from NYSM Feature 28, SUNY features 111B and 125, and Shapiro Feature 6. NYSM Feature 28 was a round pit measuring approximately 1 m in diameter and 36 cm deep. After filling with clay, the feature was used as a hearth. Three rim sherds with smooth external surfaces and cord-impressed decorations representing different vessels and one with a cord-marked external surface and cord marked decoration were recovered in the hearth. A white-tailed deer radius from the same context was sampled for dating. Binghamton Feature 111 was a 2.4 m long pit that was subjectively divided in the field into sections A and B based on fill, with wood charcoal noted in section A and none in section B. Two rim sherds from different vessels recovered from section B have cord-marked exterior surfaces and cord-impressed decorations. A rim sherd from section A has a partially smoothed over external surface with rows of short, vertical cord impressions. A white-tailed deer mandible recovered in section A near the subjective boundary between the two sections was sampled for dating. Binghamton Feature 125 had two strata, a lower fill layer (B) and an upper layer (A) described as a hearth. Rims sherds from two vessels with cord-marked exteriors and cord-impressed decorations, two from vessels with partially smoothed-over cord-marked exterior surfaces and cord-impressed decorations, and one vessel with cord-marked exterior and

Table 1. Data for new AMS Dates on deer bone.

UCIAMS No.	NYSM No.	>30kDa collagen yield (%)	Feature No.	$\delta^{15}N$ (‰)	$\delta^{13}C$ (‰)	%N	%C	C/N (atomic)
287878	A42928	6.7	Shapiro 6	4.6	-23.9	16.0	44.6	3.3
287879	A45413	4.3	SUNY 111	4.9	-21.6	16.2	45.1	3.3
287880	A45423	1.1	SUNY 125	5.0	-22.3	14.7	42.8	3.4
287881	A42760	1.8	NYSM 28	3.0	-22.4	15.1	43.2	3.3

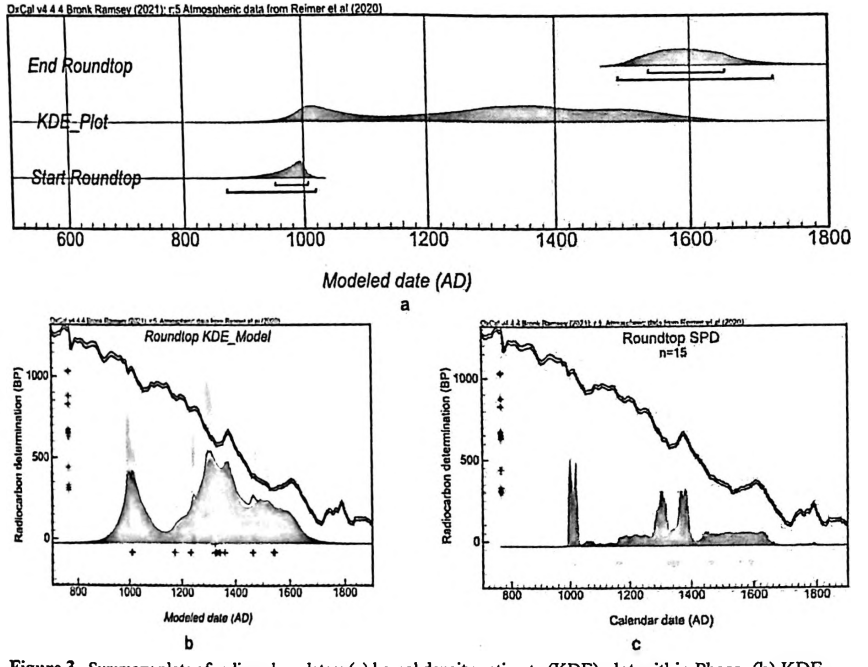

Figure 3. Summary plots of radiocarbon dates: (a) kernel density estimate (KDE) plot within Phase, (b) KDE model, (c) summed probability distribution.

no decoration were recovered from the fill layer B. A white-tailed deer rib fragment from this layer was sampled for dating. Shapiro Feature 6 contained sherds from 18 vessels, with some of the sherds being very large. Eight of the vessels have cord-marked exterior surfaces and cord-impressed decorations, four have cord-marked exterior surfaces and round punctations with opposing nodes on the interior below the lip, five have partially smoothed-over cord-marked exterior surfaces with cord-impressed decorations, one has a smooth exterior surfaces and cord-impressed decoration. A white-tailed deer rib from the feature was sampled for dating.

The bone samples were submitted to the W. M. Keck Carbon Cycle Accelerator Mass Spectrometer (KCCAMS) Facility for collagen extraction, AMS dating, and isotope ratio mass spectrometry (IRMS). The details of sample pretreatments and IRMS and dating protocols are available on the lab's website (https://sites.ps.uci.edu/kccams/education/protocols/). Bayesian analysis of the resulting radiocarbon ages

and those previously published was done in OxCal 4.4.4 (Bronk Ramsey 2009a) using the IntCal20 Northern Hemisphere calibration curve (Reimer et al. 2020). In what follows, OxCal terms are capitalized (e.g., Phase, Boundary, Interval) to distinguish them from their common uses in archaeology.

