Food Economies and Cuisine on the Mamluk Imperial Periphery: A Case-Study from Dhiban, Jordan

Interim Report

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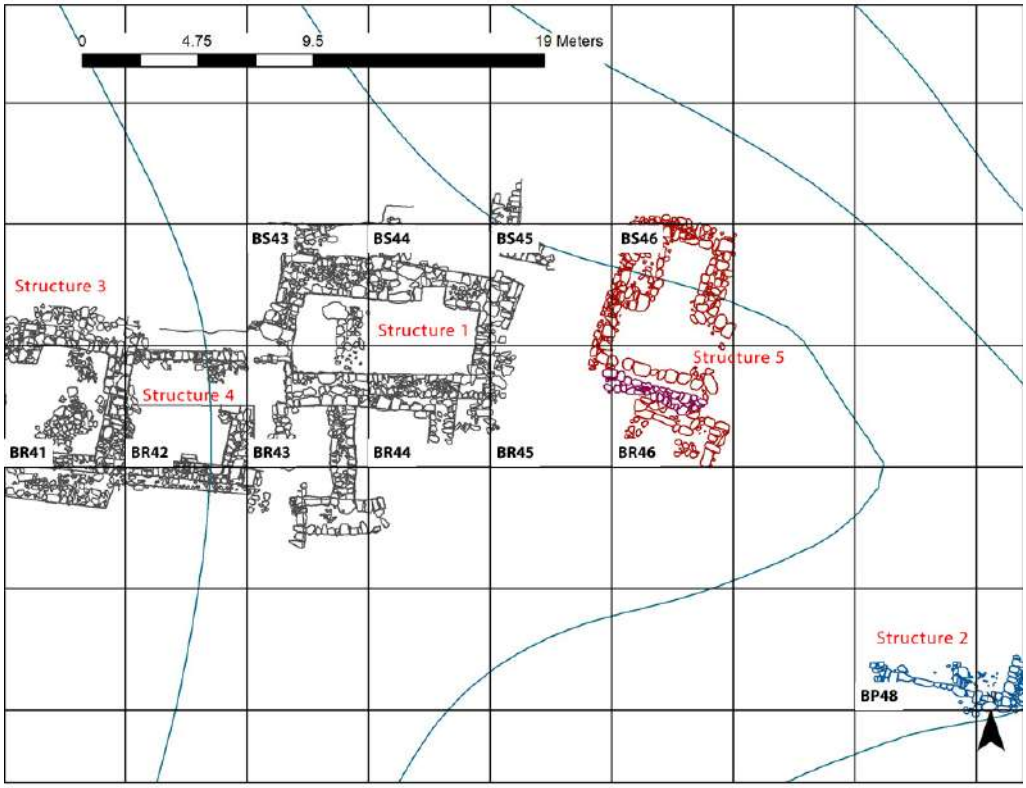
The Dhiban Project has made excellent progress on the research supporting this grant, although more analysis is required in order to complete our planned publications and conference papers. This brief interim report describes the progress that PI Porter and co-PIs Alan Farahani and Hannah Lau have so far achieved. The report concludes with a brief discussion on the next steps of our work.

Radiocarbon Dating Analysis

Fourteen archaeological remains of annual plant species (bread wheat, two-row barley, grape, and vetch) were submitted for radiocarbon analysis. The contexts chosen represented deposits from within five different structures (shown in the image below), which previous radiocarbon analysis as well as diagnostic ceramic evidence suggested dated to the Middle Islamic period, and more specifically, the period of Mamluk rule. Deposits from two structures (3 and 4) for which we did not previously have dates were dated at the University of California, Irvine.



Structure:	1	2	3	4	5
Number of new dates: 6	3	2	1	2	
Total dates: 20	5	2	1	3	

The results of the radiocarbon analysis show that the majority of the new dates (8 out of 14) date to the Middle Islamic Period, with six dating to the period of hypothesized Mamluk economic revitalization (i.e., the 14th century). With these new results, the total number of absolutely dated contexts at Dhiban is 31, which is one of the largest for the region and for this period. Moreover, this dating "campaign" has revealed that it is possible to distinguish contexts dating to the early (1265 – 1300), middle (1300 – 1400), and late (1400-1500) periods of Mamluk rule using absolute dating methods.

