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New Dates on Scioto Hopewell Sites: A SCHoN Project

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As part of a larger project, Scale and Community in Hopewell Networks (SCHoN), we submitted a series of 19 dates from seven Scioto Valley Hopewell sites. The larger project focuses on attribute analysis and source identification of copper, ceramic, and lithic artifacts. Our first batch of dates begin to shake up previous narratives on the arc of Hopewell history. Here we present raw measurements and calibrated dates with minimal commentary. Future work will delve into the meaning of these and another batch of dates yet to be submitted. We submitted our dates to the CAIS laboratory at the University of Georgia for AMS analysis.

We dated material from Ater (A3062), Harness (A7), Ginther (A1020), Tremper (A125), Brown's Bottom #1 (BB), Lady's Run (LR), and Balthaser (BH). The raw measurements their context and the material dated are presented in Table 1. The radiocarbon years range from 2160 BP to 1710 BP. All materials dated are expected to have a high degree of association with the event of interest with the possible exception of curated objects staying in circulation decades after they were originally made. Following the scoring system of Nolan (2012), these dates would all range between a score of 3.5 to 6.5. These are all above the take-at-face-value threshold of 3. It should be noted that bark was not considered in the original scheme and is here included in the small wood category when it may be more appropriate to place it in the same category as nuts and nutshell, or possibly the "plant" category, as it only represents a short period of growth.

The median calibrated dates range from BC 220 to 340 AD (Table 2; Figure 1). Calibrated dates and ranges are rounded to the nearest 5 years to emphasize the real nature of the probabilistic precision. Several details are of particular note. First, at least one object (UG28060) included in the Harness Mound was hundreds of years earlier than every other sample dated. The other two dates from Harness overlap substantially at 1 sigma. A tantalizing clue is also provided by the sole date (thus far) from Tremper (UG28064). Despite Tremper often being considered stylistically the earliest Hopewell site in the Scioto Valley, our results show this site may date to the middle third of the Hopewell episode. The two main burials at Ater (Burial 50 and 51) may not be contemporaneous. There is substantial overlap in the ranges, but the central tendencies of the two are separated by 60 years (Table 2). The current evidence is not sufficient to definitively answer the question of contemporaneity; however, the answer to this question bears on the nature of the construction of the site, but also the nature of the society that built it. Rockhold, with its thick pottery and limited decoration of ceramics (Nolan et al. 2016, 2017) ranks as the lone first century AD site in the sample.

Perhaps the most interesting thing revealed that is more fully discussed elsewhere (Pacheco et al. 2017), is the temporal relationships between Brown's Bottom and Lady's Run. Brown's Bottom averages approximately 270 AD and Lady's Run averages (excluding the obvious outlier of UG28072) 255 AD. There is an early component, possibly in the first century AD represented in the midden deposit near Lady's Run structure 1 (UG28072). For the dates that we present here, the two largest structures on Brown's Bottom (BB#1 structure and LR

structure #1) may be contemporaneous or nearly so. With the inclusion of the rest of the dates procured by Pacheco et al. (2017), some separation may be possible, but that is beyond the scope of this short treatment.

This brief summary and the data presented here cast a shadow over previous interpretations and shed some new light on change, variability, and difference during the Hopewell episode in the Scioto Valley.

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References Cited

Bronk Ramsey, Christopher
2013 OxCal v4.2.4. OxCal Online, Oxford Radiocarbon Accelerator Unit, https://c14.arch.ox.ac.uk/login/login.php?Location=%2Foxcal%2FOxCal.html, accessed 1, January, 2017.

Nolan, Kevin C.
2012 Temporal Hygiene: Problems in Cultural Chronology of the Late Prehistoric Period of the Middle Ohio River Valley. *Southeastern Archaeology* 31(2):185-206.

Nolan, Kevin C., Mark A. Hill, Mark F. Seeman, Eric Olson, Emily Butcher, Sneha Chavali, Nora Hillard, and Laure Dussubieux
2016 Scale and Community in Hopewell Networks (SCHoN): Summary of Preliminary Results. Paper to presented at *Hopewell Research in the Twenty-first Century: Ohio and Beyond*, May 13 and 14, 2016, Chillicothe, Ohio.

Nolan, Kevin C., Mark A. Hill, Mark F. Seeman, Eric Olson, Emily Butcher, Sneha Chavali, and Nora Hillard
2017 Scale and Community in Hopewell Networks (SCHoN): Summary of Preliminary Results. *Encountering Hopewell in Ohio and Beyond*, edited by B.G. Redmond, B.J. Ruby, and J. Burks, chapter 11, in preparation.