RESULTS

Radiocarbon dating

The four bone samples obtained for this project all produced >1% collagen and C/N atomic ratios within the accepted range of 2.9-3.6 (Table 1; DeNiro 1985). All radiocarbon ages from the site and their 95.4% calibrated date ranges are provided in Table 2 and Figure 3. The results for samples from Shapiro Feature 6 (UCIAMS-287878) and SUNY Features 111 (UCIAMS-287879) and 125 (287880) are remarkably similar, producing 95.4% calibrated date ranges of AD 993-1024/6. The sample from NYSM Feature 28 (UCIAMS-287881) resulted in a later radiocarbon age with a cal. 95.4% range of AD 1295-1394, very similar to the earlier-obtained date on unidentified wood charcoal (Beta-135888) of AD 1280-1397 (Hart 2000).

The range of radiocarbon dates (Table 2) indicates an extended span of site late pre-contact occupations that Ritchie designated as Owasco and Iroquoian. To assess the full occupational span, all dates were used to produce a single Bayesian model with Uniform Phases. Given the absence of artifacts suggesting post-contact Indigenous occupations, a *terminus ante quem* (*TAQ*) of AD 1650 was used to constrain the later end of the model. A kernel density estimate (KDE) plot (Bronk Ramsey 2017) was generated to provide a visual assessment of the site's late pre-contact occupational history (Figure 3) and the Interval command was used to estimate the full temporal extent of the combined occupations.

The KDE plot has an initial peak centered on ~AD 1020, a second peak centered

Table 2. Radiocarbon dates from the Roundtop site.

Lab No.	NYSM No.	Material	Context	Component	^{14}C Measurement	^{14}C Age	$\delta^{13}C$	Cal 95.4% (AD)	Source
UCIAMS-287878	A42928	Deer bone	Shapiro Feature 6	1	AMS	1030±15	-23.9	993-1024	This study
UCIAMS-287879	A45413	Deer bone	SUNY Feature 111B	1	AMS	1030±15	-21.6	993-1024	This study
UCIAMS-287880	A45423	Deer bone	SUNY Feature 125	1	AMS	1035±15	-22.3	993-1026	This study
Y-1534	A42762	Charcoal	NYSM Feature 30	2	Radiometric	880±60	n/a	1160-1242	Ritchie 1973
AA-26541	A45500	Maize kernel	SUNY Feature 235	2	AMS	830±45	-8.7	1050-1080 (4.6) 1153-1279 (90.8)	Hart 1999
AA-21979	A42764-C	Maize kernel	NYSM Feature 35	3	AMS	675±55	-8.7	1261-1405	Hart 1999
AA-21980	A42764-C	Twig	NYSM Feature 35	3	AMS	670±55	-27.6	1265-1405	Hart 1999
AA-23106	A42764-C	Bean	NYSM Feature 35	3	AMS	658±48	-27.2	1275-1400	Hart 2000
Beta-135888	42750-C	Charcoal	NYSM Feature 28	3	AMS	650±40	-26.6	1280-1397	This study
UCIAMS-287881	A42760	Deer bone	NYSM Feature 28	3	AMS	640±15	-22.4	1295-1324 (39.5) 1355-1394 (56.0)	Hart 2000
Beta-135880	A72270	Charcoal	NYSM Feature 27	3	Radiometric	630±60	-25.0*	1277-1415	Hart 1999
AA-26539	A45321	Maize kernel	Postmold, E100N70	4	AMS	440±45	-8.7	1406-1523 (83.8) 1575-1625 (11.6)	Hart 1999
AA-21978	A42764-C	Maize kernel	NYSM Feature 35	4	AMS	330±40	-8.8	1466-1645	Hart 1999
AA-26540	A45327	Bean	Postmold, E110N70	4	AMS	315±45	-25.0	1468-1657	Hart 2000
Beta-135879	A42756-C	Charcoal	NYSM Feature 4	4	Radiometric	300±80	-25.0*	1436-1694 (80.8) 1725-1812 (11.6) 1917-... (3.0)	Hart 2000

*estimate

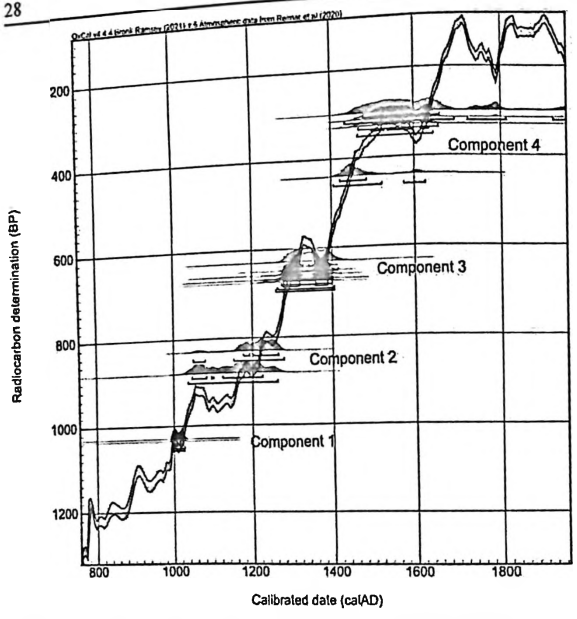

Figure 4. Plot of calibrated radiocarbon dates against the IntCal20 calibration curve showing clusters of dates used as components (Phases) in Bayesian modeling.