Number of dates from each structure dating to a particular time period:

Date (cal CE)	***Structure: 1***	**2**	**3**	**4**	**5**	**TOTAL**
1150 – 1265 (Ayyubid)	1	2			2	5
1265 – 1300 (Early Mamluk)	3		1			4
1280 – 1350 (Early Mamluk Transitional)	1					1
1300 – 1400 (Mamluk "Boom")	6	1	1	1		9
1400 – 1500 (Late Mamluk)					1	1

Nevertheless, the radiocarbon results have revealed more complexity in the chronology of the Mamluk period at Dhiban than previously anticipated. First, the radiocarbon dates from the Barrel Vaulted Room (Structure 1, see below) that contains the best preserved stratigraphic sequence of floors suggest that there was significant incorporation of material from elsewhere on the site dating to earlier periods of time.

In some phases (especially 2B and 2C), the Middle Islamic period builders re-used deposits that contained plant remains dating to the Nabataean / Roman, late Roman, Byzantine, Abbasid, and Crusader periods. Still, half of the dates from this structure date to the Mamluk period specifically – therefore the evidence strongly suggests that this is a Mamluk era building, most intensively used during the 14th century.

Structure 1 (Barrel Vaulted Room) phasing vis-à-vis the radiocarbon results:

Phasing	Mamluk "Boom"	Early Mamluk	Ayyubid	Crusader	Abbasid	Byzantine	Late Roman
2A					1		
2B	2		1	1			
2C	1	1			1		1
2D	2	1				1	
2E	2			1			

Archaeobotanical Analysis

The results of the radiocarbon dating campaign have, as a result, modified our approach to the study of the archaeological plant remains recovered from these contexts. For instance, it is clear that the presence of archaeological plant remains in these Mamluk contexts *does not* indicate the specific date of that plant remain. For example, all four of the dated grape seeds were deposited before the Mamluk period even though they are found in "Mamluk contexts." This suggests that grape was not an important commodity for the Mamluk period inhabitants of Dhiban, even though it certainly was so in earlier time periods as the radiocarbon results suggest.

Moving forward, we will select those contexts for archaeobotanical analysis and re-analysis that have consistently yielded Mamluk period dates, which, unfortunately reduces the sample size and limits to some extent what can be said about agropastoral economies during this period. At the same time, it bolsters our confidence in the interpretation of these contexts and their broader significance for piecing together the Mamluk-period agricultural economy, as they have been definitively and repeatedly dated to that time.