Pacheco, Paul J., Jarrod Burks, and DeeAnne Wymer
2017 Ohio Hopewell Settlements on Brown's Bottom. *Encountering Hopewell in Ohio and Beyond*, edited by B.G. Redmond, B.J. Ruby, and J. Burks, chapter 5, in preparation.

Paula J Reimer, Edouard Bard, Alex Bayliss, J Warren Beck, Paul G Blackwell, Christopher Bronk Ramsey, Caitlin E Buck, Hai Cheng, R Lawrence Edwards, Michael Friedrich, Pieter M Grootes, Thomas P Guilderson, Haflidi Haflidason, Irka Hajdas, Christine Hatté, Timothy J Heaton, Dirk L Hoffmann, Alan G Hogg, Konrad A Hughen, K Felix Kaiser, Bernd Kromer, Sturt W Manning, Mu Niu, Ron W Reimer, David A Richards, E Marian Scott, John R Southon, Richard A Staff, Christian S M Turney, Johannes van der Plicht
2013 IntCal13 and Marine13 Radiocarbon Age Calibration Curves 0–50,000 Years cal BP. *Radiocarbon* 55(4):1869-1887.

Table 1: Raw ^{14}C Measurements from SCHoN sites. [1]

UGAMS	Accession	Catalog	Context	Description	Site	$\delta^{13}C$,‰	^{14}C age years, BP	±	pMC	±
28056	3062	261	Burial 51	bark	Ater Mound	-26.03	1840	23	79.51	0.235
28057	3062	262	Burial 50	bark	Ater Mound	-30.27	1790	24	80.01	0.239
28058	7	66		charred cloth	Harness Mound	-27.68	1770	23	80.25	0.233
28059	7	65		charred fiber	Harness Mound	-26.93	1720	22	80.7	0.23
28060	7	68	Grave	woven fabric	Harness Mound	-23.92	2160	23	76.43	0.228
28061	1020	7	Beneath a copper plate	bark	Rockhold Mound 1	-26.08	1990	23	78.02	0.23
28062	1020	22	Above stone slabs in mound	bear teeth (bioapatite)	Rockhold Mound 2	-13.67	1930	24	78.61	0.242
28063	1020	10	1	charred acorns (?)	Rockhold Mound 1	-23.18	1930	23	78.63	0.231
28064	125	179	1	woven cloth, fabric	Tremper	-23.18	1880	23	79.09	0.234
28065	BB	252	F167	Juglandaceae shell	Brown's Bottom	-22.58	1820	23	79.76	0.231
28066	BB	37	F35	*J. nigra* shell	Brown's Bottom	-26.36	1760	23	80.36	0.234
28067	BB	291	F196	Tuber fragment	Brown's Bottom	-24.69	1780	23	80.15	0.234
28068	BB	396	F237	Hickory nutshell	Brown's Bottom	-23.93	1710	23	80.84	0.24
28069	LR	461	F358	Hazelnut	Lady's Run	-25.13	1720	23	80.75	0.239
28070	LR	185	F421	Black walnut shell	Lady's Run	-25.14	1810	24	79.86	0.24
28071	LR	907	F547	Acorn cap	Lady's Run	-24.53	1790	23	79.98	0.235
28072	LR	899	F727	Butternut shell	Lady's Run	-25.88	1910	23	78.79	0.234
28073	BH	377	F87	16 chenopodium seeds	Balthaser	-25.77	1860	24	79.34	0.239
28074	BH	181	F14	16 chenopodium seeds	Balthaser	-27.09	1790	23	80.01	0.236

[1] Accession numbers are from Ohio History Connection, letter abbreviations are materials from the Geneseo/Bloomsburg excavation project (Pacheco et al. 2017); pMC = percent modern carbon.

Table 2: Calibrated Dates from SCHoN sites. Note dates rounded to the nearest 5 yrs.

Name	from	to	%	from	to	%	mean	sigma	median
R_Date UG28056 (3062-261)	130	215	68.2	90	240	95.4	175	35	175
R_Date UG28057 (3062-262)	170	325	68.2	135	330	95.4	235	50	235
R_Date UG28058 (7-66)	235	325	68.2	145	345	95.4	275	40	280
R_Date UG28059 (7-65)	255	385	68.2	250	390	95.4	320	40	325
R_Date UG28060 (7-68)	-350	-170	68.2	-360	-110	95.3	-250	75	-220
R_Date UG28061 (1020-7)	-40	55	68.2	-45	60	95.4	10	30	10
R_Date UG28062 (1020-22)	30	125	68.2	20	130	95.4	75	30	70
R_Date UG28063 (1020-10)	50	120	68.2	20	130	95.4	75	30	70
R_Date UG28064 (125-179)	75	140	68.2	70	215	95.4	125	40	120
R_Date UG28065 (BB-252)	135	235	68.3	125	250	95.4	190	40	190
R_Date UG28066 (BB-37)	240	325	68.2	215	350	95.4	285	35	290
R_Date UG28067 (BB-291)	220	325	68.2	140	335	95.4	260	50	255
R_Date UG28068 (BB-396)	260	385	68.2	250	395	95.4	330	40	340
R_Date UG28069 (LR-461)	255	385	68.2	250	390	95.4	320	40	325
R_Date UG28070 (LR-185)	140	245	68.2	130	320	95.4	200	45	200
R_Date UG28071 (LR-907)	175	325	68.2	135	330	95.4	235	50	235
R_Date UG28072 (LR-899)	70	125	68.2	25	135	95.4	95	25	95
R_Date UG28073 (BH-377)	90	215	68.2	80	225	95.4	155	40	155
R_Date UG28074 (BH-181)	175	325	68.2	135	330	95.4	235	50	235