on ~1360, and a third on ~1520. The occupational span is estimated at 558-683 years (68.3% hpd) and 504-756 years (95.4% hpd). Thus, the radiocarbon evidence suggests a span of occupations as long as 756 years, beginning as early as the late ninth-century AD (Start Boundary AD *871-1019*, 95.4% hpd) and possibly continuing through the early sixteenth-mid-seventeenth centuries (End Boundary AD *1517-1652*, 95.4% hpd). Little difference is reflected in the KDE model and summed probability distribution (SPD; see Bronk Ramsey 2017), modeled separately unconstrained by Phase boundaries and without the *TAQ*. Both of these show the same peaks. The dips in the first two SPD peaks are artifacts of the calibration curve reversals (Figure 3).

A previous analysis (Hart 2000) and the clustering of dates (Figure 4) suggested discrete occupational episodes. Based on this, the recent Bayesian modeling (Birch et al. 2024) defined three Phases based on contexts of the dated samples, one comprising the earliest dates (Early), one with dates associated with House 1, and one with dates associated with House 2. To account for the new AMS dates, the final model in Birch et al. (2024) was modified as follows: The new AMS radiocarbon ages of UCIAMS-287878, 287879, and 287880 are 150-205 ^{14}C years older than the two earliest previously reported dates, Y-1534 and AA-26541. As a result, these three dates were added as a separate Phase to the Birch et al (2024) model and designated as Component 1. Dates Y-1534 and AA-26541 were modeled as Component 2 Phase (designated as the Early Phase in Birch et al. 2024). New date UCIAMS-287881 was added to the Component 3 (House 1 Phase in Birch et al. 2024) Phase. Because the interest here is in the occupational spans of the various components rather than the ages of longhouses, dates AA-26539 and AA-26540 from postmolds not associated with a recognized longhouse and included only in the overall Roundtop model in Birch et al. (2024), were added in the Component 4 Phase (House 2 Phase in Birch et al. 2024). The final model in Birch et al. (2024) placed uniform (U) Interval constraints on Components 3 (House 1) and 4 (House 2) of 0-50 years, that helped resolve ambiguity in the models resulting from reversals in the calibration curve. These constraints were included in the current model. Such constraints will be overridden in a model if the data indicate a longer occupation span (Manning et al. 2020). The Charcoal Outlier model (Bronk Ramsey 2009b) was applied to wood charcoal dates, except AA-21980 on a small twig from Feature 35, that had no likelihood of a substantial built-in age. The General Outlier model (Bronk Ramsey 2009b) was applied to dates on maize, common bean, and the twig. Because the groupings of dates suggested time gaps between the components