Zooarchaeological Analysis

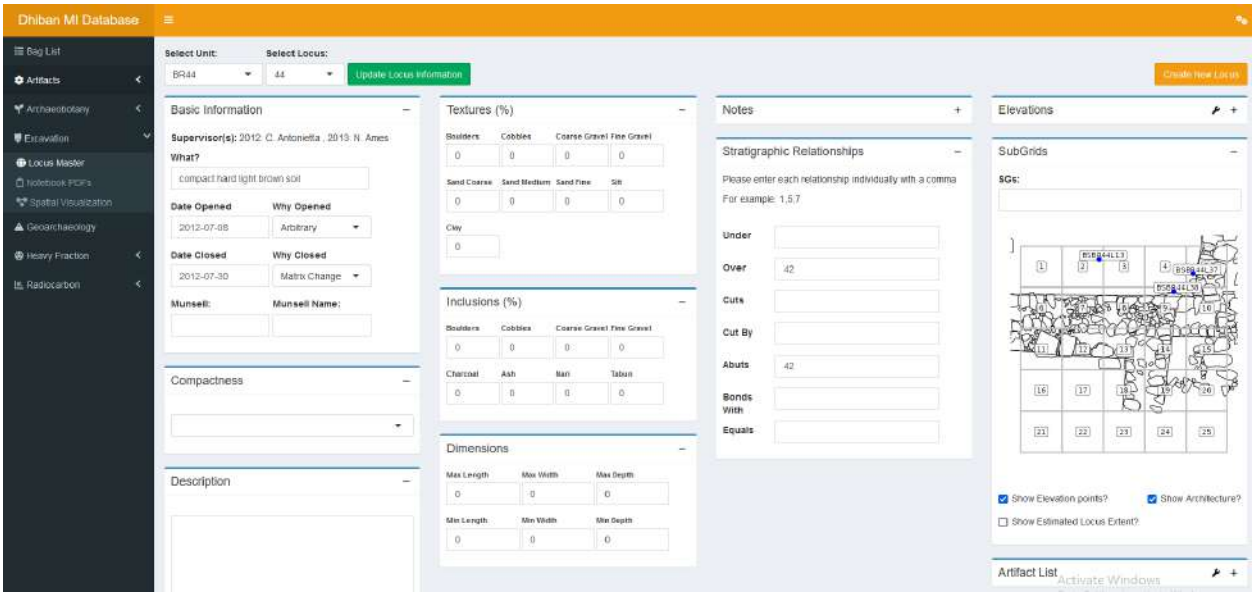
The complex and surprising results of the radiocarbon dating campaign is also guiding how we approach the analysis of recovered faunal evidence. Every effort is being made to limit analysis to deposits that radiocarbon analysis dates to the Middle Islamic period. Each individual bone is assessed and then compared to modern animal skeletons to determine what types of animals they come from. Lau and her students have also sorted through a large amount of heavy fraction to ensure that all microfauna is included in this assessment.

Preliminary analyses indicate that pastoralists living in Dhiban during the Mamluk Period herded sheep, goat, and cattle, with sheep found twice as frequently as goats. Commensal animals, who are drawn to human settlements either as domestic animals who functioned as companions or as pests, are also found within the assemblage. These include the remains of a partially complete dog burial and mice and frogs, which are drawn to the disturbed areas around buildings, and, in the case of mice, to the stored food within. Only a single remain of a pig has been identified. This is notable as pigs comprised a considerably large part of the assemblage in the earlier Byzantine occupation at the site.

Project Database Design

The three investigators working on this project reside in different regions of the United States, therefore making it necessary to have a database and interface available to support ongoing analyses, which is now hosted online at https://sciscope.shinyapps.io/dhiban/ (a login is required). All major kinds of archaeological evidence are entered and queried through this "portal", freely shared among project participants, including artifacts, archaeobotanical remains, and radiocarbon results, to name a few. This database system has streamlined our data recording and facilitated a more efficient and less error-prone entry of information than using spreadsheets alone.

Here is an example of the entry and access system used to organize the stratigraphic and architectural information related to each of the Mamluk period contexts:



At the conclusion of this project, a public-facing portal will be created to allow researchers to access these data.

Upcoming Efforts Toward Completing the Research

Over the next twelve months, the project investigators will 1) complete the analysis of faunal evidence; 2) radiocarbon date ten faunal bones to cross-reference their results with those from archaeobotanical samples; and 3) complete the phasing of the Middle Islamic-era buildings.

The project investigators will soon present their research at professional conferences. One paper will be presented this April at the Society for American Archaeology's annual conference in New Orleans. A second paper will be presented in November at the American Schools of Overseas Research (ASOR)'s annual meeting in Boston. A third paper is projected to be delivered in 2025 at the 14th International Congress on the Archaeology of the Ancient Near East in Prague.

The team is also now preparing its first manuscript describing the results of the radiocarbon analysis of plant remains that will be submitted to the journal *Radiocarbon*. A second manuscript describing the results of the archaeobotanical and faunal analysis will be prepared in Spring 2025 and submitted to a yet-to-be-identified journal. A third manuscript exploring the cuisine practices of Dhiban's Middle Islamic community will be prepared around the same time and submitted to the *Journal of Islamic Archaeology*.

Conclusion

We are both pleased and surprised with the discoveries we have so far made. We wish to thank the Fondation Max Van Berchem for their support. We look forward to sharing our final report with the Fondation in 2025.