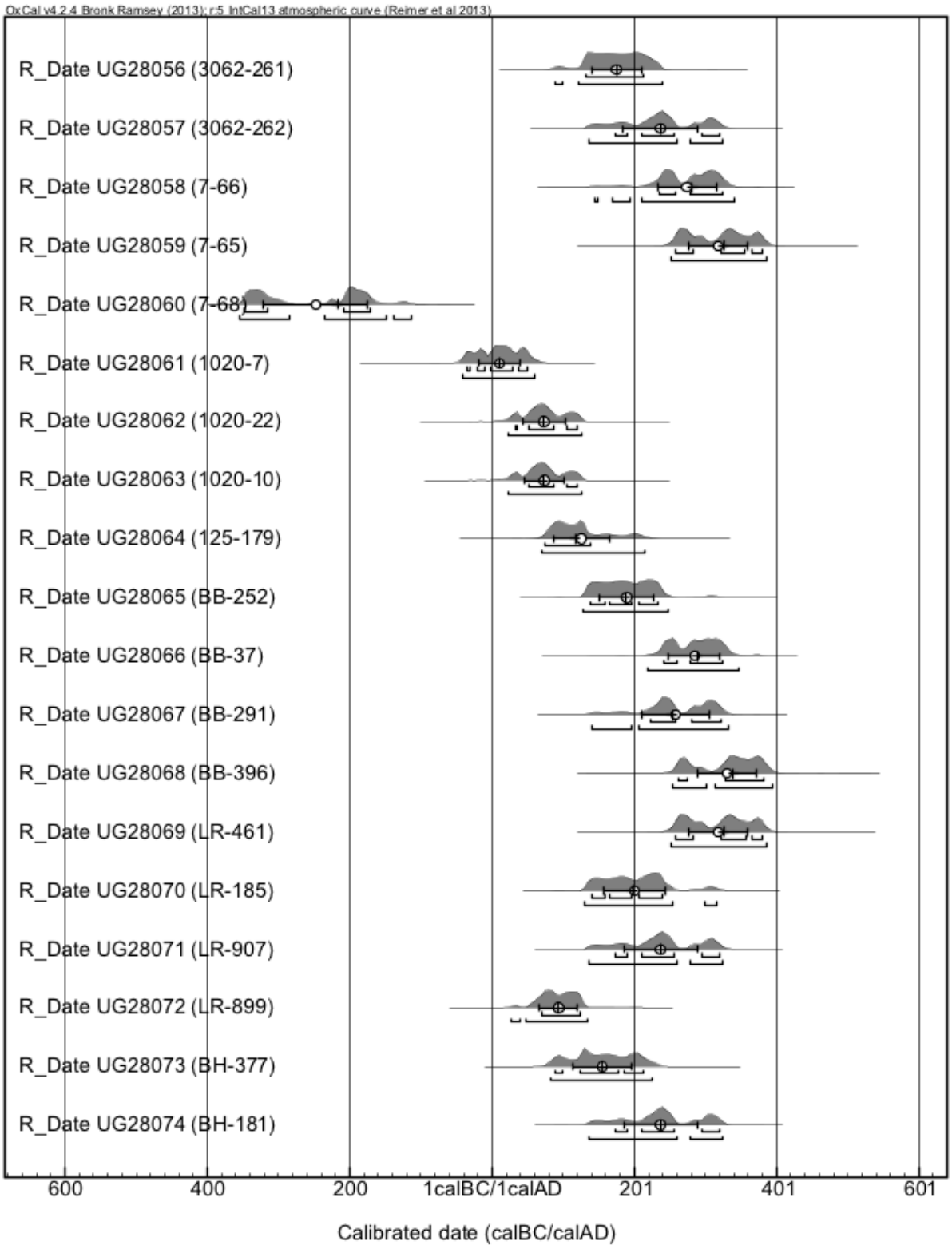

Figure 1: Calibrated Probability Distributions