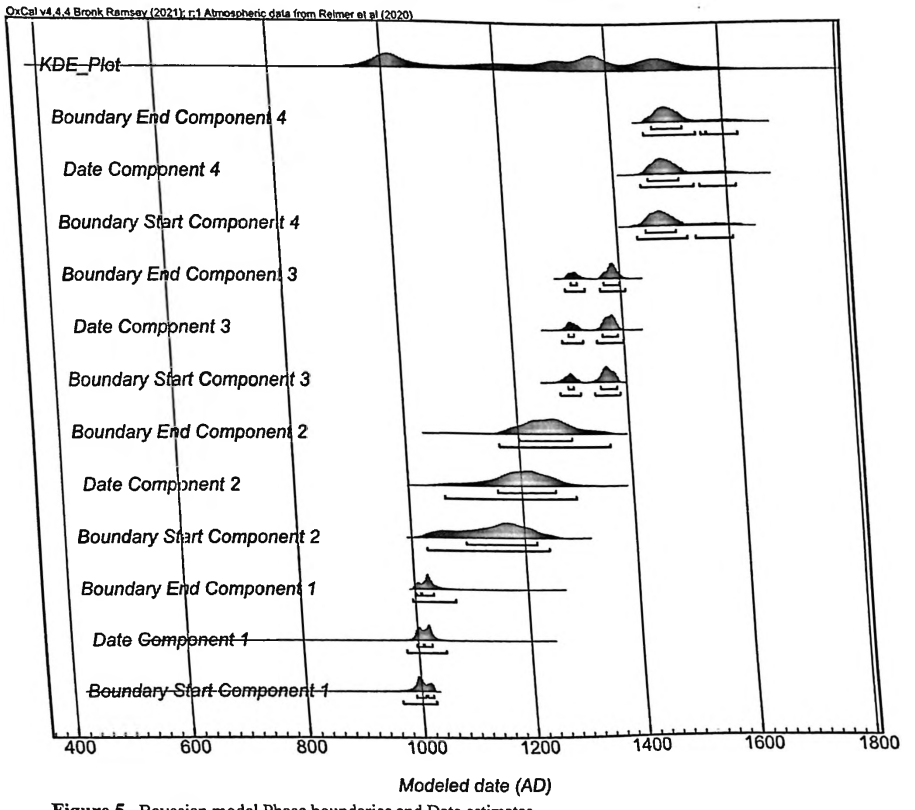

Figure 5. Bayesian model Phase boundaries and Date estimates.

(Figure 4), following Birch et al. (2024) they were modeled as Sequential Phases (Bronk Ramsey 2009a). The Date command was used to generate an undated event within each Phase to summarize the Phase's date range taking into account the Start and End Boundaries (Bronk Ramsey 2017).

The results of this model are summarized in Figure 5 and Table 3 (next page). All components of the model converged at >95% and model agreement indices are >60% (A_{model}=98.8, $A_{overall}$= 104.1). Date AA-26539 has an agreement index <60% (53.9%), but it is not identified as an outlier (4% posterior probability) and so was not removed from the model. The Date estimates indicate Component 1 spans the early (68.3% hpd) to mid- (95.4% hpd) eleventh century AD. Component 2 spans the mid-twelfth to mid- (68.3% hpd) or complete (95.4% hpd) thirteenth century; it is represented in the SPD (Figure 3) by the plateau prior to the second peak. For Component 3, the Date estimates indicate a fourteenth-century AD occupation and for Component 4 a mid-fifteenth through mid-sixteenth century AD occupation with a minor probability for an occupation extending into the seventeenth century. The Date estimates for components 2-4 are consistent, although not identical, with those obtained by Birch et al. (2024).

Table 3. Summary of Bayesian Model results.

Component	68.3% hpd				95.4% hpd			
	Start Boundary	Date Estimate	End Boundary	Interval (years)	Start Boundary	Date Estimate	End Boundary	Interval (years)
1	990-1006 (47.5)	997-1008 (29.5)	1002-1010 (14.1)	0-34	965-1024 (95.4)	979-1048 (95.4)	995-1070 (95.4)	0-98
	1009-1020 (20.8)	1010-1024 (38.7)	1012-1032 (54.1)					
2	1096-1220 (68.3)	1157-1260 (68.3)	1201-1295 (68.3)	0-140	1026-1242 (95.4)	1063-1296 (95.4)	1165-1363 (95.4)	0-247
3	1295-1304 (12.4)	1301-1311 (12.4)	1311-1322 (12.7)	0-26	1280-1316 (29.5)	1289-1326 (29.5)	1300-1335 (29.3)	0-45
	1353-1382 (55.9)	1362-1389 (55.9)	1370-1398 (55.6)		1342-1387 (65.9)	1351-1399 (65.9)	1363-1408 (66.2)	
4	1452-1505 (68.3)	1461-1516 (68.3)	1474-1528 (68.3)	0-32	1436-1525 (82.9)	1448-1542 (83.2)	1459-1551 (83.3)	0-48
					1540-1605 (12.5)	1553-1616 (12.3)	1561-1569 (1.4)	
							1571-1625 (10.8)	

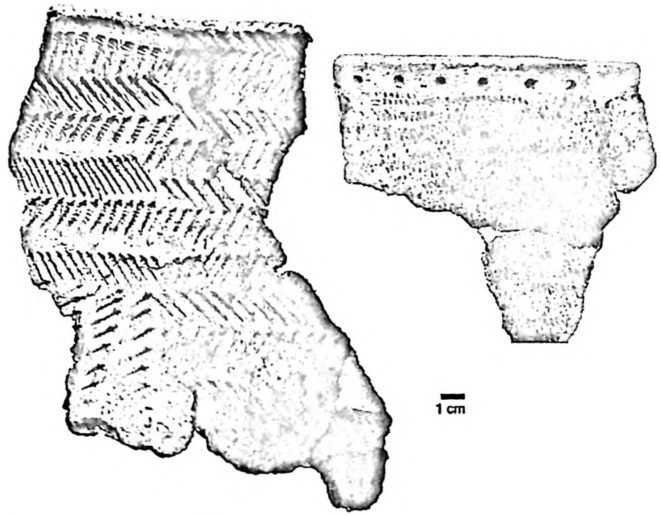

Figure 6. Examples of rim sherds from Shapiro Feature 6. Left, cord-marked surface with cord-impressed decoration (Carpenter Brook Cord-on-Cord). Right, cord-marked surface with a row of round punctations (Clemson's Island).

