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Site Structure and Organization in Central Alaska: Archaeological Investigations at Gerstle River

Abstract:

This dissertation presents a multi-dimensional analysis of site structure and organization at a multi-component deeply buried stratified site in the Tanana Basin of Interior Alaska, Gerstle River. The primary objective of this research is to investigate patterning among the lithics, fauna, features, stratigraphy, and radiometric dating, within and among components and intra-component hierarchical spatial aggregates. These analyses are situated within and are explored in terms of technological and spatial organization.

Given the longevity of microblade technology (12100 BP to ~1000 BP) and its presence in very different climatic and biotic regimes, understanding how microblades were used within a technological system and possible variations in microblade use could be useful in understanding technological change during the Pleistocene-Holocene transition and later Holocene times. This research analyzes microblades and other lithic classes at a number of levels (e.g., attribute, artifact, raw material, modification type, cluster, area, component, and site).

Results show a number of organizational properties used by Early Holocene populations at Gerstle River, providing a dataset useful for testing future models derived from experimental, ethnoarchaeological, and other middle range approaches. Patterns of technology and technological organization are more highly resolved when incorporating spatial analyses. Microblade technology is shown to be structurally complex, used for a variety of purposes and reflecting different stages of production and different modes of use and disposal, including microblade production, replacement, discard, and use.

Inferences about faunal procurement, subsistence, transport decisions, settlement patterns, and economy are made through a multidimensional faunal analysis. Non-human factors were not major agents in the formation of the assemblages. A spatial model of faunal processing indicates how space was used in processing multiple individuals of wapiti and bison.

Contextual data from lithic technology, faunal remains, features, radiocarbon dating, and spatial relationships are used to model several dimensions of organization observed at Gerstle River, including site activities, technological organization, disposal modes, organization of space, redundancy, storage, seasonality, location, group size and social structure, economy, and settlement system.