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RESUMO DE TESES E DISSERTAÇÕES

LATE ARCHAIC HUNTER-GATHERER LITHIC TECHNOLOGY AND FUNCTION (CHIPPED STONE, GROUND STONE, AND FIRE-CRACKED ROCK): A STUDY OF DOMESTIC LIFE, FOODWAYS, AND SEASONAL MOBILITY ON GRAND ISLAND IN MICHIGAN'S UPPER PENINSULA[1]

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This doctoral research highlights the complicated trajectories of hunter-gatherers by offering a case study from an understudied but rich hunter-gatherer landscape, the Late Archaic period (c. 5,000-2,000 BP) on Grand Island in Michigan's Upper Peninsula, United States. Although there is a paucity of Late Archaic period archaeological data from the mainland of the Upper Peninsula, recent excavations by the Grand Island Archaeological Program (GIAP), directed by James M. Skibo (Illinois State University) and co-directed by Eric C. Drake (Hiawatha National Forest), have yielded a sizable body of evidence of Late Archaic occupations on Grand Island. I have been a staff member and collaborator with GIAP since 2007, conducting research, laboratory work, and co-directing excavations. My analysis of 39,186 lithics from five sites on the island more than doubles the current number of c. 32,000 lithics analyzed in the entire southern shore of Lake Superior in Michigan's Upper Peninsula from dated Late Archaic sites. Similarly, the 495 faunal remains identified and analyzed by Terrance Martin and Elizabeth Scott for this dissertation also more than doubles the total 296 pieces of animal bones analyzed from dated Late Archaic sites of the Upper Peninsula. In addition, in contrast to those sites, where no complete and finished projectile points have been recovered in context, GIAP have identified a total of five projectile points. These points may contribute to data on diagnostic artifact types in the Upper Peninsula, which is currently almost non-existent, and to our general understanding of exchange practices and social interactions.

In order to investigate how people made decisions related to domestic life, foodways, technology, settlement patterns, seasonal mobility, and landscape interactions on Grand Island, my study integrated multiple lines of evidence — chipped stone, ground stone, fire-cracked rock, artifact spatial distribution analysis, faunal, floral, and lipid residue analyses — to portray a thorough picture of ancient daily life in the region. The primary research objective was focused on identifying domestic life and mobility practices on Grand Island during the Late Archaic period and understanding

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how these patterns may reflect the strategies of local communities. In particular, this dissertation explored whether hunter-gatherer groups occupied Grand Island on a seasonal basis, while spending most of the year on the mainland, and explored evidence for cooking activities at various sites in order to investigate the subsistence practices of Late Archaic communities on Grand Island.

There, fire-cracked rocks are a class of lithic artifacts found in abundance. Although fire-cracked rocks dominate the Late Archaic assemblage on Grand Island and are found in great quantities at hunter-gatherer and prehistoric sites around the world, they remain an understudied analytical artifact type. Fire-cracked rock (FCR) is a byproduct of the use of stone for short-term heat storage or transference. Accordingly, the anthropogenic use of hot rocks for storing heat provides information on the human behaviors and systemic hot-rock activities that created FCR. Fire-cracked rocks are frequently recovered in context with cooking or heating facility features. Therefore, because organic remains are poorly preserved in the region, fire-cracked rocks were key to investigating ancient diets, as well as how foods were processed and cooked. I conducted FCR experiments and developed a methodology to analyze FCRs with the goal of identifying the general signatures of various thermal alteration patterns. My study made use of a detailed analysis of these artifacts, offering a methodological framework for both identifying them and evaluating their potential functions in various cultural practices. Such a methodology can be applied in numerous contexts worldwide where similar lithic materials have been found in large quantities.

The connection between broad, long-term trajectories of sociocultural experiences and transformations, and the small-scale practices that characterize everyday life can best be understood through a multiscalar approach. In this dissertation, intra-site studies encompassed the small-scales of analyses, while the inter-site comparisons between the studied sites on Grand Island and those previously investigated in the Upper Peninsula represented a large-scale analysis (i.e., local and regional scales). To interpret the evidence, I utilize seasonal mobility models for the Saginaw Valley during the Late Archaic period, the Terminal Woodland peoples of the Mackinac Phase (c. AD 750-1,000), and the Ojibwa of the proceeding Historic period (c. AD 1600s-1900s) living in the Mackinac region. The models propose that people seasonally aggregated during the fall to communally process foods in relatively large scales, in order to produce food surpluses for winter consumption. Other seasons were characterized by the dispersal of small groups throughout the landscape. I identified archaeological signatures that can best be explained to have resulted from fall seasonal aggregation sites (e.g., site size, food processing settlements). The dense accumulations of thermally-altered stones and FCRs, associated with food processing tools and some traces of the foods themselves, were the primary byproducts of food production during repeated short-term seasonal occupations on Grand Island.

The results of my lithic analysis indicate heavy re-utilization and recycling of the artifacts for different activities, as well as great inter-site variability among FCR characteristics, cooking methods, and cooking facilities (earth oven, stone boiling, and rock griddle) at the studied sites. However, people appear to have continued to use the same cooking facilities at each site through time, with similar cooking practices (roasting/drying, smoking, baking, or boiling), further demonstrating the strength of foodways to persist across generations. The evidence indicates that hunting, fishing, food gathering, and their subsequent laborious processing and cooking were recurring socioeconomic activities undertaken on Grand Island. I suggest then that Grand Island represented an important place in the landscape for Late Archaic peoples who repeatedly utilized the island for seasonal social aggregations during the fall to process

foods communally in larger scales. These foods were potentially stored for the winter, a period of resource scarcity. I further suggest that the evidence for the development of larger-scale food processing and production on Grand Island during the fall signifies increased labor and cooperative requirements, leading to increased socioeconomic complexity, interaction, and organization when compared to the preceding Middle Archaic period (c. 8,000-5,000 BP). Thus, social organizations might have gradually resulted in shifts towards greater inter-group cooperation through the strengthening of affinal relationships.

In addressing Late Archaic societies of this region, this dissertation contributes to the research of Late Archaic lithic technology on Grand Island with methods that are applicable to the study of chipped stone, ground stone, and hot-rock technologies of hunter-gatherer peoples worldwide. This study also offers a starting point to explaining how human agency shaped the Late Archaic period, i.e., building relationships and resulting in decisions made within the physical and cultural landscapes, which produced the archaeological record. My dissertation demonstrate that peoples' interactions with the heated stones left behind abundant and discernible use-alteration patterns. Therefore, a detailed analysis of hot-rock technology allows researchers to better understand ancient behaviors and decisions associated with domestic life. The larger goal of this study is to contribute to a new appreciation of FCR beyond current approaches that are often limited to basic quantification or presence/absence reporting. The recontextualization of FCR proposed in this dissertation could lead scholars investigating hunter-gatherer and prehistoric sites worldwide to a better understanding of the ancient diets and behaviors associated with food production and site formation processes.

Keywords: Late Archaic hunter-gatherers; Lithic analysis; Fire-cracked rock.