Pottery Assemblage

As previously indicated Ritchie (1973) based his interpretation of the Roundtop site chronology primarily on the pottery assemblage: pottery with cord-marked external surfaces reflected the early portion of his Owasco culture occupation; and smooth exterior surfaces, including pottery with smooth, channeled collars, reflected later occupations. Table 4 provides counts of vessels with these traits by dated feature and modeled Phase 68.4% hpd Date estimate range. Images of vessel rim sherds from dated features are presented in Figures 6 – 10 with identifications of Ritchie and MacNeish's (1949) types. Although the sample is small it is consistent with Ritchie's interpretation. The largest number of vessels from Component 1 (AD 997-1024, 68.3% hpd) and Component 2 (AD 1157-1260, 68.3% hpd) have cord-marked exterior surfaces, and from Component 3 (AD 1301-1389, 68.3% hpd) have smooth exterior surfaces with or without smooth collars. Component 2 is represented by dates from Feature 30 and Feature 235. Feature 30, from which Ritchie (1973) obtained the site's first radiocarbon date, contained cord-marked and partially smoothed over cord-marked vessels. Feature 235 contained several zones of fill. The dated maize kernel was recovered from zone A at the top of the feature, that also contained an area with darker charcoal staining labeled as a hearth on the profile drawing. This is the likely source of the dated maize kernel. Rim sherds from two cord-marked vessels and one smooth vessel have field specimen numbers indicating they were recovered from the zone A hearth. The single rim sherds with a smooth exterior from the Feature 235 hearth and Shapiro Feature 6 are difficult to interpret. They may represent mixing at the top of the features from Component 3 or early use of smoothing, that Ritchie and MacNeish (1949) suggested was possible for some of their types. Vessels with partially smoothed-over cord-marked exteriors occurred only in features dated to Component 1 and Component 2. No samples from Iroquoian pottery-bearing features have been dated, but given what is currently known about Iroquoian chronology (e.g., Birch et al. 2021; Manning et al. 2021) the Date estimate for Component 3 (1461-1516, 68.3% hpd) is consistent with the Iroquoian pottery assemblage.

Table 4. Pottery vessel rim attributes by dated feature.

Feature	Model Phase	Phase Date AD (64.3% hpd)	Cord-marked (n)	Partially Smoothed Cord-marked (n)	Smooth (n)	Smooth Collar (n)
Shapiro 6	1	997-1024	12	3	1	0
SUNY 111	1	997-1024	2	1	0	0
SUNY 125 B	1	997-1024	3	2	0	0
NYSM 30	2	1157-1260	5	2	0	0
SUNY 235, hearth	2	1157-1260	2	0	1	0
NYSM 27	3	1300-1389	1	0	0	1
NYSM 28	3	1300-1389	1	0	3	0
NYSM 35	3	1300-1389	1	0	0	3

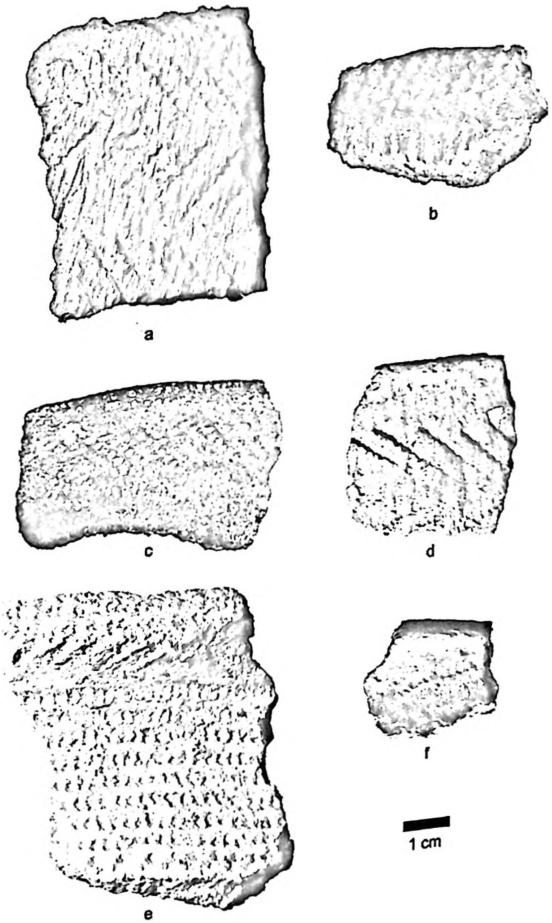

Figure 7 . Rim sherds from NYSM Features 27 (a,b) and 28 (c-f): (a) cord-marked surface with cord-impressed decoration (Carpenter Brook Cord-on-Cord), (b) smooth collar with cord-impressed decoration (Owasco Corded Collar), (c) smooth surface with cord-impressed decoration (Owasco Corded Oblique), (d) cord-marked surface with cord-impressed decoration (Carpenter Brook Cord-on-Cord), (e) smooth surface with cord-impressed decoration (Owasco Corded Horizontal), (f) smooth surface with cord-impressed decoration (Owasco Corded Horizontal?

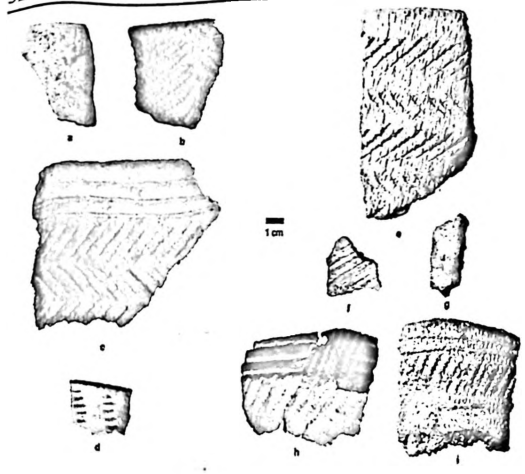

Figure 8 (left). Rim sherds from NYSM Feature 30 (a-d) and Feature 35 (e-i).: (a) partially smoothed over cord-marked surface (Levanna Cord-on-Cord), b,c,e cord-marked surfaces with cord-impressed decorations (Carpenter Brook Cord-on-Cord), (d) smooth surface with cord-impressed decoration (Owasco Platted), (f) smooth surface with trailed decoration (untyped), (g) smooth collar (untyped), h-i smooth collars with cord-impressed decorations (Owasco Corded Collar).

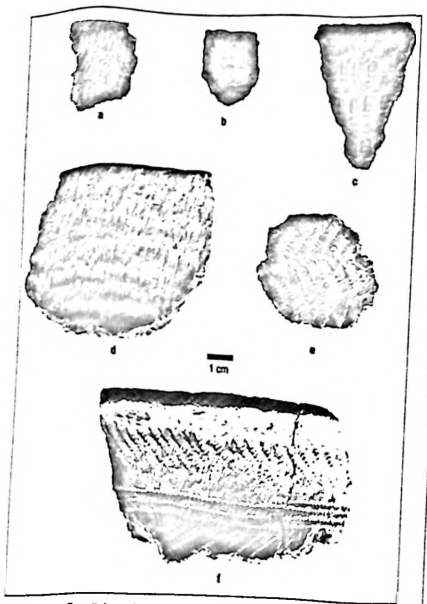

Figure 9. Rim sherds from SUNY Features 111 (a-c) and 235 (d-f): (a,b,f) cord-marked surface with cord-impressed decoration (Carpenter Brook Cord-on-Cord), (c) partially smoothed over cord-marked surface with cord-impressed decoration (Carpenter Brook Cord-on-Cord), (d) cord-marked surface (Levanna Cord-on-Cord), (e) smooth surface with cord-impressed decoration (Owasco Herringbone).

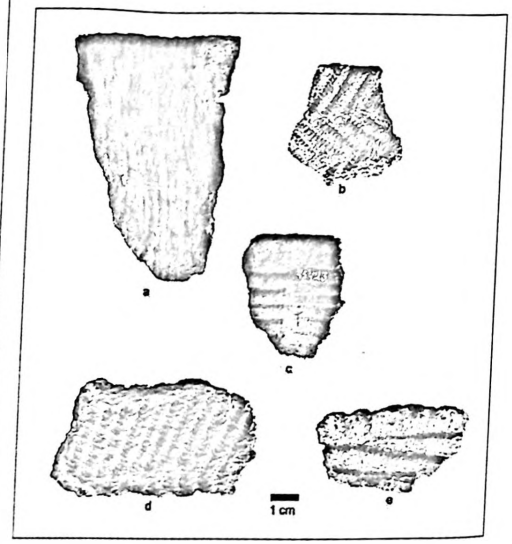

Figure 10. Rim sherds from SUNY Feature 125: (a) cord-marked exterior (Levanna Cord-on-Cord), (b, d) cord-marked exterior with cord-impressed decoration (Carpenter Brook Cord-on-Cord), (c, e) partially smoothed exterior with cord-impressed decoration (Carpenter Brook Cord-on-Cord).

A total of 425 vessels was identified from the rim sherds. A summary of rim forms, surface treatments, and decorative techniques is provided in Table 5. The largest number of vessels were not collared and had cord-marked or smooth exterior surfaces with cord-impressed decorations. Based on the radiocarbon-dated features the cord-marked vessels with cord-impressed decorations can be confidently assigned to components 1 and 2 and the vessels with smooth exterior surfaces and cord-impressed decorations most likely to Component 3. There are 17 additional vessels with cord-marked exterior surfaces and round punctations or a combination of punctations and cord-impressed designs that can also be reasonably assigned to Component 1, and the 15 vessels without collars and partially smoothed over cord-marking with cord-impressed decorations (14) or punctations (1) that most likely belong to components 1 or 2. The 15 vessels with collars having smooth surfaces and cord-impressed decorations most likely originated from Component 3.

An alternate means of examining the assemblage is to use the same type categories as Ritchie for vessels from his Owasco and Iroquoian components (n=392; Table 6, next page). The Carpenter Brook Cord-on-Cord type represents 40.56% of the vessels. The combined percentage of the Owasco (Sackett) series types is 33.93%. Clemson's Island vessels account for 4.60% of the assemblage, while Owasco Corded Collar vessels account for 3.82% and Castle Creek Punctate 0.26%. Thus, there is little difference between those types likely to represent the early (45.16%) and the later (38.01%) pottery types. Undecorated cord-marked pottery (Ritchie and MacNeish's [1949] Levanna Cord-on-Cord) occurs in three Ritchie- and SUNY-excavated feature contexts with only Carpenter Brook Cord-on-Cord, three feature contexts with Carpenter Brook Cord-on-Cord and Owasco series types, and 21 with only Owasco series types. As a result, undecorated cord-marked pottery appears to have greater association with the Ritchie and MacNeish's (1949) Owasco series types.

Table 5. Summary of rim forms, surface treatments, and decorative techniques.

Surface	Collared	Decorative Technique								
		Cord Impressed	Incised	Dentate Stamped	Punctations	Cord Impressed and Punctations	Fingernail	Incised and Punctations	None	Total
Cord-marked	No	157	1	3	11	6	0	0	42	220
Fabric Impressed	No	0	0	0	0	0	0	0	2	2
Partially Smoothed	No	16	0	0	1	0	0	0	1	17
Partially Smoothed/ Smooth	No	19	0	0	0	0	0	0	0	19
Smooth	No	109	6	3	2	2	1	2	4	129
Fabric Impressed	Yes	0	0	0	0	0	0	0	1	1
Partially Smoothed	Yes	0	0	0	0	0	0	0	1	1
Smooth	Yes	15	14	0	1	1	0	1	3	35
Total		316	21	6	15	9	1	3	54	425

Table 6. Frequencies of Ritchie and MacNeish (1949) Late Pre-contact types in the Roundtop assemblage.

Type	n	%	Temporal Assignment Ritchie and MacNeish (1949)
Carpenter Brook Cord-on-Cord	159	40.56	Early Owasco
Clemson's Island	18	4.60	Early Owasco
Levanna Cord-on-Cord	40	10.20	Early to beginning of Late Owasco
Owasco Horizontal, Herringbone, Platted, Oblique	133	33.93	Predominantly Middle to Late Owasco
Castle Creek Punctate	1	0.26	Middle to Late Owasco
Owasco Corded Collar	15	3.82	Middle to Late Owasco

DISCUSSION AND CONCLUSIONS

The calibrations, probability distributions, kernel density estimates, and Bayesian modeling of 15 radiocarbon dates indicate that the site's late pre-contact occupations occurred periodically after AD 900 into the sixteenth to very early seventeenth centuries, rather than a primarily eleventh-century occupation of the Roundtop site as proposed by Ritchie (1973). The pottery assemblage clearly indicates that Ritchie's and Laccetti's focus on what they referred to as early Owasco culture/Carpenter Brook phase (AD 1000-1100) was mistaken. Clearly, Component 3, correlated with Ritchie and MacNeish's (1949) Owasco (or Sackett) series pottery types was more than transitory relative to the earlier components 1 and 2 that are correlated with Ritchie and MacNeish's (1949) Carpenter Brook Cord-on-Cord pottery type and with so-called Clemson's Island pottery as portrayed by Ritchie (1973).

Radiocarbon dates and the pottery assemblage combine to suggest a very different history than was presented by the site's excavators in their published narratives. The current results confirm previous analyses that suggested the importance of later occupations in the Indigenous history of the Roundtop site. These results further substantiate my previous conclusion "that descriptions of sites in the literature are interpretations, not observations. These interpretations must be closely analyzed and evaluated before they are accepted and incorporated into new descriptions, analyses, and interpretations of the past" (Hart 1999:65)

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REFERENCES

Bendremer, Jeffery C. M., and Robert E. Dewar
1994 The Advent of Prehistoric Maize in New England. In *Corn and Culture in the Prehistoric New World*, edited by S. Johannessen and C.A. Hastorf, pp. 369–393. Westview Press, Boulder, Colorado.
Birch, Jennifer, Sturt W. Manning, John P. Hart, and Brita Lorentzen
2024 Evaluating the Timing of Early Village Development in New York: More Dates from Classic New York Sites. *Radiocarbon* 66:18–45.
Birch, Jennifer, Sturt W. Manning, Samantha Sanft, and Megan Anne Conger
2021 Refined Radiocarbon Chronologies for Northern Iroquoian Site Sequences: Implications for Coalescence, Conflict, and the Reception of European Goods. *American Antiquity* 86: 61–89.
Bronk Ramsey, Christopher
2009a Bayesian Analysis of Radiocarbon Dates. *Radiocarbon* 51: 337–360.

2009b Dealing with Outliers and Offsets in Radiocarbon Dating. *Radiocarbon* 51:1023–1045.
2017 Methods for Summarizing Radiocarbon Datasets. *Radiocarbon* 59:1809–1833.
Crawford, Gary W., and David G. Smith
1996 Migration in Prehistory: Princess Point and the Northern Iroquoian Case. *American Antiquity* 61 782–790.
DeNiro, Michael J
1985 Postmortem Preservation and Alteration of *in vivo* Bone Collagen Isotope Ratios in Relation to Palaeodietary Reconstruction. *Nature* 317: 806–809.
Funk, Robert E.
1993 *Archaeological Investigations in the Upper Susquehanna Valley, New York State.* Persimmon Press, Buffalo.
Hart, John P.
1999 Dating Roundtop's Domesticates: Implications for Northeastern Late Prehistory. In *Current Northeast Paleoethnobotany*, New York State Museum Bulletin 494, edited by John P. Hart, pp. 47–68. The University of the State of New York, Albany.
2000 New Dates on Classic New York State Sites: Just How Old Are Those Longhouses? *Northeast Anthropology* 60:1–22.
Kuhn, Robert D.
1994 Recent CRM Contributions to Iroquoian Archeology in New York State. *Archaeology of Eastern North America* 22: 73–88.
Laccetti, Michael F.
1965 The Round Top Site: A Postulated Early Owasco Component. *The Bulletin: Journal of the New York State Archaeological Association* 33:12–20.
Laccetti, Michael F.
1974 The Round Top Site: An Early Owasco Horticultural Stage. *The Bulletin: Journal of the New York State Archaeological Association* 62:4–26.
Lenig, Donald
1965 *The Oak Hill Horizon and its Relation to the Development of Five Nations Iroquois Culture.* Researches and Transactions of the New York State Archaeological Association, Vol. XV, No. 1. Buffalo.
Manning, Sturt W., Jennifer Birch, Megan Anne Conger, and Samantha Sanft
2020 Resolving Time Among Non-Stratified Short-Duration Contexts on a Radiocarbon Plateau: Possibilities and Challenges from the AD 1480–1630 Example and Northeastern North America. *Radiocarbon* 62: 1785–1807.
Manning, Sturt W., Brita Lorentzen, and John P. Hart
2021 Resolving Indigenous Village Occupations and Social History Across the Long Century of European Permanent Settlement in Northeastern North America: The Mohawk River Valley ~1450–1635 CE. *PLoS ONE* 16(10): e0258555
Prezzano, Susan C, and Christian B. Rieth
2001 Late Prehistoric Cultures of the Upper Susquehanna Valley. In *Archaeology of the Appalachian Highlands*, edited by, Lynne P. Sullivan and Susan C. Prezzano, pp. 168–176. University of Tennessee Press, Knoxville.
Reimer, Paula J., William E. N. Austin, Edouard Bard, Alex Bayliss, Paul G. Blackwell, Christopher Bronk Ramsey, Martin Butzin, et al.
2020 The IntCal20 Northern Hemisphere Radiocarbon Age Calibration Curve (0–55 cal kBP). *Radiocarbon* 62:725–757.
Ritchie, William A.
1969 *The Archaeology of New York State*, Revised edition. Natural History Press, New Yok.
1973 The Roundtop Site (Apl.1). In *Aboriginal Settlement Patterns in the Northeast*, by W.A. Ritchie and R. E. Funk, pp. 179–194. Memoir 20, New York Museum and Science Service. The University of the State of New York, Albany.
Ritchie, William A., and Richard S. MacNeish
1949 The Pre-Iroquoian Pottery of New York State. *American Antiquity* 15: 97–124.
Snow, Dean R.
1995 Migration in Prehistory: The Northern Iroquoian Case. *American Antiquity* 60:59–79.
Stewart, R. Michael
1990 *Prehistoric Farmers of the Susquehanna Valley, Clemson Island Culture and the St. Anthony Site.* Occasional Publications in Northeastern Anthropology, No. 13. Archaeological Services, Bethlehem, Connecticut.

Versaggi, Nina
2008 Lamoka Lake and Native American Archaeology of New York: Central New York Ancient and Early Historic Period Native American Sites. In Archaeology in America: An Encyclopedia, Volume 1, Northeast Region, edited by Francis P. McManamon, Linda S. Cordell, Kent G. Lightfoot, and George R. Miller, pp. 53–56 United States: ABC-CLIO, Santa Barbara, California.

Wall, Robert D
2022 A Review of Owasco and Clemson Island in Pennsylvania. In *The Archaeology of Native Americans in Pennsylvania*, edited by Kurt W. Carr, Christopher Bergman, Christina B. Rieth, Roger W. Moeller, and Bernard K. Means, pp. 521–552. University of Pennsylvania Press.

Weinstein, Laurie Lee
1986 Seventeenth Century Southern New England Indian Agriculture. *Bulletin of the Massachusetts Archaeological Society* 47(2):59–68.

Winter, J
1971 A Summary of Owasco and Iroquois Maize Remains. *Pennsylvania Archaeologist* 41(3):1–11.

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